

5.2

*IBM Db2 High Performance Unload for
z/OS
User's Guide*



Note:

Before using this information and the product it supports, read the "Notices" topic at the end of this information.

Subsequent editions of this PDF will not be delivered in IBM Publications Center. Always download the latest edition from the [Db2 Tools Product Documentation page](#).

This edition applies to Version 5 Release 2 of Db2 High Performance Unload for z/OS (product number 5655-HP5) and to all subsequent releases and modifications until otherwise indicated in new editions.

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About this information

IBM Db2® High Performance Unload for z/OS® (Db2 HPU) is a high-speed Db2 utility that unloads Db2 tables from either a table space or from an image copy. This book describes how to customize and use Db2 HPU (in batch and interactively), and includes a description of the messages that Db2 HPU issues.

The following topics are covered in this book:

- Introduction to Db2 HPU functions and states its requirements.
- Description of authorization and configuration of Db2 HPU after installation.
- Description of input to and output from Db2 HPU.
- Description of how to use Db2 HPU in batch mode.
- Description of how to use Db2 HPU interactively.
- Description of the Db2 HPU user exit. You can use this exit to customize your output.
- Description of the user abend codes and messages that are issued by Db2 HPU.
- Description of the use of the TYPE keyword in the SELECT statement.
- Examples of Db2 HPU jobs.
- Syntax of Fast Unload that is compatible with the syntax of Db2 HPU.
- Syntax of UNLOAD PLUS that is compatible with the syntax of Db2 HPU.
- Licensing and trademark information.
- List of related publications and of publications referenced in this book.

The technical changes for this edition are summarized in the Summary of Changes topic. Specific changes since the previous edition of this book are indicated by a vertical bar (|) to the left of a change. Editorial changes that have no technical significance are not noted.

Always check the Db2 Tools Product Documentation page for the most current version of this information:

<http://www.ibm.com/software/data/db2imstools/db2tools-library.html>

Chapter 1. Db2 High Performance Unload overview

IBM Db2 High Performance Unload (Db2 HPU) is a high-speed Db2 utility for unloading Db2 tables from either a table space or from an image copy. Tables are unloaded to one or more files based on a format that you specify.

Topics:

- [“What does Db2 HPU do?” on page 1](#)
- [“Utilities management solutions” on page 12](#)
- [“Db2 HPU benefits” on page 2](#)
- [“Db2 HPU compatibility” on page 6](#)
- [“Maximizing performance” on page 7](#)
- [“Db2 HPU process and components” on page 2](#)
- [“Db2 HPU terminology” on page 7](#)
- [“Hardware and software requirements” on page 7](#)
- [“Db2 HPU documentation and updates” on page 13](#)
- [“Accessibility features” on page 14](#)

What does Db2 HPU do?

Db2 HPU helps you manage and control the unload activity. Db2 HPU can retrieve the data to unload without heavy SQL processing by directly accessing the VSAM or from image copy data sets.

Db2 HPU also provides superior performance, especially in terms of CPU time and elapsed time. Unless you need to process a complex SQL statement, Db2 HPU typically maximizes performance by reducing processor usage and improves availability by keeping data unavailable for a shorter time. Db2 HPU also reduces the regular CPU time it consumes by offloading a significant part of its code to the zIIP processors.

Db2 HPU offer the following main features and capabilities:

- Unload selected rows and columns
- Unload against any image copy to eliminate interference with Db2 production databases
- Generation of load control statements for subsequent reload
- Processing of multiple Db2 objects defined by lists as a single step
- Wide range of very versatile and adjustable formatting capabilities
- Various capabilities to unload LOB and XML data
- Creation of output in multiple formats during a single unload
- Allocation of output dataset based on templates
- Extract samples without any WHERE clause by sampling rows and/or limiting the number of row
- Inspection, modification or discarding of unloaded rows by using the Db2 HPU user exit
- Fast unload of table spaces
- Parallel processing of several unloads involving the same table space
- Support of other unload tools controls cards (syntax compatibility).
- Options compatible with almost all of the features of other unload tools (feature compatibility)

Db2 HPU benefits

By using Db2 HPU, you can alleviate some of the problems that are associated with unloading large amounts of data.

Large sequential reads of Db2 tables take a long time. Because the large amount of time that large sequential reads of Db2 tables take, the large scans that are required for unload are hard to schedule in the ever-shrinking batch window at Db2 installations.

Performance becomes critical when several unloads read the same table space concurrently. The associated Db2 buffer pool management can cause multiple programs to compete for the same data. This competition between multiple programs can result in the following challenges:

- Conflicts in the use of the Db2 buffer pool.
- Writing over buffers that might be serving several unloads.
- Multiple reads of the same Db2 pages.
- Potential channel conflicts.

Db2 HPU relieves these problems. It provides a fast way to sequentially read and share a Db2 table space among multiple unloads. Db2 HPU scans a table space and creates the number of output files that you specify, in the format that you can choose among a wide list of output format among which the main formats below:

- DSNTIAUL compatible.
- VARIABLE, which lets you quickly create variable-length records.
- DELIMITED, which lets you quickly create a delimited file that you can export to another platform.
- USER, which lets you specify virtually any type of conversion so that your output appears as you want it.
- EXTERNAL, which lets you quickly create fixed length human-readable formatted files.
- INTERNAL, compatible with the INTERNAL format in the Db2 LOAD utility.
- XML, which lets you unload data as XML data.

that can be modified by a lot of formatting options that allow to meet almost any requirement in terms of format.

Whenever possible, Db2 HPU processes requests to unload data from the same table space in parallel. You can create different output files during the same unload process at almost no additional cost. For example, you can unload a list of customers who have payments due this week and another list of customers whose birthdays are on the first day of the week. You can create these lists in a single execution of Db2 HPU at a fraction of the cost that is required by traditional dual unload executions.

You can also run Db2 HPU against image copies of the table space, avoiding interference with Db2 production databases. With Db2 HPU, you can also take benefit from the zIIP processors as a large part of the Db2 HPU code can be offloaded to zIIP processors.

Db2 HPU process and components

Db2 HPU is a batch utility program that is used to unload Db2 data.

Db2 HPU utility is invoked with an UNLOAD command and an optional SELECT statement. The SELECT statement syntax is compatible with the Db2 SQL SELECT statement syntax.

By optimizing sequential reads of the table space, Db2 HPU reduces both the elapsed time and the CPU time that is required to process the unloads.

Db2 HPU contains the following components:

- Tools Customizer. You use this component to customize Db2 HPU.
- Db2 HPU interactive component. You can use this component to generate the Db2 HPU batch utility job. Using this component is not mandatory. It is especially meant to help inexperienced users generate typical batch utility jobs.

Related concepts

[Tools Customizer overview](#)

IBM Tools Customizer for z/OS (also referred to as Tools Customizer) standardizes many of the customization processes that are required to customize IBM Tools that run on z/OS.

[Db2 HPU interactive component](#)

The Db2 HPU interactive component can be used to generate the Db2 HPU batch utility job. Although using the interactive application is not required, it can be useful for inexperienced users in generating the batch utility job.

[Db2 HPU batch mode operation](#)

You use the Db2 HPU batch utility program to unload Db2 data.

Tools Customizer overview

IBM Tools Customizer for z/OS (also referred to as Tools Customizer) standardizes many of the customization processes that are required to customize IBM Tools that run on z/OS.

Tools Customizer provides a consistent ISPF interface to ensure that the customization process is the same for all IBM Tools products and solution pack components. It also provides the ability to "discover" parameter values from products or solution pack components that you previously customized manually or by using Tools Customizer.

Features and benefits

Tools Customizer provides the following features:

- A single, consistent ISPF interface ensures that the customization process is the same for all IBM Tools products and solution pack components.
- A Discover EXEC discovers values for common product, LPAR, and Db2 parameters from a product or solution pack component that you previously customized manually or by using Tools Customizer. Each IBM Tools product and solution pack component has a unique Discover EXEC. The discovered parameters are stored in the data store. If the product or solution pack component that you want to customize exists in the Tools Customizer data store, Tools Customizer issues a warning before it overwrites existing values. Use the Discover EXEC by issuing the DISCOVER command on the **Customizer Workplace** panel.
- The data store retains discovered and manually specified parameter values. Because the parameter information is persistently stored, you have to manually specify or discover parameter values only once. Tools Customizer uses these parameter values where they are applicable.
- A metadata repository contains the members that define the following customization attributes for products and solution pack components:
 - Parameters, tasks, and steps for the product or solution pack component to be customized. Some product or solution pack parameters, tasks, and steps are required.
 - LPAR parameters for the local LPAR. All of the LPAR parameters are required.
 - Db2 parameters for the Db2 subsystem, Db2 group attach name, or Db2 data sharing member on which you will customize the product or solution pack component. All of the Db2 parameters are required.
- Default values are provided for product parameters and solution pack component parameters, LPAR parameters, and Db2 parameters. The default values show examples of how to complete fields.

What's new in Tools Customizer

This topic summarizes the technical changes for this edition. New and changed information is denoted either by a character in the left margin or by blue carets (Symbol that indicates the start of new or changed content) and (Symbol that indicates the end of new or changed content) at the beginning and end of the new or changed information. Editorial changes that have no technical significance are not noted.

- Using the VERIFY/VERIFYOFF command, you can turn on and off parameter verification of product or component parameters.
- Options can be displayed or hidden on certain panels. For more information, see [“Changing display options”](#) on page 35.
- You can now specify specific volumes in which to contain the customization library data set, the discover output data set, and the data store data set.
- You can sort and filter data in panels by column. For more information, see [“Sorting and filtering columns”](#) on page 36.
- Tools Customizer in a multi-LPAR environment is now supported.
- You can now specify the customization library on the **Workplace** panel.
- Version and Name columns were added to the **CCQPHLQ** panel where the name field is the name of a product or pack you previously worked with and the version field is the version of the product or pack you previously worked with.

Service updates and support information

Service updates and support information for this product, including software fix packs, PTFs, frequently asked questions (FAQs), technical notes, troubleshooting information, and downloads, are available from the web.

To find service updates and support information, see the following website:

http://www.ibm.com/support/entry/portal/Overview/Software/Information_Management/DB2_Tools_for_z~OS

Product documentation and updates

Db2 Tools information is available at multiple places on the web. You can receive updates to Db2 Tools information automatically by registering with the IBM My Notifications service.

Information on the web

The most current version of this information is available on IBM Knowledge Center:

<http://www.ibm.com/support/knowledgecenter>

A PDF version of this information is available on the Db2 Tools Product Documentation web page; however, IBM Knowledge Center is updated more frequently than PDF books. The Db2 Tools Product Documentation web page is located at:

<http://www.ibm.com/support/docview.wss?uid=swg27020910>

IBM Redbooks® publications that cover Db2 Tools are available from the following web page:

<http://www.redbooks.ibm.com>

The IBM Information Management System website shows how IT organizations can maximize their investment in Db2 databases while staying ahead of today's top data management challenges:

<https://www.ibm.com/analytics/us/en/db2/db2-for-zos/>

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1. Go to <http://www.ibm.com/support/mysupport>

2. Enter your IBM ID and password, or create one by clicking **register now**.
3. When the My Notifications page is displayed, click **Subscribe** to select those products that you want to receive information updates about. The Db2 Tools option is located under **Software > Information Management**.
4. Click **Continue** to specify the types of updates that you want to receive.
5. Click **Submit** to save your profile.

How to send your comments

Your feedback is important in helping to provide the most accurate and high-quality information. If you have any comments about this book or any other IBM product documentation, use one of the following options:

- Use the IBM Knowledge Center **Contact Us** link.
- Use the online reader comment form, which is located at <http://www.ibm.com/software/data/rcf/>.
- Send your comments by email to comments@us.ibm.com. Include the name of the book, the part number of the book, the version of the product that you are using, and, if applicable, the specific location of the text you are commenting on, for example, a page number or table number.

Accessibility features

Accessibility features help a user who has a physical disability, such as restricted mobility or limited vision, to use a software product successfully.

The major accessibility features in this product enable users to perform the following activities:

- Use assistive technologies such as screen readers and screen magnifier software. Consult the assistive technology documentation for specific information when using it to access z/OS interfaces.
- Customize display attributes such as color, contrast, and font size.
- Operate specific or equivalent features by using only the keyboard. Refer to the following publications for information about accessing ISPF interfaces:
 - *z/OS ISPF User's Guide, Volume 1*
 - *z/OS TSO/E Primer*
 - *z/OS TSO/E User's Guide*

These guides describe how to use the ISPF interface, including the use of keyboard shortcuts or function keys (PF keys), include the default settings for the PF keys, and explain how to modify their functions.

Db2 HPU and Db2 Tools products scenarios

You can use Db2 HPU with some IBM Db2 Tools to quickly unload data.

The following scenarios show how Db2 HPU can enhance the functionality of other Db2 Tools:

Db2 HPU and IBM Db2 Administration Tool for z/OS

Db2 Administration Tool helps you manage Db2 environments efficiently and effectively. When you use the Db2 Admin Alter ALT and Migrate functions, you can use Db2 HPU within a work statement list. Additionally, when you use an ALTER table space redefine against a single table space, you can use Db2 HPU as the unload method.

Db2 HPU and IBM Db2 Object Comparison Tool for z/OS

Db2 Object Comparison Tool compares two sets of Db2 objects. With it, you can compare Db2 objects by creating a batch job in which you specify all aspects of the comparison. When you specify the method for unloading data, you can use Db2 HPU, if it is available.

Db2 HPU and IBM Db2 Object Restore for z/OS

Db2 Object Restore can restore dropped objects and all related dependencies automatically, even if they do not exist in the Db2 catalog. When Db2 Object Restore is configured to access the Db2 HPU product libraries, you can use Db2 HPU to help recover a single table from an image copy data set.

Db2 HPU compared to the Db2 UNLOAD utility

Db2 HPU can perform unloads that handle the same input and generate the same output as the Db2 UNLOAD utility either by exploiting genuine Db2 UNLOAD utility control cards or using the Db2 HPU native ones.

By using Db2 HPU you can also take benefit from the following advantages.

Better performance

For most of the use cases, Db2 HPU requires less CPU time and can help divide the CPU time consumption by up to 3.

SQL support for versatile and accurate data selection

Db2 HPU allows you to select the data to unload through any SQL SELECT statement.

Join operations

By using a SELECT statement, you unload data resulting from join operations while the Db2 UNLOAD utility can only unload data from a single table space.

Multiple output formats

You can create output in multiple formats, such as DSNTIAUL, DELIMITED, VARIABLE, USER, EXTERNAL, INTERNAL and XML that can adjust with formatting options to create the very format you need.

User exit

You can use the Db2 HPU user exit to customize the output data set that is created by a SELECT statement. By using the exit, you can examine, modify, or reject Db2 rows.

Image copy processing

Where unloading data from image copies is concerned, Db2 HPU can handle more kinds of input such as:

- Incremental Image Copies
- FlashCopy (r) Image Copies

You can request Db2 HPU to dynamically determine the input image copy by searching the Db2 catalog at run time.

You can unload data from an Image Copy that was not taken for the active target object, i.e. in one of the following situations:

- the object for which the unload is requested was dropped and created again.
- the Image Copy was taken for an identical object (in the same Db2 subsystem or an other one).
- no target object exists but its DDL (compatible with the data from the image copy) is available and can be provided to Db2 HPU to allow the unload from the Image Copy.

Db2 HPU compatibility

The numerous features offered by Db2 HPU cover most of the features from the following unload tools:

- Fast Unload
- UNLOAD PLUS
- Db2 Unload utility

The conversion of unloads using these tools is simple and requires a low workload by exploiting one of the following methods:

- the syntax compatibility method that requires no change of the existing JCL used to invoke the tool to replace except for ensuring the former tool entry point is rerouted to the Db2 HPU relevant entry point. See [Exploiting the syntax compatibility](#) for more details.
- the feature compatibility method that consists in converting the JCL invoking the former tool into steps using the Db2 HPU native syntax. This method is simple as Db2 HPU offers built-in formats that are strictly equivalent to the one implemented by the tools to replace. Additional formatting options from these tools also have a corresponding one in the Db2 HPU native syntax. The correspondence between the tools to replace and the Db2 HPU syntax is documented. See [Exploiting the feature compatibility](#) for more details.

Maximizing performance

To maximize performance, Db2 HPU uses buffering, synchronization techniques, and parallel processing. The CPU cost of the unload can also be reduced by exploiting the zIIP processors.

Buffering

When reading data rows, Db2 HPU directly accesses the VSAM clusters that contain the table space. This direct use of VSAM takes maximum advantage of the buffering capability that is provided by VSAM, which means that an entire cylinder can be read with a single I/O.

Synchronization

Db2 HPU permits the parallel execution of several unload jobs that access the same table space; it permits this parallel execution by synchronizing the unloads.

Parallel processing

Unload requests against the same table space are processed in parallel whenever possible.

Unload requests against different table spaces can be processed in parallel if the table space parallelism is enabled.

zIIP processors exploitation

Db2 HPU can exploit the zIIP processor (ZIIP option). The unload jobs run in native mode and the unload jobs involving complex formatting, whatever the processing mode, offload a significant part of their processing load to the zIIP processors.

Optimized partition filtering

The performance of logical unloads run in native mode against a partitioned table space and that specify a WHERE clause can be significantly reduced with the help of the OPTIMIZE_PART_RANGE feature. This feature is triggered either by specifying the OPTIMIZE_PART_RANGE YES option or by setting the Partitions range filter optimization (VUM033/OPTRGPRT) to YES.

Db2 HPU terminology

Some concepts related to the Db2 HPU features are designated by the dedicated terms defined below and that you must understand before using Db2 HPU.

physical unload

The whole data from a table space is unloaded in a unique predefined format.

logical unload

The data to unload is defined by a SELECT statement thus enabling you to select/compute the columns and filter the rows to unload and the output format can be specified accurately.

SQL processing

Db2 HPU retrieves the data to unload by passing the involved SQL statement to Db2.

native processing

Db2 HPU reads the data to unload directly from the data sets where it is stored.

Hardware and software requirements

Db2 HPU requires the same hardware configuration that is required by Db2 for z/OS Version 12 or later.

Db2 HPU requires the following software:

- z/OS Version 2 Release 4 or later
- Db2 Version 12.1 - in New Function Mode - for z/OS or later

Note:

The typical installation and use of Db2 HPU assumes that the SCEERUN and SCEERUN2 Language Environment libraries are available through the linklist.

If this condition is not or cannot be fulfilled in your environment, you'll need to add the appropriate control cards to make these libraries available to Db2 HPU for the following:

- the installation job generated for the INZCHECK template
- the Db2 HPU job generated from the Db2 HPU interface
- the JCL samples provided by the Db2 HPU User's Guide

For the first two items, consider adding a JOBLIB control card in the user jobcards that can be specified in both Tools Customizer ("User Job Card Settings for Customization Jobs" fields accessible through the "O. User settings for Tools Customizer" option) and the Db2 HPU interface ("JCL/JobCard" option).

Note:

As Db2 HPU runs with the CEE POSIX(ON) mode, the user profiles of the following userid need to contain an OMVS segment:

- the userid on behalf of which the Db2 HPU job is submitted
- the userid defined by the VUM032/ACTLGUSR parameter

If this requirement is not fulfilled, Db2 HPU fails with ABENDU4080 and REASON=CEE05101.

If you want to perform conversions that imply non-SBCS CCSIDs or pairs of SBCS CCSIDs that are not supported by the SYSSTRINGS catalog table, you must install z/OS Support for Unicode.

Optional prerequisites

There are some optional prerequisites for specific use of Db2 HPU. Ensure the following conditional requirements are fulfilled if the use case applies:

- To use POSIX(ON) exits, the user must be permitted to the BPX.MAP FACILITY class profile.

Note: For an optimal troubleshooting in case of ABEND, it is advisable that the userids on behalf of which the Db2 HPU are submitted are permitted to the IEAABD.DMPAKEY resource in the FACILITY class. Otherwise, in case of abend, the following message: CEE3880I CEEDUMP HAS BEEN SUPPRESSED - PROGRAM IS RUNNING IN AN AUTHORIZED KEY. can be issued by the Language Environment and the CEEDUMP, helpful for diagnosis, be missing.

Db2 version dependent prerequisites

To run Db2 HPU against Db2 subsystem in version 13, the following requirements apply:

- APAR PH42701 has been applied to IBM Tools Customizer for z/OS
- APAR PH45499 has been applied to Db2 HPU
- As required per the HOLD DATA action for APAR PH45499, the INZ\$\$\$CCQ member from the INZHLQ.SINZDENU library has been edited to add the line "<value>131</value>" so that its updated content is as follows:

```
<db2level>
<value>810</value>
<value>910</value>
<value>101</value>
<value>111</value>
<value>121</value>
<value>131</value>
</db2level>
```


Db2 compliance

Db2 for z/OS V12.1

- Db2 HPU supports (exploits or tolerates) the Db2 for z/OS V12.1 specific features available at various function levels as indicated below:

Function level	Feature	Compliance
508	support for moving tables from deprecated multi-table simple and multi-table segmented table spaces to partition-by-growth universal table spaces (UTS)	no impact on Db2 HPU
507	application granularity for locking limits	no impact on Db2 HPU
507	deletion of old statistics when using profiles	no impact on Db2 HPU
507	CREATE or REPLACE for procedures	no impact on Db2 HPU
507	newly supported pass-through-only expressions with IBM Db2 Analytics Accelerator	no impact on Db2 HPU
506	support for implicitly dropping explicitly created universal and LOB table spaces	no impact on Db2 HPU
506	alternative function names support	supported in SQL mode only with no specific maintenance
505	improved concurrency for rebind of executing packages	no impact on Db2 HPU
505	automatic page sample by default for RUNSTATS	no impact on Db2 HPU
505	improved DECFLOAT data type support	supported (toleration)
505	transparent encryption for data columns	supported: in both native and SQL mode
505	temporal and archive transparency for WHEN clauses on triggers	no impact on Db2 HPU
504	new support for data with IBM Z hardware-based Huffman compression of Db2 data	supported: in both native and SQL mode
504	the ability to prevent the creation of certain new deprecated objects types	no impact on Db2 HPU
504	new support for certain built-in functions by pass-through to IBM Db2 Analytics Accelerator	no impact on Db2 HPU

Function level	Feature	Compliance
504	new SQL syntax alternatives for certain special registers and NULL predicates	supported in SQL mode with no specific maintenance -supported in native mode
503	support for IBM Db2 AI for z/OS	no impact on Db2 HPU
503	replication of system-period temporal tables and generated expression columns	no impact on Db2 HPU
503	a change to temporal auditing support for temporal data	no impact on Db2 HPU
503	a new console message that indicates when catalog levels or function levels change	no impact on Db2 HPU
502	management of key labels for z/OS DFSMS data set encryption	supported in both native and SQL mode
502	explicit casting of numeric values to GRAPHIC or VARGRAPHIC.	supported: in SQL mode only with no specific maintenance
501	the LISTAGG built-in function produces a list of all values in a group	supported in SQL mode only with no specific maintenance
500	function level 500 (V12R1M500) represents the first opportunity for applications to take advantage of most new capabilities in the initial Db2 12 release, including new SQL capabilities and subsystem parameter settings. In many respects, function level 500 is analogous to new-function mode in previous releases.	supported (exploitation or no impact depending on the considered feature) except for the LOB compression
100	In function level 100 (V12R1M100), Db2 runs on Db2 12 code, and virtual storage and optimization enhancements in the initial Db2 12 release become available. However, most new function, including and subsystem parameter changes and new SQL capabilities remain disabled. In many respects, function level 100 is analogous to conversion mode in previous Db2 releases.	supported

- The consistency between the Db2 HPU native and SQL mode can be ensured automatically by requesting Db2 HPU to use the Db2 BIF_COMPATIBILITY settings instead of its own value set through the BIF_COMPATIBILITY subparameter of the Db2 HPU additional features (VUU030/ULOPTNS) parmlib parameter. The setting mode can be chosen through the "BIF_COMPATIBILITY_FROM_DB2_SETTINGS" subparameter of the VUU030/ULOPTNS parameter.

- The "Db2 plan name of the Call Level Interface (VUX044/CLIPLAN)" parmlib parameter allows to specify the plan name of the Db2 for z/OS Call Level Interface (CLI) when the default Db2 name DSNACLI was not kept.
- The Pervasive Encryption feature is exploited. Unloading data from Db2 objects which have underlying data sets encrypted using ICSF key label is possible in SQL mode and in native mode regardless of the data source (underlying VSAM data sets of the online Db2 objects or image copy data sets). For a Db2 like behavior - i.e. any user that has the requested privilege to run a given SELECT statement involving encrypted table spaces or index spaces can also run a Db2 HPU unload specifying the same SELECT statement -, set the "User who reads encrypted VSAM data set (VUM037/CRYPTUSR)" parameter with a userid that has the authorization to access the key label for any of the encrypted data set involved by your Db2 HPU jobs.
- The stop of the unload can be ensured whenever Db2 HPU cannot generate requested LOAD control cards that are fully compliant - i.e. directly usable - with the Db2 LOAD utility by specifying the ULRDRC REJECT option or by setting the parmlib parameter VUU082/ULRDRC to REJECT.
- The new subparameter ORDER_CLUSTER_BHV of VUU030/ULOPTNS, allows Db2 HPU to remove 'ORDER CLUSTER' clauses from unsupported SELECT statements (processed by SQL). It prevents Db2 HPU unloads to stop because of SQL error -199.
- Db2 HPU can now exploit the ADMIN_INFO_SYSPARM stored procedure to retrieve the value of the DSNZPARM parameters. This avoids undesirable IFCID 376 records be triggered when Db2 HPU retrieves the value of the BIF_COMPATIBILITY parameter. This also allows Db2 HPU to determine the value of the TEMPLATE_TIME parameter (more details in the following note). This way of retrieving the DSNZPARM parameters is enabled by specifying USE_ADMIN_INFO_SYSPARM(YES) for the VUU030/ULOPTNS parameter.
- The time and date variables used in the data set names patterns of TEMPLATE statements can now be expanded considering local time instead of gmt/utc. If USE_ADMIN_INFO_SYSPARM(YES) is specified for the VUU030/ULOPTNS parameter and the Db2 settings specify TIME LOCAL, the date/time variables are expanded with local time where they were formerly unduly expanded with utc. They suboption TIME of TEMPLATE statements is supported.
- The data from table spaces compressed with Huffmann compression - available when the dynamic zPARM TS_COMPRESSION_TYPE is set to HUFFMAN - and from their image copies can be unloaded in native mode.
- The OVERRIDE option of the LOAD utility, available since Db2 V12 and intended to replace the obsolete but still supported PERIODOVERRIDE, TRANSIDVERRIDE and IDENTITYOVERRIDE options, can be used to generate the LOAD control cards associated with an unload run against a Db2 subsystem in version 12.1 and later. The USE_V12_ALTERNATE_OVERRIDE_LOAD_SYNTAX(NO/YES) sub-parameter of the VUU030/ULOPTNS parmlib parameter requests that the OVERRIDE(SYSTEMPERIOD), OVERRIDE(TRANSID) and OVERRIDE(IDENTITY) options be used instead of their respective counterparts of the pre-V12 versions, i.e. PERIODOVERRIDE, TRANSIDVERRIDE, IDENTITYOVERRIDE.
- Db2 HPU can exploit the OVERRIDE(ROWCHANGE) option from the LOAD utility available from Db2 V12 for unloads run in native mode. The VUU099/ULRWCHNG parmlib parameter allows to request this feature be used for the LOAD statement generation whenever a GENERATED ALWAYS AS ROW CHANGE TIMESTAMP column is unloaded by an unload run in native mode against a Db2 subsystem in version 12 or later.

Db2 for z/OS V13.1

- Db2 HPU supports the Db2 for z/OS V13.1 specific features available at various function levels as indicated in the table below.

Function level	Feature	Compliance
100	Most new capabilities in Db2 13 remain deactivated, and fallback to Db2 12 and coexistence with Db2 12 in data sharing remain possible	supported
500	First opportunity after migration to Db2 13 for applications to use new features and capabilities with no Db2 catalog dependencies. Activating function level 500 or higher prevents coexistence with and fallback to Db2 12.	supported - no new feature exploitable
501	First opportunity after migration to Db2 13 for applications to use new features and capabilities with Db2 catalog dependencies.	supported - exploits utility history - other new features not exploitable or implicitly exploitable through the SQL mode
502	Db2 controlled sysplex workload balancing	supported - implicitly exploited through the SQL mode
502	Record dependencies and validity at the statement level for packages	supported - not exploitable
503	New default values in existing rows for added ROW CHANGE TIMESTAMP columns	supported - not exploitable
503	Accelerator-only support for more than 32K elements in an IN list	supported - implicitly exploited through the SQL mode
503	SELECT INTO statement support for OPTIMIZE FOR n ROWS	supported - implicitly exploited through the SQL mode
504	Minimized impact of invalidated packages with statement-level invalidation	supported - not exploitable
504	Increased capacity for Db2 trace: More OP buffers	supported - not exploitable
504	Utility object-level history	supported - exploited
504	Enhancements for SQL Data Insights	supported - implicitly exploited through the SQL mode
504	ORDER BY support for a full select that invokes LISTAGG	supported - implicitly exploited through the SQL mode

Utilities management solutions

IBM solutions help IT organizations maximize their investment in Db2 databases while staying on top of some of today's toughest IT challenges.

Today, the size and number of databases continue to grow, and increased data volumes are becoming harder to manage. With an increasing number of applications that need to maintain access to the data, database administrators can struggle to find time to move data when necessary. Extracting and migrating data have become time-consuming and complex processes, which makes it difficult to schedule unloads of large amounts of data. As a database administrator, you might face some of the following challenges:

- Large unload processes that involve sequential reading of Db2 tables.

- Slower processes because resources contend with each other for the same data during the unload process.

Db2 High Performance Unload is only one of several Db2 Tools products that can help you meet these challenges and achieve higher availability and better performance during data maintenance while enhancing the productivity of both database administrators and system programmers.

The following Db2 tools also provide solutions for managing utilities:

- Db2 Administration Tool
- Db2 Automation Tool
- Db2 Storage Management Utility
- Db2 Utilities Enhancement Tool
- Db2 Utilities Suite

More than ever, the tools that you use for extracting and migrating data can have a critical impact on the efficiency and availability of your IT environment. Reorganization tools from IBM can help with the performance of key functions such as unloading and reloading Db2 data without impacting data access. Designed for ease of use and flexibility, Db2 HPU is a fast and efficient tool to unload and extract data for movement across enterprise systems or for reorganization in-place.

Db2 HPU can be launched from either the Db2 Administration Tool or the Db2 Tools Launchpad. To help you save time and effort, Db2 HPU integrates with Db2 Utilities Suite to offer lists of objects that can be specified by using LISTDEF and TEMPLATE statements.

Db2 HPU documentation and updates

This topic explains where to find Db2 and IMS Tools information on the Web, and explains how to receive information updates automatically.

Db2 HPU information on the Web

The Db2 Product publications Web page provides current product documentation that you can view, print, and download. To locate publications with the most up-to-date information, refer to the following Web page:

https://www.ibm.com/support/knowledgecenter/SSAUUV_5.1.0/topics/inz_landing.html

You can also access documentation for many Db2 for z/OS and IMS Tools from the Information Management Software for z/OS Solutions Knowledge Center:

<http://www.ibm.com/software/data/db2imstools/db2tools-library.html>

Documentation for many Db2 Tools that run on Linux®, UNIX, and Windows systems can be found in the IBM Db2 Tools for Linux, UNIX, and Windows Knowledge Center:

<http://www.ibm.com/support/knowledgecenter/>

IBM Redbooks publications that cover Db2 and IMS Tools are available from the following Web page:

<http://www.ibm.com/software/data/db2imstools/support.html>

The Data Management Tools Solutions Web site shows how IBM solutions can help IT organizations maximize their investment in Db2 and IMS databases while staying ahead of today's top data management challenges:

<http://www.ibm.com/software/data/db2imstools/solutions/index.html>

Receiving documentation updates automatically

To automatically receive a weekly e-mail that notifies you when new technote documents are released, when existing product documentation is updated, and when new product documentation is available,

you can register with the IBM My Support service. You can customize the service so that you receive information about only those IBM products that you specify.

To register with the My Support service:

1. Go to <http://www.ibm.com/support/mysupport>
2. Enter your IBM ID and password, or create one by clicking **register now**.
3. When the My Support page is displayed, click **add products** to select those products that you want to receive information updates about. The Db2 and IMS Tools category is located under **Software > Data and Information Management > Database Tools & Utilities**.
4. Click **Subscribe to email** to specify the types of updates that you would like to receive.
5. Click **Update** to save your profile.

Accessibility features

Accessibility features help a user who has a physical disability, such as restricted mobility or limited vision, to use a software product successfully.

The major accessibility features in Db2 HPU enable users to:

- Use assistive technologies such as screen readers and screen magnifier software. Consult the assistive technology documentation for specific information when using it to access z/OS interfaces.
- Customize display attributes such as color, contrast, and font size.
- Operate specific or equivalent features by using only the keyboard. Refer to the following publications for information about accessing ISPF interfaces:
 - *z/OS Interactive System Productivity Facility (ISPF) User's Guide, Volume 1, SC34-4822*
 - *z/OS TSO/E Primer, SA22-7787*
 - *z/OS TSO/E User's Guide, SA22-7794*

These guides describe how to use ISPF, including the use of keyboard shortcuts or function keys (PF keys), include the default settings for the PF keys, and explain how to modify their functions.

Chapter 2. What's new and changed in Db2 High Performance Unload

New and changed information is indicated by a vertical bar (|) to the left of a change through this guide.

This section sums up the functional and technical changes for this edition. APAR numbers are specified if the related maintenance is required.

Editorial changes that have no functional or technical significance are not noted.

Topics:

- [“What's new in Db2 HPU” on page 15](#)
- [Operational requisite changes](#)
- [What's changed in Db2 HPU](#)
- [Deprecated functions in Db2 HPU V5.2](#)
- [New messages](#)
- [Removed messages](#)

What's new in Db2 HPU

This topic summarizes the operational changes for this edition.

Input

- XML data from a logical unload processed in SQL mode can be unloaded into a spanned dataset - requested by the SPANNED YES option - provided that the unload command does not request to unload any other XML data or LOB data.

Output

- The AUTOTAG option feature offers the OBID suboptions that allows to request the OBID of the table involved in a logical unload be used as a tag for the related records. This option is supported only if the DB2 FORCE option is not specified and if the unload involves only one table that Db2 HPU can determine.

Concurrency and consistency

- You can require that Db2 HPU aborts the unload if the requested QUIESCE YES feature cannot be honored using the QUIESCE utility. Set the "Quiesce process (VUU028/ULQSCB)" parmlib parameter to HONOR to enable this behavior of the QUIESCE YES feature.

Control and reporting

- The INZX062, INZX063 and INZX064 messages display an estimate of the number of rows to sort.
- The CURRENT LOCK TIME OUT special register, available since Db2 V13.1 with function level V13R1M500, can be set and taken into account for unloads run in SQL mode against a Db2 at an appropriate maintenance level. The value of this special register can be specified at the unload command (step) level by the SQL_LOCK_TIMEOUT option or at the parmlib level by “Value to assign to CURRENT LOCK TIMEOUT in SQL mode (VUU102/SQLLKTO)” parmlib parameter.
- Information about the memory available when a Db2 HPU starts is displayed by the INZ312I message. This is meant to make the troubleshooting of memory issues easier and to determine the root cause of the lack of memory that might result from system settings or implementation changes a Db2 HPU step

may be impacted by. More information about the zIIP processors usage is provided by the INZU313I and INZU314I messages. This helps understand and check the exploitation of zIIP processors by Db2 HPU.

- Db2 HPU offers a better control and accuracy of the estimate of the number of entries of the objects involved in an unload performed in native mode. The use of RTS statistics for estimation can be requested or disabled at the Db2 HPU step level with the USE_RTS_FOR_ESTIMATION option that overrides the setting of the VUX036/RTSESTIM parmlib parameter. This allows to choose the better estimation algorithm that depends on the use case although the use of RTS usually gives better results. The accuracy of the estimate when RTS are taken into account can also be made more accurate by requesting the RTS be externalized before the estimation so that up to date values are taken into account. This can be requested either at the product level by setting the VUU036/RTSESTIM to YES,EXTERNALIZE or at the Db2 HPU step level by specifying YES,EXTERNALIZE for USE_RTS_FOR_ESTIMATION option. This generally optimizes the sizing of the resources allocated for the sort processes and the sizing of the output data set allocated through TEMPLATES and is all the more efficient that a table involved in a unload has recently been updated before the unload is performed thus avoiding memory or storage outages and subsequent failures of the sort processing.
- The Utility history collection feature allows to store information about the Db2 HPU jobs into the History Db2 Catalog Table. This feature can be enabled, for a Db2 sub-system in Db2 version 13 and higher, by setting the "Enable the history collection of Db2 HPU activity (VUU100/ENBHIST)" with the appropriate value.
- Information about the memory available when a Db2 HPU starts is displayed by the INZ312I message. This is meant to make the troubleshooting of memory issues easier and to determine the root cause of the lack of memory that might result from system settings or implementation changes a Db2 HPU step may be impacted by. More information about the zIIP processors usage is provided by the INZU313I and INZU314I messages. This helps understand and check the exploitation of zIIP processors by Db2 HPU.

Compatibility with other unload tools

- The Db2 HPU 5.20 native syntax offers built-in formats as well as other formatting options and settings capabilities that cover most of the formatting features available with the Fast Unload, UNLOAD PLUS and Db2 UNLOAD utilities. The new capabilities are:
 - compatibility formats that consist in a set of built-in formats requested through the FORMAT option that are compatible with the formats offered by UNLOAD PLUS, Fast Unload and the Db2 UNLOAD utility.
 - format-dependent settings applicable to the compatibility formats
 - the AUTOTAG OBID formatting option from the OPTIONS block

The compatibility formats are listed below:

- UNLOAD PLUS like formats
 - UPLUS-STANDARD
 - UPLUS-EXTERNAL
 - UPLUS-INTERNAL
 - UPLUS-CSV
 - UPLUS-XML
- Fast Unload like formats
 - FASTU-FIXED
 - FASTU-DELIMITED
 - FASTU-VARIABLE
 - FASTU-EXTERNAL
- Db2 UNLOAD utility like formats

- DB2U-DEFAULT
- DB2U-DELIMITED

The following parmlib parameters apply to groups of compatibility formats as indicated below:

- parameters applicable to DSNTIAUL-like compatibility formats:
 - DATE, DSNTIAUL-like compatibility format (VUU015/ULDATE)
 - TIME, DSNTIAUL-like compatibility format (VUU016/ULTIME)
 - TIMESTAMP, DSNTIAUL-like compatibility format (VUU017/ULTMSTP)
 - Decimal picture, DSNTIAUL-like compatibility format (VUU018/ULPIC)
 - Display format for numeric values, DSNTIAUL-like compatibility format (VUU032/ULMASK)
 - Position for NULL indicator, DSNTIAUL-like compatibility format (VUU022/NULLPOS)
 - Delimiter for external date, DSNTIAUL-like compatibility format (VU055/DATEDEL)
 - Delimiter in external time, DSNTIAUL-like compatibility format (VUU056/TIMEDEL)
 - Trim the trailing blanks, DSNTIAUL-like compatibility format (VUU059/ULTRIM)
 - Fill NULL with padding character, DSNTIAUL-like compatibility format (VUU075/NULLPAD)
- parameters applicable to DELIMITED-like compatibility formats:
 - DATE, DELIMITED-like compatibility format (VUU015/ULDATE)
 - TIME, DELIMITED-like compatibility format (VUU016/ULTIME)
 - TIMESTAMP, DELIMITED-like compatibility format (VUU017/ULTMSTP)
 - Decimal picture, DELIMITED-like compatibility format (VUU018/ULPIC)
 - Display format for numeric values, DELIMITED-like compatibility format (VUU032/ULMASK)
 - DATE/TIME delimiter option, DELIMITED-like compatibility format (VUU031/DTDELIM)
 - NULL DATE/TIME delimiter option, DELIMITED-like compatibility format (VUU043/DTNULDLM)
 - Delimiter for external date, DELIMITED-like compatibility format (VU055/DATEDEL)
 - Delimiter in external time, DELIMITED-like compatibility format (VUU056/TIMEDEL)
 - Trim the trailing blanks, DELIMITED-like compatibility format (VUU059/ULTRIM)
 - NULL processing in DELIMITED-like compatibility format (VUU078/ULNULLFL)
- parameters applicable to VARIABLE-like compatibility formats:
 - DATE, VARIABLE-like compatibility format (VUU015/ULDATE)
 - TIME, VARIABLE-like compatibility format (VUU016/ULTIME)
 - Decimal picture, VARIABLE-like compatibility format (VUU018/ULPIC)
 - Display format for numeric values, VARIABLE-like compatibility format (VUU032/ULMASK)
 - Position for NULL indicator, VARIABLE-like compatibility format (VUU022/NULLPOS)
 - Delimiter for external date, VARIABLE-like compatibility format (VU055/DATEDEL)
 - Delimiter in external time, VARIABLE-like compatibility format (VUU056/TIMEDEL)
 - Trim the trailing blanks, VARIABLE-like compatibility format (VUU059/ULTRIM)
 - Fill NULL with padding character, VARIABLE-like compatibility format (VUU075/NULLPAD)
 - NULL indicator, VARIABLE-like compatibility format (VUU014/ULNULL)
- parameters applicable to EXTERNAL-like compatibility formats:
 - DATE, EXTERNAL-like compatibility format (VUU015/ULDATE)
 - TIME, EXTERNAL-like compatibility format (VUU016/ULTIME)
 - TIMESTAMP, EXTERNAL-like compatibility format (VUU017/ULTMSTP)
 - Decimal picture, EXTERNAL-like compatibility format (VUU018/ULPIC)
 - Display format for numeric values, EXTERNAL-like compatibility format (VUU032/ULMASK)

- Position for NULL indicator, EXTERNAL-like compatibility format (VUU022/NULLPOS)
- Delimiter in external time, EXTERNAL-like compatibility format (VUU056/TIMEDEL)
- Trim the trailing blanks, EXTERNAL-like compatibility format (VUU059/ULTRIM)
- Fill NULL with padding character, EXTERNAL-like compatibility format (VUU075/NULLPAD)
- NULL indicator, EXTERNAL-like compatibility format (VUU014/ULNULL)
- parameters applicable to all compatibility formats:
 - Size of the autotag in the output file, compatibility formats (VUU046/ULAUTAG)

This makes the conversion of legacy unload jobs involving Fast Unload, UNLOAD PLUS and Db2 UNLOAD utilities into unload jobs using Db2 HPU native syntax much easier. See [“Exploiting the feature compatibility” on page 697](#) for more information.

Operational requisite changes

This topic summarizes the operational requisite changes for this edition.

Db2 version and function level for the use of the history collection feature

The use of the history collection feature that populates the Db2 catalog tables implemented for the utility history collection require that the related table exist, which implies the following requirements:

- Db2 V13 or later at function level FL501 or later to use the history collection at the utility level ((VUU100/ENBHIST set to UTILITY)
- Db2 V13 at function level FL504 or later to use the history collection at the object level ((VUU100/ENBHIST set to DETAIL)

What’s changed in Db2 HPU

This topic summarizes the operational changes for this edition.

Db2 Resource Limit Facility related errors duly disregarded in Db2 HPU native mode

For a logical unload run in native mode, Db2 HPU now duly ignores any Resource Limit Facility (RLF) related error (SQLCODE=-495) returned by Db2 about the involved SELECT statement. In both native and SQL modes, as Db2 HPU issues a PREPARE statement for the SELECT statement involved in the logical unload, an SQLCODE=-495 is received if the estimate of the cost for Db2 to perform the SELECT statement is greater than the values specified through RLF. In native mode, as the SELECT is not performed by Db2 - but by Db2 HPU instead -, the estimate cost does not apply, and such an error must be ignored. In SQL mode, the RLF related errors are still considered and they cause Db2 HPU to stop.

Changed label for the VUU046/ULAUTAG parmlib parameter

The label of the "Size of the autotag in the output file" of the VUU046/ULAUTAG parmlib parameter was changed to "Size of the autotag in the output file, Db2 HPU formats". This change was made to clarify that this parmlib parameter that existed in former Db2 HPU releases applies only to the Db2 HPU genuine formats and not to the compatibility formats available since the current edition.

Compatibility formats mentioned in the output of the DISPLAY PARMLIB feature

The output of the DISPLAY_PARMLIB feature mentions the compatibility formats with the following prefixes:

- CD stands for DSNTIAUL LIKE compatibility formats
- CL stands for DELIMITED LIKE compatibility formats
- CV stands for VARIABLE LIKE compatibility formats

- CE stands EXTERNAL LIKE compatibility formats

Deprecated functions in Db2 HPU V5.2

This topic summarizes the deprecated functions for this edition.

No function has been deprecated by this edition.

New messages

This topic lists the new messages for this edition.

- INZU599I option-value OPTION IS IGNORED AS AN XML COLUMN IS UNLOADED INTO A SPANNED DATASET
- INZU612I THE SPECIFIED CURRENT LOCK TIMEOUT (value) IS IGNORED AS THE [DB2 SUB-SYSTEM VERSION|DB2 SUB-SYSTEM APPLCOMPAT|REQUESTED APPLCOMPAT (value)] IS LOWER THAN V13R1M500
- INZU312I z/OS version.release.mod - AVAILABLE MEMORY:24 BIT: 24bit-mem KB 31 BIT: 31bit-mem KB 64 BIT: [64bit-mem KB (LIMITED BY memlimit-source)] | [NO LIMIT]
- INZU313I THE type PROCESS USES ZIIP PROCESSORS
- INZU314I THE type PROCESS IS NOT ELIGIBLE TO ZIIP PROCESSORS USAGE exclusion reason
- INZU315I ZIIP ppp% REQUESTED - ACTUAL USAGE WAS SRB TIME : srb-time ZIIP TIME : ziiip-time
- INZI220I RTS HAVE BEEN EXTERNALIZED FOR objtype name
- INZI221E REQUESTED EXTERNALIZATION OF RTS FAILED FOR objtype name
- INZU534I SQL MODE - SELECT # select-number PROCESSING: 'sql-statement' STATEMENT EXECUTED
- INZU590I UTILITY HISTORY COLLECTION IS ENABLED AS PARMLIB PARAMETER VUU100/ENBHIST IS SET TO [UTILITY|DETAIL|AS_DB2_ZPARAM]
- INZU591I UTILITY HISTORY COLLECTION DISABLED AS ONLY AVAILABLE SINCE DB2 VERSION 13
- INZU592I ERROR DURING UTILITY HISTORY COLLECTION, reason
- INZU593I UTILITY HISTORY COLLECTION IS ACTIVE. LEVEL: UTILITY, EVENTID: event-id
- INZU366E AUTOTAG OBID IN SELECT STARTING AT POS(line,column) CANNOT BE PROCESSED BECAUSE THE TABLE CANNOT BE DETERMINED

Modified messages

This topic lists the messages which content has changed.

- INZX062 sort-id SORT ACTIVATED VIA E15 - rec-count ESTIMATED RECORDS TO SORT
- INZX063 sort-id SORT ACTIVATED VIA SORTIN - rec-count ESTIMATED RECORDS TO SORT
- INZX064 sort-id SORT ACTIVATED VIA CA-SRAM - rec-count ESTIMATED RECORDS TO SORT
- INZU425E AT POS (x,x) explanation WHEN SPANNED YES OPTION IS SPECIFIED (removed and new explanation)
- INZU406E THE REQUESTED QUIESCE OF THE TABLESPACE COULD NOT BE PERFORMED.CHECK DB2 STATUS OF THE TABLESPACE AND RELATED INDEXES (expanded scope and changed user response)
- INZI183E FAILED TO SWITCH TSO USER userid TO EXECUTE DISPLAY COMMAND (message text changed)
- INZU081E ERROR : INTO CLAUSE OR REFORMAT OPTION IS NOT ALLOWED WITH output-format (changed text)
- INZI184E FAILED TO SWITCH BACK TO USER userid (documented explanation corrected)

Removed messages

This topic lists the messages that are no longer issued from this edition on.

Chapter 3. Db2 HPU customization

The customization process consists of authorizing and enabling Db2 HPU and using Tools Customizer to set parameter values and generate the customization jobs that you will submit.

Prerequisite: Before you can authorize and customize Db2 HPU, you must install Db2 HPU by following the instructions that are provided in the program directory.

Customizing Db2 HPU consists of the following steps:

Table 1. Overview of Db2 HPU customization steps

Step	Description	Page
1	Authorize and enable Db2 HPU.	“Authorizing and enabling Db2 HPU” on page 21
2	Optional: Make the Db2 HPU interactive component available through TSO.	“Optional: Creating a TSO command for the Db2 HPU interactive component” on page 22
3	Review the information about planning to Tools Customizer.	“Planning to use Tools Customizer” on page 23
4	Start and prepare Tools Customizer for use.	“Starting and preparing Tools Customizer for use” on page 27
5	Use Tools Customizer to customize Db2 HPU.	“Customizing Db2 HPU” on page 36
6	Optional: Integrate Db2 HPU into Db2 Tools Launchpad.	“Optional: Integrating Db2 HPU into Db2 Tools Launchpad” on page 60
7	Optional: Integrate Db2 HPU into Db2 Administration Tool.	“Optional: Integrating Db2 HPU into Db2 Administration Tool” on page 61

Authorizing and enabling Db2 HPU

This section gives you the procedure to authorize and enable Db2 HPU.

About this task

Before you can use Db2 HPU for the first time, you must do the following tasks:

1. Give APF authorization to the SINZLINK library
2. Make DSNAO64C available to Db2 HPU
3. Install the Db2 CLI
4. Enable the Db2 HPU batch utility

Enabling the Db2 HPU batch utility lets you unload Db2 data. You must create a batch utility job before you can run the Db2 HPU batch utility.

Procedure

1. APF authorize the SINZLINK library: To do so, run the SETPROG command in the following format:

```
SETPROG APF,ADD,DSNAME=SINZLINK-data-set-name,VOLUME=volume-name
```

The following example shows the SETPROG command in the correct format:

```
SETPROG APF,ADD,DSNAME=DMT.PTF510.SINZLINK,VOLUME=V01001
```

You can include this command in a MVS™ procedure, in a job, or in both.

2. Make DSNAO64C available to Db2 HPU:

The Db2 DSNAO64C load module is required for Db2 HPU to run properly. Make sure this module is available to Db2 HPU. Consider adding the SDSNLOD2 Db2 library - that usually contains this module - to the Db2 HPU step steplib or make sure the DSNAO64C load module is available to the Db2 HPU batch jobs in any other way. If DSNAO64C is made available through an additional Db2 LOAD library (eg. SDSNLOD2), add it to the "Load library" parameter via the Tools Customizer relevant panel (i.e. CCQPDB2 - Db2 Parameters. See [Defining Db2 parameters](#)).

If this task has not been done correctly and the DSNAO64C module cannot be loaded by Db2 HPU, the unload job ends with completion code 8 and the following message is issued:

```
INZI192E UNABLE TO LOAD THE DB2 LIBRARY (CEE3501S The module DSNAO64C was not found).
```

3. Install the Db2 CLI:

Db2 HPU uses the Db2 CLI to process SQL requests in order to get information from the Db2 catalog. The CLI must be customized for the Db2 sub-system and the plan DSNACLI must be bound. Otherwise the Db2 HPU jobs issue the INZI193E message and terminate with a completion code of 8. For a correct use of Db2 HPU, make sure the following userids have the EXECUTE privilege on the DSNACLI plan:

- the userid that submits the Db2 HPU batch job
- the userid specified for User who issues SELECT by using dynamic SQL (VUM032/ACTLGUSR)
- the userid specified for User who issues EXPLAIN PLAN statements (VUM035/EXPLNUSR)

4. Select the appropriate user switching method by setting the USER_SWITCH_METHOD subparameter of the "Db2 HPU additional features (VUU030/ULOPTNS)" parmlib parameter to the desired value.

5. Enable the Db2 HPU batch utility:

To do so, use one of the following methods to enable the Db2 HPU batch utility.

- Put the SINZLINK library in LINKLIST.
- Specify the SINZLINK library in the STEPLIB statement of all jobs (be careful not to lose the APF authorizations with the concatenations).

Related information

[MVS System Commands in the z/OS Library Center](#)

Optional: Creating a TSO command for the Db2 HPU interactive component

You can make the Db2 HPU interactive component available as a TSO command.

About this task

With the Db2 HPU interactive component, you can generate the batch utility job to be used to invoke the Db2 HPU batch utility program.

You can run the batch utility program and the Db2 HPU interactive component simultaneously.

Procedure

Use one of the following methods to create a TSO command:

- Concatenate the SINZCLST library to the SYSPROC concatenation.
- Copy the INZHPU procedure into a library in the SYSPROC concatenation.

What to do next

Invoke the Db2 HPU interactive component by issuing the following command: TSO INZHPU.

Related tasks

Starting the Db2 HPU interactive component in stand-alone mode

You can start Db2 HPU interactive component in stand-alone mode without using the Db2 Administration Tool or the Db2 Tools Launchpad.

Planning to use Tools Customizer

This topic provides steps to take before using Tools Customizer to customize Db2 HPU.

Procedure

1. Become familiar with Tools Customizer.
“Tools Customizer terminology and data sets” on page 23.
2. To complete customization, you might need to use the information in the [Customization reference](#). This reference section provides additional information about the product information required to customize Db2 HPU, details of the tasks, steps, and parameters that are displayed on the **Product Parameters** panel in Tools Customizer, and information about the jobs that will be generated.

Tools Customizer terminology and data sets

Before you use Tools Customizer, you should understand the Tools Customizer terminology and the data sets that Tools Customizer uses during customization.

Tools Customizer terminology

Tools Customizer uses several unique terms that you should be familiar with before you begin to use Tools Customizer.

Products and components

How an IBM Tool is packaged determines whether it is referred to as a product or as a component in the Tools Customizer documentation and interface. An IBM Tool that is ordered as a stand-alone entity (that is, not as part of a solution pack) is referred to as a product. An IBM Tool that is part of a solution pack is referred to as a component. Some IBM Tools are available in both formats; therefore, the same IBM Tool can be referred to as a product or as a component depending on how it is packaged.

Db2 entry

You can customize Db2 HPU on one or more Db2 entries. A Db2 entry can be any of the following items:

Db2 subsystem

A distinct instance of a relational database management system (RDBMS) that is not part of a data sharing group. An example of a Db2 subsystem name is DB01.

Db2 group attach name

The name that is used by the TSO/batch attachment, the call attachment facility (CAF), DL/I batch, utilities, and the Resource Recovery Services attachment facility (RRSAF) as a generic attachment name. An example of a group attach name is DSG1.

Db2 data sharing member

A Db2 subsystem that is assigned by the cross-system coupling facility (XCF) to a data sharing group. An example of a Db2 data sharing member name is DB02.

Tools Customizer maintains the following lists of Db2 entries:

Associated list

The list of Db2 entries that are associated with Db2 HPU. If the product to be customized requires Db2 entries, you can customize Db2 HPU only on Db2 entries that are in the associated list. When you customize Db2 HPU, this list is displayed in the DB2® Entries, Associations, and Parameter Status section of the **Customizer Workplace** panel.

You can add and copy Db2 entries to the associated list. When you add or copy Db2 entries to the associated list, the entries are associated with Db2 HPU.

Main list

The list of all Db2 entries that are defined but are not associated with Db2 HPU. Tools Customizer obtains information about these Db2 entries either from entries that were created manually or from the customizations of other products that were discovered. If you remove a Db2 entry from the associated list, the Db2 entry is added to the main list. When you create a new Db2 entry, it is added to the main list, and when you associate the new entry with Db2 HPU, it is removed from the main list and added to the associated list. The main list is displayed on the **Associate a DB2 Entry for Product** panel.

If the associated list does not have the Db2 entries on which you want to customize Db2 HPU, you can associate existing entries from the main list to the associated list.

You can create new Db2 entries and copy existing entries to the main list.

High-level qualifier

The high-level qualifier is considered to be all of the qualifiers except the lowest level qualifier. A high-level qualifier includes a mid-level qualifier.

Product parameters

Parameters that are specific to Db2 HPU. These parameters are defined by Db2 HPU and are stored in a data member that is defined by Db2 HPU.

LPAR parameters

Parameters on the local LPAR that are required to customize Db2 HPU. These parameters are defined by Tools Customizer and are stored in an LPAR parameter data member.

Db2 parameters

Parameters for a Db2 entry. These parameters are defined by Tools Customizer and are stored in a Db2 parameter data member.

Status type

Product, LPAR, and Db2 entry status type

After you specify the product that you want to customize, the product, the LPAR, and the Db2 entries have a status. The status is partly based on whether required parameters are defined. For some products, LPAR parameters or Db2 parameters might not be required. In these cases, the status is Not Required.

To customize Db2 HPU, all of the required parameters must be defined.

If required parameters for the the product parameters, LPAR parameters, or Db2 parameters are not defined, the status of the parameters is Incomplete. Define values for parameters by manually editing them or by generating the customization jobs and specifying values for all of the required parameters that are displayed on the panels.

When values for all of the required parameters are defined, the status is Ready to Customize. Customization jobs can be generated only when all of the required parameters are defined and the status is Ready to Customize or Customized for the product parameters, LPAR parameters, and Db2 parameters for the Db2 entries on which Db2 HPU will be customized.

The following table shows the meaning of the status types. Each status is defined differently for each type of parameter.

Table 2. Status types for the product, the LPAR, and the Db2 entries

Status	Product	LPAR	Db2 entries
Incomplete	The required product parameters are not defined.	The required parameters are not defined.	The required parameters are not defined.

Table 2. Status types for the product, the LPAR, and the Db2 entries (continued)

Status	Product	LPAR	Db2 entries
Discovered	The product parameter definitions were discovered by using the product Discover EXEC.	N/A	N/A
Ready to Customize	The required product, is Ready to Customize or Customized for the LPAR and at least one associated Db2 entry. You can generate the customization jobs.	The required LPAR parameters are defined or LPAR parameters are not required.	The required Db2 parameters are defined or Db2 parameters are not required.
Verify Values	The required product or component parameter values are defined but they either have not been verified or verification is not enabled on the Product or Component Parameters panel.	The required LPAR parameter values are defined, but they either have not been verified or verification is not enabled on the LPAR Parameters panel.	The required Db2 parameter values are defined, but they either have not been verified or verification is not enabled on the Db2 Parameters panel.
Customized	The jobs are customized on the local LPAR.	The jobs are customized for the product or for all of the associated Db2 entries on the local LPAR.	The jobs are customized for the Db2 entry.
Errors in Customization	N/A	N/A	Errors occurred while the customization jobs were being generated.
Not Required	N/A	LPAR parameters are not required.	Db2 parameters are not required.

Related tasks

Creating and associating Db2 entries

You can create new Db2 entries and associate them with Db2 HPU.

Copying Db2 entries

You can copy associated and not associated Db2 entries to other Db2 entries or to new Db2 entries.

Removing Db2 entries

You can remove Db2 entries from the associated list.

Data sets that Tools Customizer uses during customization

Tools Customizer uses several unique data sets during the customization process. Familiarize yourself with these data sets before you begin to use Tools Customizer.

Several different data sets are required to customize Db2 HPU with Tools Customizer. These data sets are supplied by Db2 HPU, supplied by Tools Customizer, or allocated by Tools Customizer.

Db2 HPU provides the following data sets:

Metadata library

Contains the metadata for the product to be customized. Tools Customizer uses the metadata to determine which tasks, steps, and parameters to display on the **Product Parameters** panel, the **LPAR Parameters** panel, and the **DB2 Parameters** panel. This data set also contains the templates that Tools Customizer uses to generate the customization jobs.

The metadata library naming convention is *high_level_qualifier.SINZDENU*, where *high_level_qualifier* is all of the segments of the data set name except the lowest-level qualifier.

You specify the metadata library on the **Specify the Metadata Library** panel. READ access to this data set is required.

Discover EXEC library

Contains the Db2 HPU Discover EXEC. When you customize Db2 HPU, you can use the Discover EXEC to automatically retrieve and store product information, such as parameter values from an already customized product. Tools Customizer saves the discovered information in the data store.

The default name of the data set is the high-level qualifier for the metadata library plus a lowest-level qualifier. For Db2 HPU, the lowest-level qualifier is SINZDENU. You can change the default value on the **Discover Customized Product Information** panel. EXECUTE access to this data set is required.

Tools Customizer provides the following data sets:

Tools Customizer metadata library

Contains the metadata for the Db2 and LPAR parameters that are required to customize Db2 HPU. Tools Customizer uses the metadata to determine which parameters to display on the **DB2 Parameters** panel and the **LPAR Parameters** panel. In addition, Tools Customizer uses information in the metadata library to determine whether additional Db2 and LPAR parameters need to be displayed on these panels. As you customize different products, different Db2 and LPAR parameters might need to be defined.

The default name of the data set is DB2TOOL.CCQ110.SCCQDENU. You can change the default value on the **Tools Customizer Settings** panel. READ access to this data set is required.

Tools Customizer table library

Stores information about jobs that are customized. Job information that is stored includes a description of the job, its member name and template name, the SSID, group attach name, and when the job was generated.

The default name of the data set is DB2TOOL.CCQ110.SCCQTENU. WRITE access to this data set is required.

Tools Customizer requires that the following data sets exist during the customization process. If the data sets do not exist, Tools Customizer automatically allocates them.

Discover output data set

Contains the output that is generated when you run the Db2 HPU Discover EXEC. The Db2 HPU Discover EXEC retrieves the metadata and values for the parameters from a previous customization of Db2 HPU.

The default name of the data set is DB2TOOL.CCQ110.DISCOVER. You can change the default value on the **Tools Customizer Settings** panel or the **Discover Customized Product Information** panel. WRITE access to this data set is required.

Data store data set

Contains product, LPAR, and Db2 parameter values, and Db2 entry associations. Tools Customizer uses this data set to permanently store all information that is acquired about the product, Db2 subsystems or data sharing groups, and LPAR when you customize products on the local LPAR.

The default name of the data set is DB2TOOL.CCQ110.DATASTOR. You can change the default value on the **Tools Customizer Settings** panel. WRITE access to this data set is required.

Customization library

Contains the customization jobs that Tools Customizer generates for Db2 HPU.

Tools Customizer checks whether a customization library name was specified for more than one instance of the same version of the same product. If the same customization library name is specified for more than one product of the same version, the CCQD123E message is issued to prevent you from overwriting previously generated customization jobs. Ensure that you specify unique qualifier for the customization library for each instance of the product.

To customize Db2 HPU, submit the members of the data set in the order in which they are displayed on the **Finish Product Customization** panel.

The data set naming convention is *hlq.\$LPAR_name\$.xyzvrm*, where:

- *hlq* is the value of the **Customization library qualifier** field on the **Tools Customizer Settings** panel (CCQPSET)
- *LPAR_name* is the four-character LPAR name
- *xyzvrm* is the three-letter product identifier with the version, release, and modification level

For example, the data set name might be DB2TOOL.PRODUCT.CUST.\$MVS1\$.XYZ410.

WRITE access to this data set is required.

Tools Customizer allocates the data sets for the discover output, the data store, and the customization library with the attributes that are shown in the following table:

Data set	Organization	Record format	Record length	Block size	Data set name type
Discover output data set	PO	Variable block	16383	32760	LIBRARY
Data store data set	PO	Variable block	16383	32760	LIBRARY
Product customization library	PO	Fixed block	80	32720	LIBRARY

Restrictions:

- Multiple users cannot simultaneously share the discover output data set, data store data set, Tools Customizer metadata library, and metadata library.

Starting and preparing Tools Customizer for use

Use the provided REXX EXEC to start Tools Customizer. The first time that you use Tools Customizer, you must modify the settings that Tools Customizer uses to customize Db2 HPU.

Best Practice: SMP/E and runtime libraries maintenance strategy for Tools Customizer

Tools Customizer creates relationships between the values for the Product Parameters, LPAR Parameters, and Db2 Subsystem Parameters for each Tools Customizer enabled product. Determining the correct maintenance strategy for your Tools Customizer runtime libraries, after SMP/E processing, can reduce problems working with Tools Customizer and the enabled products through their life cycles.

Tools Customizer has very specific requirements for data set names:

- Only one DATASTOR data set exists per LPAR
- The product metadata library data set names do not change during the life of that release of the Tools Customizer enabled product.

The DATASTOR data set is the repository for all the information that Tools Customizer requires to generate customization JCL for enabled products.

When you update and save the Tools Customizer Settings panel (CCQPSET), as described in [“Modifying Tools Customizer user settings”](#) on page 32, the name of the DATASTOR data set is saved in the ISPF profile. This allows Tools Customizer to know the active DATASTOR data set when the TSO user id logs in and starts the Tools Customizer EXEC.

Maintenance scenarios

IBM expects maintenance to be applied to libraries which are then used by Tools Customizer. In practice, different customer shops distribute SMP/E APPLY maintenance in different ways.

The following scenarios explains some considerations and alternatives for determining your maintenance strategy. The one overriding objective is to preserve and maintain the same data set names for the Tools Customizer instance.

Apply SMP/E maintenance to the same data sets (using the SMP/E APPLY command):

If you apply SMP/E maintenance (using the SMP/E APPLY command) using the same data set names with each maintenance cycle, you can either use these target libraries as your Tools Customizer runtime libraries or you can copy the SMP/E target data sets to the runtime libraries that are used by Tools Customizer to customize enabled products.

Tools Customizer assumes that if the product metadata library (*DENU) has the same name, this metadata library is for the same release of the enabled product. For example, assume that you customize Db2 Log Analysis Tool v3.3 and name the metadata library SYS2.DB2TOOL.SALADENU, with no indication of the version or release. You then upgrade to Db2 Log Analysis Tool v3.4 and employ the same naming convention, SYS2.DB2TOOL.SALADENU. Tools Customizer will assume that you are continuing to work with Db2 Log Analysis Tool v3.3 and will report v3.3 on panels and continue to use the same v3.3 Customization Library data set.

A more sustainable approach to naming the data sets is to include a product version, release identifier, or other distinguishing qualifier in the name of the metadata library, so that Tools Customizer can determine the new product release when you upgrade. For example, using metadata library names that include a product version, release identifier, or other distinguishing qualifier, similar to the following, can make product maintenance and upgrades easier:

- DB2TOOL.R330.SALADENU for Db2 Log Analysis Tool v3.3
- DB2TOOL.R340.SALADENU for Db2 Log Analysis Tool v3.4

Apply SMP/E maintenance to new data sets (using the SMP/E APPLY command):

If you apply SMP/E maintenance (using the SMP/E APPLY command) to new data sets rather than to the same data sets, the next time you open the product metadata library, Tools Customizer will return a data set error that indicates that the library name is being used by another product or component.

For example, assume that you name the Db2 High Performance Unload for z/OS target metadata libraries to reflect the date of an upgrade or to reflect a specific RSU, as follows:

- To reflect a specific upgrade date (August 2014):
 - DB2TOOL.PTF420.SINZDBRM.D201408
 - DB2TOOL.PTF420.SINZDENU.D201408
 - DB2TOOL.PTF420.SINZLOAD.D201408
- To reflect a specific RSU (RSU 1406):
 - DB2TOOL.PTF420.SINZDBRM.RSU1406
 - DB2TOOL.PTF420.SINZDENU.RSU1406
 - DB2TOOL.PTF420.SINZLOAD.RSU1406

Using either of these naming conventions, the next time you start the Tools Customizer EXEC, it will return a data set error.

To handle this type of SMP/E maintenance processing, you can do either of the following:

- Define aliases (using ALIAS control statements) to reference the appropriate libraries for Tools Customizer processing.
- Copy the SMP/E libraries to a set of runtime libraries that are specifically for Tools Customizer processing.

Define aliases (using ALIAS control statements) to reference the appropriate libraries for Tools Customizer processing:

Defining aliases (using ALIAS control statements) for the SMP/E created new product data set names is likely the best strategy when planning for Tools Customizer.

If you are setting up Tools Customizer for the first time, consider specifying the product library data set names with an indicator that these data sets will be used for Tools Customizer processing. For example, use data set names similar to the following names:

- TCZ.PTF420.SINZDBRM
- TCZ.PTF420.SINZDENU
- TCZ.PTF420.SINZLOAD

After applying maintenance using SMP/E, which creates new product library data sets, you should define aliases (using ALIAS control statements) for the new data set names to the data set names that Tools Customizer originally processed. For example, the following maintenance data sets have aliases defined to the original data sets:

- DB2T00L.PTF420.SINZDBRM.RSU1406 --> TCZ.PTF420.SINZDBRM
- DB2T00L.PTF420.SINZDENU.RSU1406 --> TCZ.PTF420.SINZDENU
- DB2T00L.PTF420.SINZLOAD.RSU1406 --> TCZ.PTF420.SINZLOAD

You will need to define an alias (using ALIAS control statements) to each of the following IBM-distributed Tools Customizer data sets:

- SCCQDENU
- SCCQEXEC
- SCCQLOAD
- SCCQMENU
- SCCQPENU
- SCCQSAMP
- SCCQTENU

If you have already set up Tools Customizer and customized the product, you will have to define aliases (using ALIAS control statements) for the newly created data set names to the data sets that were specified when the product was originally customized using Tools Customizer.

After defining the aliases, you should be able to run Tools Customizer successfully.

Note: Only define aliases for IBM-distributed SMP/E libraries.

Restriction: Do not define an alias for any Tools Customizer created data sets, like the following three data sets on the Tools Customizer Settings panel (CCQPSET):

- Customization library qualifier
- Discover output data set
- Data store data set

Do not define an alias for any data sets that you create on behalf of a product, for example the Db2 High Performance Unload for z/OS parameter library (INFPLIB).

Copy the SMP/E libraries to a set of runtime libraries that are specifically for Tools Customizer processing:

If you are setting up Tools Customizer for the first time, consider specifying the product library data set names with an indicator that these data sets will be used for Tools Customizer processing. For example, use data set names similar to the following names:

- TCZ . R420 . SINZDBRM
- TCZ . R420 . SINZDENU
- TCZ . R420 . SINZLOAD

After applying maintenance using SMP/E, which creates new product library data sets, you should copy the new data sets to the data sets that Tools Customizer originally processed. For example, copy the following maintenance data sets to the original data sets:

- DB2T00L . PTF420 . SINZDBRM . RSU1406 --> TCZ . R420 . SINZDBRM
- DB2T00L . PTF420 . SINZDENU . RSU1406 --> TCZ . R420 . SINZDENU
- DB2T00L . PTF420 . SINZLOAD . RSU1406 --> TCZ . R420 . SINZLOAD

You will need to copy each of the following IBM-distributed Tools Customizer data sets:

- SCCQDENU
- SCCQEXEC
- SCCQLOAD
- SCCQMENU
- SCCQPENU
- SCCQSAMP
- SCCQTENU

If you have already set up Tools Customizer and customized the product, you will have to copy the newly created data sets to the data sets that were specified when the product was originally customized using Tools Customizer).

After copying the SMP/E data sets to the Tools Customizer instance libraries, you should be able to run Tools Customizer successfully.

Note: Only copy IBM-distributed SMP/E libraries.

Restriction: Do not copy any Tools Customizer created data sets, like the following three data sets on the Tools Customizer Settings panel (CCQPSET):

- Customization library qualifier
- Discover output data set
- Data store data set

Do not copy any data sets that you create on behalf of a product, for example the Db2 High Performance Unload for z/OS parameter library (INFPLIB).

Related tasks

[Modifying Tools Customizer user settings](#)

Before you can customize a product or a component with Tools Customizer, you must review the settings that Tools Customizer uses.

Related information

[The SMP/E APPLY command](#)

[Alias processing: SMP/E for z/OS Commands](#)

Starting Tools Customizer

Start Tools Customizer by running a REXX EXEC from the ISPF Command Shell panel.

Before you begin

Tools Customizer must be SMP/E installed. You must know the high-level qualifier of where the Tools Customizer libraries reside. The high-level qualifier is considered to be all the segments of the data set name except the lowest-level qualifier, which is SCCQEXEC.



Attention: Ensure that Tools Customizer load libraries are not APF authorized. APF authorizing Tools Customizer libraries results in an abend.

About this task

To run the REXX EXEC, you must either change the placeholder in the EXEC for the high-level qualifier of the Tools Customizer EXEC library or pass the high-level qualifier as a parameter when you run the EXEC. The REXX EXEC is in the CCQTCZ member of the EXEC library.

Procedure

1. Optional: Change the placeholder for the high-level qualifier in the REXX EXEC:
 - a) Find the EXEC library data set for Tools Customizer. The name of the data set is *high_level_qualifier.SCCQEXEC*.
 - b) Edit data set member CCQTCZ and replace the <TCZ HLQ> string with the high-level qualifier of the EXEC library data set.
For example, if the name of the Tools Customizer EXEC library is CCQTCZ.USABSAND.SCCQEXEC, replace <TCZ HLQ> with CCQTCZ.USABSAND.

You have to change the placeholder for the high-level qualifier only once. When you run the REXX EXEC, you do not have to pass the high-level qualifier as a parameter.

2. Run the REXX EXEC (CCQTCZ):
 - a) From the **ISPF Primary Option Menu**, select option 6.
The **ISPF Command Shell** panel is displayed.
 - b) Specify the EX command to run the REXX EXEC.
For example, if the Tools Customizer EXEC library is CCQTCZ.USABSAND.SCCQEXEC and you changed the placeholder for the high-level qualifier in the REXX EXEC, specify:

```
EX 'CCQTCZ.USABSAND.SCCQEXEC(CSQTCZ)'
```

If you did not change the placeholder for the high-level qualifier in the REXX EXEC, specify:

```
EX 'CCQTCZ.USABSAND.SCCQEXEC(CSQTCZ)' 'CCQTCZ.USABSAND'
```

You can also specify a trace data set name and a user profile when you run the REXX EXEC.

- The default trace data set name is *USERID.CCQ.TRACE*. To specify a different trace data set name, append the trace data set name to the command. For example, to specify a trace data set name of CCQTCZ.MYTRACE, enter:

```
EX 'CCQTCZ.USABSAND.SCCQEXEC(CSQTCZ)' 'CCQTCZ.USABSAND, CCQTCZ.MYTRACE'
```

- To specify a user profile other than your own, append the user profile name to the command. For example, to specify a user profile of SHRPROF, enter:

```
CCQTCZ.USABSAND.SCCQEXEC(CSQTCZ)' 'CCQTCZ.USABSAND, ,CCQTCZ.SHRPROF'
```

Tools Customizer will use the settings from the specified profile. This profile will be updated when you exit Tools Customizer, but your own profile will remain unchanged.

Results

The **IBM Customizer Tools for z/OS** main menu panel is displayed.

What to do next

If you are running Tools Customizer for the first time, you must modify the Tools Customizer user settings. If you have already set the Tools Customizer user settings, either customize or recustomize Db2 HPU.

Modifying Tools Customizer user settings

Before you can customize Db2 HPU with Tools Customizer, you must review the settings that Tools Customizer uses. You might have to change the default values to suit your environment. In most cases, you can change the Tools Customizer values at any time. For example, after you have customized Db2 HPU and are customizing a different product or solution pack, you might have to change the settings.

Procedure

1. On the **IBM Tools Customizer for z/OS** main panel (CCQPHME), specify option 0, **User settings for Tools Customizer**.

The **Tools Customizer Settings** panel (CCQPSET) is displayed, as shown in the following figure:

```
CCQPSET          Tools Customizer Settings          14:03:51
Command ==>>
Enter the settings for customizing a product or press End to save and exit.

Commands: SAVE  OPTIONS

Product Customization Settings

*Customization library qualifier . . DB2TOOL.PRODUCT.CUST
  Volume serial . . . . .
*Use DB2 group attach . . . . . YES (YES/NO)

Tools Customizer Library Settings

*Metadata library . . . . . DB2TOOL.CCQ110.SCCQDENU
*Discover output data set . DB2TOOL.CCQ110.DISCOVER
  Volume serial . . . . .
*Data store data set . . . . . DB2TOOL.CCQ110.DATAST01
  Volume serial . . . . .

User Job Card Settings for Customization Jobs

==>> //          JOB
(ACCOUNT), 'NAME',
```

Figure 1. The **Tools Customizer Settings** panel (CCQPSET)

Note: An asterisk next to a field indicates that the field is required.

2. Review the values for the following required fields. Use the default value or specify your own value. You must have appropriate READ and WRITE access to the data sets that are specified.

Customization library qualifier

The high-level qualifier that is used as the prefix for the customization library. The customization library is a data set in which the generated jobs to customize Db2 HPU are stored. WRITE access to this qualifier is required.

For each product to be customized, the first value that is specified for the qualifier is always used, even if you change it after you have generated the customization jobs. For example, if you customize a product and then specify a new qualifier for recustomization, although the new qualifier is saved and displayed, the original value is used.

To maintain multiple instances of Tools Customizer, specify a unique customization library qualifier for each instance of Tools Customizer.

Data set names that exceed 42 characters must be enclosed in single quotation marks (').

Volume serial

The volume name in which the customization library will reside. If you don't specify a volume name, it will be assigned by the system.

Use DB2 group attach

Determines the value that is used in the CONNECT statements in the generated customization jobs. Specify YES for data sharing environments, which causes the group attach name to be used. Specifying NO, in most cases, causes the SSID to be used in the Db2 CONNECT statement.

Important: This field has no effect when you are customizing a product on a Db2 subsystem that is not a member of a data sharing group. In this case, the Db2 subsystem ID (SSID) is always used in the CONNECT statements in the generated customization jobs.

When you are customizing a product on a Db2 subsystem that is a member of a data sharing group, how the Db2 subsystem is defined and the value of the **Use DB2 group attach** field determines the value that is used in the CONNECT statements in the generated jobs. The following table shows whether the SSID or the group attach name is used:

Table 4. The effect of the value of the **Use DB2 group attach** field in a data sharing environment

Db2 subsystem definition	Value of the Use DB2 group attach field	Value that is used in the CONNECT statements
The Db2 subsystem is defined with an SSID.	Yes	Group attach name
	No	SSID ¹
The Db2 subsystem is not defined with an SSID.	Yes or No	Group attach name

Note 1: If you generate jobs for multiple Db2 subsystems that are defined with an SSID and belong to the same data sharing group, the SSID of the first Db2 subsystem that is selected is used.

For example, assume that on the **Customizer Workplace** panel, you generated jobs for the following Db2 subsystems:

- DB2C, which is a stand-alone Db2 subsystem
- DB2A, which is a Db2 subsystem that is a member of data sharing group DSG1
- A Db2 subsystem that was not defined with an SSID that is a member of data sharing group DSGA

The following figure shows how these Db2 entries might be listed on the **Customizer Workplace** panel:

```
Associated DB2 Entries and Parameter Status
Line commands: G - Generate jobs  E - Edit  B - Browse  C - Copy  R - Remove
Cmd SSID GrpAttach Lvl Mode User ID Date Status Message
DB2C -- 121 NFM SYSADM 2017/11/09 Ready to Customize
DB2A DSG1 121 NFM SYSADM 2017/11/09 Ready to Customize
-- DSGA 121 NFM SYSADM 2017/11/09 Ready to Customize
----- End of DB2 entries -----
```

The following table shows which values are used in the CONNECT statements in the generated jobs, based on the value of the **Use DB2 group attach** field.

<i>Table 5. Value that is used in the CONNECT statements in the generated jobs</i>			
SSID	GrpAttch	Value of the Use DB2 group attach field	Value that is used in the CONNECT statements
DB2C	--	Yes	SSID
		No	SSID
DB2A	DSG1	Yes	Group attach name
		No	SSID
--	DSGA	Yes	Group attach name
		No	Group attach name

Tools Customizer metadata library

The name of the data set that contains the metadata that is used to display the Db2 and LPAR parameters. The parameters that are displayed on the **LPAR Parameters** panel and the **DB2 Parameters** panel depend on the parameters that you define and the tasks and steps that you select on the **Product Parameters** panel for the product that you are customizing. For example, the Db2 parameters that are required, based on the selected tasks and steps, are displayed on the **DB2 Parameters** panel, and you can edit them. If they are not required, they are not displayed. Read access to this data set is required. Data set names that exceed 42 characters must be enclosed in single quotation marks (').

Discover output data set

The name of the data set in which the output from the Db2 HPU Discover EXEC is stored. Each product has its own Discover EXEC. The Discover EXEC retrieves the product, LPAR, and Db2 parameters from a previously customized product. Write access to this data set is required. Data set names that exceed 42 characters must be enclosed in single quotation marks (').

Volume serial

The volume name in which the discover output data set will reside. If you don't specify a volume name, it will be assigned by the system.

Data store data set

The name of the data set where Tools Customizer stores information about product, LPAR, and Db2 parameter values. Information about which products are associated with which Db2 entries (Db2 subsystems, Db2 group attach names, and Db2 data sharing members) is also stored in this data set. Data set names that exceed 42 characters must be enclosed in single quotation marks ('). The specified data store data set can be used with only one invocation of Tools Customizer at a time. Data set names that exceed 42 characters must be enclosed in single quotation marks (').

Volume serial

The volume name in which the data store data set will reside. If you don't specify a volume name, it will be assigned by the system.

User job card settings for customization jobs

The job card information to be inserted into the generated jobs for customizing a product. The default value is the job statement information from the **ISPF Batch Selection** panel.

The first line of the job card automatically begins with the following information:

```
//          JOB
```

where characters 3 - 10 are reserved by Tools Customizer for the job name and includes a blank space after JOB. This name cannot be edited. Information that you specify on the first line of the job card cannot exceed 57 characters. This character limit includes a continuation character. All other lines of the job card cannot exceed 72 characters.

3. Press End to save and exit.

If the Discover output data set and the data store data set that you specified do not exist, Tools Customizer creates them.

Important: If the ISPF sessions unexpectedly ends before you exit Tools Customizer, the fields on the **Tools Customizer Settings** panel (CCQPSET) will be repopulated with default values, and you will be required to review them or specify new values again.

Results

The values are saved, and the **IBM Tools Customizer for z/OS** main menu panel (CCQPHME) is displayed again.

What to do next

You are ready to customize or recustomize Db2 HPU or to change parameter settings.

Related concepts

Customizing Db2 HPU

Using Tools Customizer to customize Db2 HPU consists of identifying the product to customize; defining any required Db2 HPU, LPAR, and Db2 parameters; generating the customization jobs; and submitting the jobs.

Changing display options

You can choose which types of information to show on Tools Customizer panels. You can also copy your user profile to another data set so that it can be shared with other users.

About this task

By using the **OPTIONS** command, you can choose to show or hide the following information on Tools Customizer panels:

- The instructions on all panels
- The Product to Customize section on the **Customizer Workplace** panel (CCQPWRK)
- The Usage Notes section on the **Product Parameters** panel (CCQPPRD)

The **OPTIONS** command also allows you to copy your user profile to another data set so that it can be shared with other users. By sharing a copy of your profile, other users can customize the same products that you initially customized or started to customize.

Procedure

1. On any Tools Customizer panel, issue the **OPTIONS** command.

The **Miscellaneous Options** panel (CCQPOPT) is displayed, as shown in the following figure. By default, all panel display options are preselected with a slash (/), which means that they will be displayed.

```
CCQPOP1                               Miscellaneous Options
Command ===>
-----

Enter a / to select options and press Enter. To cancel, press End.

Panel Display Options
 / Show the panel instructions
 / Show the Product to Customize section
 / Show the Usage Notes section

User Profile Sharing Option
 _ Copy user profile to another data set
```

Figure 2. The **Panel Display Options** panel (CCQPOPT)

2. To hide the panel instructions, the Product to Customize section, or the Usage Notes section, remove the slash from the appropriate option or options.
3. To copy your user profile to another data set so that it can be shared with other users:
 - a) Type a slash in the **Copy user profile to another data set** field and press Enter.
 - b) Specify the fully qualified name of the data set into which you want to copy the current user profile. If the data set name exceeds 42 characters, enclose the name in quotation marks. ALTER or UPDATE authorization to this data set is required.
 - c) Optionally specify a volume name in which the user profile data set will reside. If you don't specify a volume name, it will be assigned by the system.
4. Press Enter to save your changes.

Sorting and filtering columns

You can sort data in Tools Customizer columns by up to two columns. You can also filter the data in columns to display only the data that matches the filter criteria that you specify.

About this task

Sorting and filtering is available only on the **Customizer Workplace** panel, the **Finish Product Customization** panel, the **Associate DB2 Entry for Product** panel, and the **Copy Associated DB2 Entry** panel.

Procedure

The following instructions describe how to sort and filter data in Tools Customizer columns:

- To sort data in Tools Customizer columns, issue the SORT command.

On the SORT command, specify up to two column names followed by the sort order: A for ascending or D for descending. If you don't specify a sort order, the default sort order is used, which can change depending on the column type.

For example, the following command sorts the column entries by SSID in ascending order, and then by GrpAttch in descending order within SSID.

```
COMMAND ==>> SORT SSID A GrpAttch D
```

You cannot specify the **Cmd** column on the SORT command.

- To filter data in Tools Customizer columns, overwrite the asterisk (*) under the column names with the filtering arguments for those columns.

For example, to filter SSIDs that start with DB, overwrite the *\ under the **SSID** column with DB or DB*. When you press Enter, all the SSIDS that meet that criteria, such as DB01 and DB02, are displayed.

A filter argument in the form DB* means that only the characters up to the asterisk are considered. When you specify an asterisk in the last nonblank position of the argument, asterisks embedded in the argument are treated as data.

Customizing Db2 HPU

Using Tools Customizer to customize Db2 HPU consists of identifying the product to customize; defining any required Db2 HPU, LPAR, and Db2 parameters; generating the customization jobs; and submitting the jobs.

Customization roadmaps describe the steps that you must complete to customize Db2 HPU. Separate roadmaps are provided for the three most common types of customizations.

Use the following table to determine which roadmap corresponds to your environment.

Table 6. Customization roadmaps

Environment description	Roadmap
You do not have a customized version of Db2 HPU, and you need to customize it for the first time.	“Roadmap: Customizing Db2 HPU for the first time” on page 37
You have already customized a version of Db2 HPU, and you want to use the same parameter values to customize a different version.	“Roadmap: Customizing a new version of Db2 HPU from a previous customization” on page 38
You have a customized version of Db2 HPU, but you want to change one or more parameter values.	“Roadmap: Recustomizing Db2 HPU” on page 39

Roadmap: Customizing Db2 HPU for the first time

This roadmap lists and describes the steps that are required to customize Db2 HPU for the first time.

If you are customizing a previous version of Db2 HPU, see [“Roadmap: Customizing a new version of Db2 HPU from a previous customization” on page 38](#).

Before you complete these steps, ensure that the following prerequisites have been met:

- All of the product customization steps that must be done before Tools Customizer is started are complete.
- The LPAR ISPF libraries that are required to submit the jobs are known.
- Tools Customizer is started.
- The Tools Customizer settings have been reviewed or modified, and saved.

Complete the steps in the following table to customize Db2 HPU for the first time.

Table 7. Steps for customizing Db2 HPU for the first time

Step	Description	Instructions
1	Specify the product metadata library for the product that you want to customize. The name of this library is <i>hlq.SINZDENU</i> .	“Specifying the metadata library for the product to customize” on page 40
2	Create new Db2 entries and associate them with Db2 HPU.	“Creating and associating Db2 entries” on page 43
3	Define the required parameters.	“Defining parameters” on page 44
4	Generate the customization jobs for the product or for the Db2 entries on which Db2 HPU is ready to be customized.	“Generating customization jobs” on page 52
5	Submit the generated customization jobs.	“Submitting customization jobs” on page 53

The following table lists some of the common administrative tasks that you might need to do during the customization process.

Table 8. Administrative tasks

Description	Instructions
Browse the different types of parameters.	“Browsing parameters” on page 55
Copy an existing Db2 entry to the list of Db2 entries on which Db2 HPU can be customized.	“Copying Db2 entries” on page 55
Remove one or more Db2 entries from the associated list.	“Removing Db2 entries” on page 57

Table 8. Administrative tasks (continued)

Description	Instructions
Delete one or more Db2 entries from the main list.	“Deleting Db2 entries” on page 57
Display a list of customization jobs that have been previously generated.	“Displaying customization jobs” on page 58
Maintain the customization jobs in the customization library.	“Maintaining customization jobs” on page 58

Roadmap: Customizing a new version of Db2 HPU from a previous customization

This roadmap lists and describes the steps for customizing a new version of Db2 HPU based on the existing customization values of a previous version of the same product.

Use this roadmap even if the previous version of Db2 HPU was not customized by using Tools Customizer.

Before you complete these steps, ensure that the following prerequisites have been met:

- All of the product customization steps that must be done before Tools Customizer is started are complete.
- Tools Customizer is started.
- The Tools Customizer settings have been reviewed or modified, and saved.

Complete the steps in the following table to customize a new version of Db2 HPU from a previous customization.

Table 9. Steps for customizing a new version of Db2 HPU from a previous customization

Step	Description	Instructions
1	Specify the product metadata library for the product that you want to customize. The name of this library is <i>hlq.SINZDENU</i> .	“Specifying the metadata library for the product to customize” on page 40
2	Use the Db2 HPU Discover EXEC to discover information about the version of Db2 HPU that you previously customized manually.	“Discovering Db2 HPU information automatically” on page 41
3	Define the required parameters.	“Defining parameters” on page 44
4	Generate the customization jobs for the product or for the Db2 entries on which Db2 HPU is ready to be customized.	“Generating customization jobs” on page 52
5	Submit the generated customization jobs.	“Submitting customization jobs” on page 53

The following table lists some of the common administrative tasks that you might need to do during the customization process.

Table 10. Administrative tasks

Description	Instructions
Browse the different types of parameters.	“Browsing parameters” on page 55
Copy an existing Db2 entry to the list of Db2 entries on which Db2 HPU can be customized.	“Copying Db2 entries” on page 55
Remove one or more Db2 entries from the associated list.	“Removing Db2 entries” on page 57

Table 10. Administrative tasks (continued)

Description	Instructions
Delete one or more Db2 entries from the main list.	“Deleting Db2 entries” on page 57
Display a list of customization jobs that have been previously generated.	“Displaying customization jobs” on page 58
Maintain the customization jobs in the customization library.	“Maintaining customization jobs” on page 58

Roadmap: Recustomizing Db2 HPU

This roadmap lists and describes the steps to change parameter values and regenerate customization jobs for Db2 HPU after you have customized it for the first time.

The new customization jobs will replace the customization jobs that were previously generated and stored in the customization library. Part of the recustomization process includes selecting or deselecting optional tasks or steps, changing the definitions of parameters that have already been defined, or both. Use the method in this roadmap instead of deleting customization jobs from the customization library.

Before you complete these steps, ensure that the following prerequisites have been met:

- All of the product customization steps that must be done before Tools Customizer is started are complete.
- Tools Customizer is started.

Complete the steps in the following table to recustomize Db2 HPU.

Tip: Use a new customization library every time that you apply maintenance and regenerate all the Tools Customizer jobs (by using the GENERATEALL command). For example, append a date as show in the following example:

```
Customization lib: RSTEST.AOC.$RS01$.ADB1210.D200716
```

This practice provides a backup and allows you to compare the jobs to a previous customization by using ISPF option 3.12.

Table 11. Required steps for recustomizing Db2 HPU

Step	Description	Instructions
1	Specify the product metadata library for the product that you want to recustomize. The name of this library is <i>hlq.SINZDENU</i> .	“Specifying the metadata library for the product to customize” on page 40
2	Edit the specific tasks, steps, or parameters that need to be changed.	<ul style="list-style-type: none"> • “Defining Db2 HPU parameters” on page 45 • “Defining LPAR parameters” on page 46 • “Defining Db2 parameters” on page 48
3	Generate the customization jobs for the product or for the Db2 entries on which Db2 HPU is ready to be customized.	“Generating customization jobs” on page 52
4	Submit the new generated customization jobs.	“Submitting customization jobs” on page 53

The following table lists some of the common administrative tasks that you might need to do during the customization process.

Table 12. Administrative tasks

Description	Instructions
Browse the different types of parameters.	“Browsing parameters” on page 55
Copy an existing Db2 entry to the list of Db2 entries on which Db2 HPU can be customized.	“Copying Db2 entries” on page 55
Remove one or more Db2 entries from the associated list.	“Removing Db2 entries” on page 57
Delete one or more Db2 entries from the main list.	“Deleting Db2 entries” on page 57
Display a list of customization jobs that have been previously generated.	“Displaying customization jobs” on page 58
Maintain the customization jobs in the customization library.	“Maintaining customization jobs” on page 58

Specifying the metadata library for the product to customize

You must specify a metadata library for the product that you want to customize.

About this task

The product metadata library contains the information that determines which tasks, steps, and parameters are required to customize Db2 HPU. This information controls what is displayed on the **Product Parameters** panel, the **LPAR Parameters** panel, and the **DB2 Parameters** panel.

After Db2 HPU has been SMP/E installed, the default name of the product metadata library is *high_level_qualifier.SINZDENU*, where *high_level_qualifier* is all of the segments of the data set name except the lowest-level qualifier.

Procedure

1. Specify option 1 on the **Tools Customizer for z/OS** panel.

The **Specify the Product or Pack Metadata Library** panel is displayed. This panel contains a list of the product metadata libraries that you specified most recently. If you are using Tools Customizer for the first time, this list is empty, as shown in the following figure:

```

CCQPHLQ          Specify the Product or Pack Metadata Library          15:12:22

Type the name of the metadata library for the product or the pack in the
Metadata library field, or select the library in the list of previous
libraries and press Enter to populate the field. Press Enter to continue.

The default name of the metadata library after the product or pack has been
SMP/E installed is <hlq>.SxxxDENU, where <hlq> is the high-level qualifier for
the product or the pack, and xxx is the three-character prefix for the product
or the pack.

Product or pack metadata library . XYZ.HINZ.SINZDENU

Name              Version  Metadata
Library

=>
=>
=>
=>

```

Figure 3. The **Specify the Metadata Library** panel

2. Use one of the following methods to specify the product metadata library:

- Type the name of a fully qualified partitioned data set (PDS) or an extended partitioned data set (PDSE) in the **Product or pack metadata library** field. Double quotation marks (") cannot be used around the name. Single quotation marks (') can be used but are not required. If you are customizing Db2 HPU for the first time, you must use this method.
- Place the cursor in any column of the Recent Metadata Libraries list, and press Enter to populate **Product or pack metadata library** field. Press Enter again to select product or pack for customization.

Results

If you are customizing Db2 HPU for the first time, the **Run Discover EXEC** panel is displayed. Otherwise, the **Customizer Workplace** panel is displayed.

What to do next

- Complete the steps that correspond to your environment:

Customizing Db2 HPU for the first time

Do not run the Db2 HPU Discover EXEC. Press End. The **Customizer Workplace** panel is displayed. If your environment requires associated Db2 entries, ensure that they are created and associated. If your environment does not require associated Db2 entries, skip this step, and edit Db2 HPU parameters.

Customizing Db2 HPU from a previous or current customization

Press Enter to run the Db2 HPU Discover EXEC. The **Discover Customized Product Information** panel is displayed. Specify the required information for running the EXEC.

Discovering Db2 HPU information automatically

You can use the Db2 HPU Discover EXEC to discover information from a previous or current customization of Db2 HPU.

About this task

Tip: Using the Db2 HPU Discover EXEC to discover information from a previous or current customization saves time and reduces errors that can occur when parameters are specified manually.

Db2 HPU provides the Discover EXEC that you will run. Therefore, the information that can be discovered depends on Db2 HPU.

Parameter values that are discovered and parameter values that are specified manually are saved in the data store. If parameter values for the product that you want to customize exist in the data store, Tools Customizer issues a warning before existing values are replaced.

Procedure

1. On the **Customizer Workplace** panel, issue the DISCOVER command.

If you chose to run the Db2 HPU Discover EXEC on the pop-up panel after you specified the product to customize, skip this step.

Tip: You can run any Tools Customizer primary command by using either of the following methods:

- Place the cursor on the name of the primary command, and press Enter.
- Type the primary command name in the command line, and press Enter.

The **Discover Customized Product Information** panel is displayed, as shown in the following figure:

```

CCQPDCS          Discover Customized Product Information          19:57:11

For the product you are customizing, the Discover EXEC retrieves product
information from an already customized product. Specify the required
information. To save your information and run the Discover EXEC, issue the RUN
command. To save your information and stay on this panel, issue the SAVE
command. To verify the syntax of your information without saving it, press
Enter. To save and exit, press End.

Commands: RUN  SAVE

Product to Customize
  Product metadata library : XYZ.HINZ.SINZDENU  > LPAR. . . : ZPS1
  Product name . . . . . : IBM DB2 High Performance U > Version . :

Discover EXEC for Extracting Information from an Already Customized Product
*Discover EXEC library . . . XYZ.HINZ.SINZCLST
Discover EXEC name . . . . : INZTDSC
*Discover output data set . . XYZ.HINZ.DISCOUT

Verbose mode for procedure . . . . . OFF (OFF,ON)

```

Figure 4. The **Discover Customized Product Information** panel

2. Either accept the default values for the following input fields that Tools Customizer generates, or replace the default values with your own values:

Discover EXEC library

The fully qualified data set name that contains the Db2 HPU Discover EXEC.

Discover EXEC name

The name of the Db2 HPU Discover EXEC.

Discover output data set

The fully qualified data set where output from the Db2 HPU Discover EXEC is stored.

3. Either accept or change the default values in the **Information for Discover EXEC** fields. These fields are generated by Db2 HPU. They show the information that is required to run the Db2 HPU Discover EXEC.
4. Issue the RUN command to run the Db2 HPU Discover EXEC. Alternatively, save your information without running the Db2 HPU Discover EXEC by issuing the SAVE command. If you issue the RUN command to run the Db2 HPU Discover EXEC, the parameter information is discovered for Db2 HPU, and the **Customizer Workplace** panel is displayed.

Results

The discovered parameter values for Db2 HPU replace any existing values.

What to do next

The next step depends on your environment:

- If Db2 entries were not discovered, or if you need to customize Db2 HPU on new Db2 entries, create and associate the entries.
- If Db2 entries were discovered and you want to customize Db2 HPU on only these entries, define the parameters.

Related tasks

[Creating and associating Db2 entries](#)

You can create new Db2 entries and associate them with Db2 HPU.

[Defining parameters](#)

To customize Db2 HPU, you must define Db2 HPU parameters, LPAR parameters, and Db2 parameters, if your customization requires Db2 entries.

Creating and associating Db2 entries

You can create new Db2 entries and associate them with Db2 HPU.

About this task

The list of associated Db2 entries is on the **Customizer Workplace** panel.

Procedure

1. Issue the ASSOCIATE command on the **Customizer Workplace** panel.

The **Associate DB2 Entry for Product** panel is displayed, as shown in the following figure:

```
CCQPDAD                Associate DB2 Entry for Product                16:36:42
Command ===>                Scroll ===> PAGE

Select any of the following DB2 entries to add them to the Customizer
Workplace panel. You use the Customizer Workplace panel to choose the DB2
subsystems, data sharing members, and group attach names on which to
customize the product.

Commands: CREATE - Create new DB2 entries

DB2 Entries
Line commands: A - Associate  C - Copy  D - Delete
Cmd SSID GrpAttch
      *      *
----- End of DB2 entries -----
```

Figure 5. The **Associate DB2 Entry for Product** panel

2. Create Db2 entries.

If you need to associate Db2 entries that are already in the main list, skip this step and go to step 3.

- a) Issue the CREATE command to create one Db2 entry, or issue CREATE *nn* to create multiple Db2 entries, where *nn* is the number of new entries to be created.

The **Create DB2 Entries** panel is displayed, as shown in the following figure:

```
CCQPCDB                Create DB2 Entries                Row 1 of 1
Command ===>                Scroll ===> PAGE

Specify the SSID, the group attach name, or both in the appropriate columns
for each new DB2 entry and press Enter. To create additional entries, issue
the Inn line command, where nn is the number of entries to be inserted, and
press Enter. To cancel, press End.

New DB2 Entries
Line commands: I - Insert into list  R - Remove from list
Cmd SSID GrpAttch Message
----- End of DB2 entries -----
```

Figure 6. The **Create DB2 Entries** panel

- b) In the appropriate columns, specify a Db2 subsystem ID, Db2 group attach name, or Db2 data sharing member name for the Db2 entry that you want to create, and press Enter.

Valid values are 1 - 4 characters. You can use symbolic characters. You cannot use blanks.

Tips:

- To insert multiple Db2 entries, specify the *Inn* line command, where *nn* is the number of Db2 entries to be inserted.

- You will define specific parameters for these new Db2 entries on the **DB2 Parameters** panel. This panel is displayed after you select these new Db2 entries and issue the line command to generate the jobs, after you issue the primary command to generate the jobs for all associated Db2 entries, or when you manually edit the Db2 parameters.

The **Associate DB2 Entry for Product** panel is displayed, and the new Db2 entry is displayed in the main list, as shown in the following figure:

```

CCQPDAD                                     Associate DB2 Entry for Product          Row 1 to 3 of 3
Command ===>                               Scroll ===> CSR

Select any of the following DB2 entries to add them to the Customizer
Workplace panel. You use the Customizer Workplace panel to choose the DB2
subsystems, data sharing members, and group attach names on which to
customize the product.

Commands:  CREATE - Create new DB2 entries

DB2 Entries
Line commands: A - Associate  C - Copy  D - Delete
Cmd  SSID  GrpAtch
  *      *
  DBAA  --
  DBAB  --
  DBAC  --
----- End of DB2 entries -----

```

Figure 7. Associate DB2 Entry for Product panel

- c) Repeat steps b and c for each Db2 entry that you want to create.
 - d) When you have created all the Db2 entries, associate them with Db2 HPU, or press End to display the **Customizer Workplace** panel.
3. Associate Db2 entries.
 - a) Specify A against one or more Db2 entries in the main list, and press Enter to associate them with Db2 HPU.

Results

The **Customizer Workplace** panel is displayed with the associated Db2 entries displayed in the associated list.

What to do next

Define the parameters.

Related concepts

[Tools Customizer terminology](#)

Tools Customizer uses several unique terms that you should be familiar with before you begin to use Tools Customizer.

Defining parameters

To customize Db2 HPU, you must define Db2 HPU parameters, LPAR parameters, and Db2 parameters, if your customization requires Db2 entries.

About this task

You must define the Db2 HPU parameters first for the following reasons:

- If you ran the Db2 HPU Discover EXEC, you must review the values that were discovered.
- If you select optional tasks and steps on the **Product Parameters** panel that affect the Db2 entry on which you will customize Db2 HPU, additional parameters might be displayed on the **DB2 Parameters** panel.
- If other steps must be completed in a specific sequence, customization notes on the **Product Parameters** panel will display the correct sequence.

Defining Db2 HPU parameters

Db2 HPU parameters are specific to Db2 HPU.

About this task

If you ran the Db2 HPU Discover EXEC, you must review the parameters that were discovered.

Procedure

1. Specify E next to the **Product parameters** field on the **Customizer Workplace** panel, and press Enter. The **Product Parameters** panel is displayed, as shown in the following figure. If other steps must be completed in a specific sequence before you define the Db2 HPU parameters, a note labeled **Important** will display the correct sequence on this panel.

```
CCQPPRD                Product Parameters: DB2 HPU                20:06:24

Complete the following tasks to customize the products. The required tasks,
required steps within a required or selected task, and required parameters
are preceded by an asterisk (*). Ensure that values are specified for the
required parameters. Press End to save and exit.

Commands: SAVE  VERIFYOFF
Line Commands: / - Select

Product customization library : XYZ.TCZ.$S0W1$.INZ510.Z690                More:      +

Usage Notes:
  For more information about specifying values for parameters, see the Db2
  High Performance Unload V5.1 User's Guide.

Common parameters
* Application plan for DB2 HPU ..... VUM011/
PLANOBJT
  HINZ510
* Package collection for DB2 HPU ..... VUM030/
COLLOBJT
  HINZ510
```

Figure 8. The **Product Parameters** panel

You can use the following primary commands on this panel:

SAVE

Saves the specified product or component parameter values.

VERIFY / VERIFYOFF

Use the VERIFY and VERIFYOFF commands to turn on and off parameter verification of product or component parameters. Before you can generate customization jobs, you must verify that all required parameters are set to a valid value. The product or component parameter status of **Verify Values** on the **Customize Workplace** panel indicates that the values have not been verified.

Enter these commands either by typing them in the command field and pressing Enter or by positioning the cursor on the command and pressing Enter. When VERIFY is active, VERIFYOFF is displayed so that you can toggle between the two states. By default, verification is turned on when you display the **DB2 Parameters** panel, and the verification state is reset to VERIFY every time you exit the Customization Workplace panel by pressing PF3.

Turning verification off is useful when you need to exit the panel before you have entered all of the required parameters, but you want to save the parameters that you have specified. When you disable verification, it is disabled only for the Product or Component Parameters Values panel.

2. Select any required tasks and steps, and specify values for any parameters. After you select a task or step with a slash (/), put the cursor in the selected field and press Enter.

If tasks, steps, and parameters are required, they are preselected with a slash (/). Otherwise, they are not preselected.

All of the required parameters have default values, which you can either accept or change.

Tips:

- In the command line, specify the KEYS command, and map EXPAND to one of the function keys.
 - For a detailed description of all input fields, put the cursor in the field, and press F1 or the key that is mapped to Help.
 - The following elements apply to specific fields:
 - **Add** is displayed when parameters can have multiple values but currently have only one value. To specify multiple values in these fields, place the cursor on **Add**, and press Enter. Use the displayed panel to add or delete additional values.
 - **List** is displayed when the complete list of valid values for the fields is too long to be displayed on the panel. To see the complete list of values, place the cursor on **List**, and press F1 or the key that is mapped to Help.
 - **More** is displayed when input fields contains multiple values. To see all of the values in the field, place the cursor on **More**, and press Enter.
3. Optional: Select other tasks and steps with a slash (/) and press Enter to activate the input fields. Either accept or change the default values that are displayed.
 4. Press End to save your changes and exit, or issue the SAVE command to save your changes and stay on the **Product Parameters** panel.

Results

The **Customizer Workplace** panel is displayed, and the status of the product parameters is Ready to Customize.

What to do next

If the status of other parameters on the **Customizer Workplace** panel is Incomplete, Verify Values, or Discovered, edit these parameters.

Related tasks

Defining LPAR parameters

LPAR parameters are parameters on the local LPAR that are required to customize Db2 HPU.

Defining Db2 parameters

Db2 parameters are parameters for a Db2 entry.

Defining LPAR parameters

LPAR parameters are parameters on the local LPAR that are required to customize Db2 HPU.

Procedure

1. Specify E next to the **LPAR parameters** field, and press Enter.
The **LPAR Parameters** panel is displayed, as shown in the following figure:

Ensure that values are specified for the required LPAR parameters. Press End to save and exit.

Commands: SAVE VERIFYOFF

More:

```
Other Parameters - common
* Unit name for batch work data sets . . . . WORK

DB2 HPU Library Dsnames
* Load modules library ..... /SINZLOAD
  HINZ510.CODEDROP.SINZLOAD
* APF load modules library ..... /SINZLINK
  HINZ510.CODEDROP.SINZLINK
* Samples library ..... /SINZSAMP
  HINZ510.CODEDROP.SINZSAMP
* PARMLIB library ..... INZPLIB/INFPLIB
  HINZ510.CODEDROP.SINZPARM
* Product's DBRM library ..... /SINZDBRM
  HINZ510.CODEDROP.SINZDBRM
* REXX EXEC library ..... /SINZCLST
  HINZ510.CODEDROP.SINZCLST
```

Figure 9. The **LPAR Parameters** panel

Note: regarding the "Exit Library", only the DSNEXT Library displayed on this panel is taken into account. When "More" appears, the other libraries are ignored. The INZCHECK procedure must be checked.

You can use the following primary commands on this panel:

SAVE

Saves the specified product or component parameter values.

VERIFY / VERIFYOFF

Use the VERIFY and VERIFYOFF commands to turn on and off parameter verification of LPAR parameters. Before you can generate customization jobs, you must verify that all required parameters are set to a valid value. The LPAR parameter status of Verify Values on the Customize Workplace panel indicates that the values have not been verified.

Enter these commands either by typing them in the command field and pressing Enter or by positioning the cursor on the command and pressing Enter. When VERIFY is active, VERIFYOFF is displayed so that you can toggle between the two states. By default, verification is turned on when you display the LPAR Parameters panel, and the verification state is reset to VERIFY every time you exit the Customization Workplace panel by pressing PF3.

Turning verification off is useful when you need to exit the panel before you have entered all of the required parameters, but you want to save the parameters that you have specified. When you disable verification, it is disabled only for the LPAR Parameters Values panel.

2. Specify values for all required parameters that are displayed.

Many parameters have default values, which you can either accept or change.

Tips:

- In the command line, specify the KEYS command, and map EXPAND to one of the function keys.
- For a detailed description of all input fields, put the cursor in the field, and press F1 or the key that is mapped to Help.
- The following elements apply to specific fields:
 - **Add** is displayed when parameters can have multiple values but currently have only one value. To specify multiple values in these fields, place the cursor on **Add**, and press Enter. Use the displayed panel to add or delete additional values.

- **List** is displayed when the complete list of valid values for the fields is too long to be displayed on the panel. To see the complete list of values, place the cursor on **List**, and press F1 or the key that is mapped to Help.
- **More** is displayed when input fields contains multiple values. To see all of the values in the field, place the cursor on **More**, and press Enter.

The following LPAR parameters can contain 1 - 64 values:

- LPAR macro library
 - Message library
 - Panel library
 - Skeleton library
 - ISPF table input library
 - ISPF user profile library
 - File tailoring output library
 - Link list library
 - Command procedures library
 - Macro library
 - Link-edit library
 - Load library
 - Started task library name
3. Press End to save your changes and exit, or issue the SAVE command to save your changes and stay on the same panel.

Results

The **Customizer Workplace** panel is displayed, and the status of the LPAR parameters is Ready to Customize.

What to do next

If the status of other parameters on the **Customizer Workplace** panel is Incomplete, Verify Values, or Discovered, edit these parameters.

Related tasks

[Defining Db2 HPU parameters](#)

Db2 HPU parameters are specific to Db2 HPU.

[Defining Db2 parameters](#)

Db2 parameters are parameters for a Db2 entry.

Defining Db2 parameters

Db2 parameters are parameters for a Db2 entry.

About this task

If you did not run the Db2 HPU Discover EXEC, you must create and associate one or more Db2 entries before you can define the Db2 parameters. For more information, see [“Creating and associating Db2 entries”](#) on page 43.

Procedure

1. Specify E next to one or more Db2 entries in the associated list, which is in the Associated Db2 Entries and Parameter Status section on the **Customizer Workplace** panel, and press Enter.
The **DB2 Parameters** panel is displayed, as shown in the following figure:


```

CCQPDB2          DB2 Parameters: DB2 HPU          11:05:08
Command ==>>>          Scroll ==>>> CSR

Ensure that values are specified for the required DB2 parameters. Press End
to save and exit.

Commands: SAVE  VERIFYOFF

DB2 subsystem ID . . . . . : DSN1
Group attach name . . . . .

General DB2 Information - common
*Mode . . . . . NFM (CM, CM8, CM9, NFM)
*Level number . . . . . 121 (810, 910, 101, 111, 121)
Db2 current function level . . . . . 500
*Mixed mode . . . . . NO (YES, NO)

DB2 Libraries - common
*Load library . . . . . DSN.SDSNLOAD          Add
*Run library . . . . . DSN.RUNLIB.LOAD       Add
*Exit library . . . . . DSN.SDSNEXIT        Add

DB2 Utilities - common
SYSAFF for DB2 utilities . . . . .

```

Figure 10. The **DB2 Parameters** panel

Note: Db2 HPU exploits the first six non empty lines as libraries that are allocated as a concatenation (ordered as in the Tools Customizer's list) under the STEPLIB DDname for the Db2 HPU steps in the following JCLs:

- the customization job related to the INZCHECK template
- the Db2 HPU job generated by the Db2 HPU ISPF interface

As a consequence, the libraries defined for this field and their sequence must comply with the requirements for the Db2 HPU steplib. Make sure to specify the libraries mandatory for Db2 HPU

If the local tools/system implementation requires an usual set of more than six Db2 load libraries, take the following indications into account:

- specify the libraries mandatory for Db2 HPU at the top of the list
- if more than six libraries are mandatory for Db2 HPU, the INZCHECK customization job works fine as it actually exploits all the Db2 load libraries defined through Tools Customizer but the JCL generated by the ISPF interface misses some of the necessary libraries.

The following example shows how to set the LOAD libraries if you use non resident modules for:

- DFSORT,
- Db2 SORT,
- other modules not required by Db2 HPU.

```

CCQPMVL          Multiple Value Parameter          Row 1 to 7 of 7
Command ==>>>          Scroll ==>>> CSR

To add another value, issue the ADD command, and specify another value
for the parameter in the blank field in the Value column. Press Enter to
save your values, or press End to save and exit.

Commands: ADD

Parameter description:
  Load library

Line commands: D - Delete

Cmd Value
inst1hlq.SDSNLOAD
inst1hlq.SDSNLOAD2
inst2hlq.SICELINK
inst2hlq.SORTLPA
inst3hlq.SCNKLINK
inst3hlq.SCNKLPA

```

```
inst4hlq.not.used.by.Db2HPU.loadlib
----- End of values -----
```

With the above setting, the STEPLIB specified by the INZCHECK customization job is:

```
//STEPLIB DD DSN=HINZ510.SINZLINK,DISP=SHR
// DD DISP=SHR,DSN=INST1HLQ.SDSNLOAD
// DD DISP=SHR,DSN=INST1HLQ.SDSNLOAD2
// DD DISP=SHR,DSN=INST2HLQ.SICELINK
// DD DISP=SHR,DSN=INST2HLQ.SORTLPA
// DD DISP=SHR,DSN=INST3HLQ.SCNKLINK
// DD DISP=SHR,DSN=INST3HLQ.SCNKLPA
// DD DISP=SHR,DSN=INST4HLQ.NOT.USED.BY.DB2HPU.LOADLIB
```

and the STEPLIB specified in the JCL generated by the ISPF interface is:

```
//STEPLIB DD DSN=HINZ510.SINZLINK,DISP=SHR
// DD DSN=INST1HLQ.SDSNLOAD,DISP=SHR
// DD DSN=INST1HLQ.SDSNLOAD2,DISP=SHR
// DD DSN=INST2HLQ.SICELINK,DISP=SHR
// DD DSN=INST2HLQ.SORTLPA,DISP=SHR
// DD DSN=INST3HLQ.SCNKLINK,DISP=SHR
// DD DSN=INST3HLQ.SCNKLPA,DISP=SHR
```

Note: The **Db2 current function level** field allows you to specify the function level that applies to the Db2 subsystem for Db2 12 and later but this parameter has no impact on Db2 HPU as Db2 HPU retrieves this piece of information dynamically when needed.

You can use the following primary commands on this panel:

SAVE

Saves the specified product or component parameter values.

VERIFY / VERIFYOFF

Use the VERIFY and VERIFYOFF commands to turn on and off parameter verification of Db2 parameters. Before you can generate customization jobs, you must verify that all required parameters are set to a valid value. The Db2 parameter status of **Verify Values** on the Customize Workplace panel indicates that the values have not been verified.

Enter these commands either by typing them in the command field and pressing Enter or by positioning the cursor on the command and pressing Enter. When VERIFY is active, VERIFYOFF is displayed so that you can toggle between the two states. By default, verification is turned on when you display the **DB2 Parameters panel**, and the verification state is reset to VERIFY every time you exit the Customization Workplace panel by pressing PF3.

Turning verification off is useful when you need to exit the panel before you have entered all of the required parameters, but you want to save the parameters that you have specified. When you disable verification, it is disabled only for the **DB2 Parameters Values** panel.

2. Specify values for all parameters that are displayed.

Tips:

- In the command line, specify the KEYS command, and map EXPAND to one of the function keys.
- For a detailed description of all input fields, put the cursor in the field, and press F1 or the key that is mapped to Help.
- The following elements apply to specific fields:
 - **Add** is displayed when parameters can have multiple values but currently have only one value. To specify multiple values in these fields, place the cursor on **Add**, and press Enter. Use the displayed panel to add or delete additional values.
 - **List** is displayed when the complete list of valid values for the fields is too long to be displayed on the panel. To see the complete list of values, place the cursor on **List**, and press F1 or the key that is mapped to Help.
 - **More** is displayed when input fields contains multiple values. To see all of the values in the field, place the cursor on **More**, and press Enter.

Many parameters have default values, which you can either accept or change.

3. Press End to save your changes and exit, or issue the SAVE command to save your changes and stay on the same panel.

Results

The status of the Db2 entries that you selected on the **Customizer Workplace** panel is Ready to Customize.

Note:

Db2 HPU exploits the first six non empty lines as libraries that are allocated as a concatenation (ordered as in the Tools Customizer's list) under the STEPLIB DDname for the Db2 HPU steps in the following JCLs:

- the customization job related to the INZCHECK template
- the Db2 HPU job generated by the Db2 HPU ISPF interface

As a consequence, the libraries defined for this field and their sequence must comply with the requirements for the Db2 HPU steplib. See the "Db2 HPU batch mode operation/Ddname allocation/User-allocated ddnames" for more details. Make sure to specify the libraries mandatory for Db2 HPU.

If the local tools/system implementation requires an unusual set of more than six Db2 load libraries, take the following indications into account:

- specify the libraries mandatory for Db2 HPU at the top of the list
- if more than six libraries are mandatory for Db2 HPU, the INZCHECK customization job works fine as it actually exploits all the Db2 load libraries defined through Tools Customizer but the JCL generated by the ISPF interface misses some of the necessary libraries.

Example: The following example shows how to set the LOAD libraries if you use non resident modules for:

- DFSORT,
- Db2 SORT,
- other modules not required by Db2 HPU.

```
CCQPMVL          Multiple Value Parameter          Row 1 to 7 of 7
Command ==>>>          Scroll ==>> CSR

To add another value, issue the ADD command, and specify another value
for the parameter in the blank field in the Value column. Press Enter to
save your values, or press End to save and exit.

Commands: ADD

Parameter description:
  Load library

Line commands: D - Delete

Cmd Value
  inst1hlq.SDSNLOAD
  inst1hlq.SDSNLOD2
  inst2hlq.SICELINK
  inst2hlq.SORTLPA
  inst3hlq.SCNKLINK
  inst3hlq.SCNKLPA
  inst4hlq.not.used.by.Db2HPU.loadlib
----- End of values -----
```

With the above setting, the STEPLIB specified by the INZCHECK customization job is:

```
//STEPLIB      DD DSN=HINZ510.SINZLINK,DISP=SHR
//            DD DISP=SHR,DSN=INST1HLQ.SDSNLOAD
//            DD DISP=SHR,DSN=INST1HLQ.SDSNLOD2
//            DD DISP=SHR,DSN=INST2HLQ.SICELINK
//            DD DISP=SHR,DSN=INST2HLQ.SORTLPA
//            DD DISP=SHR,DSN=INST3HLQ.SCNKLINK
//            DD DISP=SHR,DSN=INST3HLQ.SCNKLPA
//            DD DISP=SHR,DSN=INST4HLQ.NOT.USED.BY.DB2HPU.LOADLIB
```

and the STEPLIB specified in the JCL generated by the ISPF interface is:

```
//STEPLIB DD DSN=HINZ510.SINZLINK,DISP=SHR
// DD DSN=INST1HLQ.SDSNLOAD,DISP=SHR
// DD DSN=INST1HLQ.SDSNLOAD2,DISP=SHR
// DD DSN=INST2HLQ.SICELINK,DISP=SHR
// DD DSN=INST2HLQ.SORTLPA,DISP=SHR
// DD DSN=INST3HLQ.SCNKLINK,DISP=SHR
// DD DSN=INST3HLQ.SCNKLPA,DISP=SHR
```

Note: regarding the "Exit Library", only the DSNEXT Library displayed on this panel is taken into account. When "More" appears, the other libraries are ignored. The INZCHECK procedure must be checked.

What to do next

If the status of other parameters on the **Customizer Workplace** panel is Incomplete, Verify Values, or Discovered, edit these parameters.

Related tasks

[Defining Db2 HPU parameters](#)

Db2 HPU parameters are specific to Db2 HPU.

[Defining LPAR parameters](#)

LPAR parameters are parameters on the local LPAR that are required to customize Db2 HPU.

Generating customization jobs

To generate customization jobs for Db2 HPU and any associated Db2 entries, issue the GENERATEALL command, or select one or more Db2 entries on which to customize Db2 HPU.

Procedure

Generate the customization jobs by using one of the following methods.

- If you want to generate customization jobs at the product level and for any associated Db2 entries, issue the GENERATEALL command, and press Enter.
- If you want to generate customization jobs for specific Db2 entries, select the Db2 entries by specifying the G line command against them, and press Enter. The available Db2 entries are in the associated list in the Associated Db2 Entries and Parameter Status section.

Important: Regenerating customization jobs will replace any existing jobs, including jobs that you might have manually modified after they were generated.

Results

If the status is Incomplete or Discovered for Db2 HPU parameters, LPAR parameters, or Db2 parameters, Tools Customizer automatically starts an editing session for the types of parameters that are required. The session continues until the panel for each type of required parameter has been displayed.

What to do next

If an automatic editing session is started, accept the displayed parameter values or define values for the required types of parameters, select optional parameters, tasks, or steps for your environment, and save the parameter values. Otherwise, the customization jobs are generated, and you can submit them.

Tip: If the customization jobs are generated, but you are not ready to submit them, you can see them later by issuing the JOBLIST command on the **Customizer Workplace** panel. The JOBLIST command displays the **Finish Product Customization** panel, which you can use to submit the jobs.

Submitting customization jobs

Submit the customization jobs to customize Db2 HPU.

Before you begin

Ensure that the correct jobs are generated.

About this task

The following figure shows part of the **Finish Product Customization** panel. The table on this panel shows the customization jobs that are generated by Tools Customizer. They are grouped by job sequence number.

```
CCQPCST                Finish Product Customization                Row 1 to 22 of 146

Submit the members in the order in which they apply to all DB2 entries. To
submit the job, browse the member and issue the TSO SUBMIT command, or browse
the customized library and submit the jobs from there.

Product to Customize
  Product metadata library : XYZ.HINZ.SINZDENU >          LPAR . . : ZPS1
  Product name . . . . . : IBM DB2 High Performance U > Version . :

Line Commands: E - Edit  B - Browse

  Product customization library . : XYZ.HINZ.$ZPS1$.INZ          >

Cmd  Member  SSID  GrpAttch  Template  Date      Description
-----
A0TVAR  --  --      INZTVAR  2012/06/06  Build the member of parameters
A1PARM  --  --      INZPARM  2012/06/06  Define DSNAME of PARMLIB to loa
A2HPUCL  --  --      INZHPUCL 2012/06/06  Generate CLIST to start HPU
A3LAUNC  --  --      INZLAUNC 2012/06/06  Integrate DB2 HPU to DB2 Tools
A4ADTOO  --  --      INZADTOO 2012/06/06  Integrate DB2 HPU into DB2 Admi
A5BIAAAA  --  DG93    INZBIND  2012/03/19  BIND and GRANT for HPU
A5BIAAAD  --  DB0A    INZBIND  2012/03/19  BIND and GRANT for HPU
A5BIAAAG  DZ7M  --      INZBIND  2012/03/19  BIND and GRANT for HPU
A5BIAAAH  DZ8A  --      INZBIND  2012/03/19  BIND and GRANT for HPU
A5BIAAAI  DZ8C  --      INZBIND  2012/03/19  BIND and GRANT for HPU
A5BIAAAJ  DZ8D  --      INZBIND  2012/03/19  BIND and GRANT for HPU
A5BIAAAM  DZ8E  --      INZBIND  2012/03/19  BIND and GRANT for HPU
A5BIAAAN  DZ9E  --      INZBIND  2012/03/19  BIND and GRANT for HPU
A5BIAAAO  DZAA  --      INZBIND  2012/03/19  BIND and GRANT for HPU
A5BIAAAR  DZAJ  --      INZBIND  2012/03/19  BIND and GRANT for HPU
A5BIAAAS  DG93  --      INZBIND  2012/03/19  BIND and GRANT for HPU
A5BIAAAT  DZ8B  --      INZBIND  2012/03/19  BIND and GRANT for HPU
A5BIAAAV  DB0A  --      INZBIND  2012/03/19  BIND and GRANT for HPU
A5BIAAAW  DZAE  --      INZBIND  2012/03/19  BIND and GRANT for HPU
A5BINDAA  --  DG93    INZBIND  2012/06/06  BIND and GRANT for HPU
A5BINDAD  --  DB0A    INZBIND  2012/06/06  BIND and GRANT for HPU
A5BINDAG  DZ7M  --      INZBIND  2012/06/06  BIND and GRANT for HPU
```

Figure 11. The **Finish Product Customization** panel

The member-naming conventions depend on whether the customization jobs are for Db2 entries, and LPAR, or the product.

The New filed indicates if the job member is newly created/updated. It is either YES or NO. YES indicates the job member is newly created or updated, and it needs to be submitted for customization. NO indicates the job member is not newly created/updated, it does not need to be submitted for customization.

Customization jobs for Db2 entries

The members use the following naming convention:

```
<job_sequence_number><job_ID><DB2_entry_ID>
```

where

job_sequence_number

Two alphanumeric characters, A0 - Z9, that Tools Customizer assigns to a customization job. The number for the first template in the sequence is A0, the number for the second template is A1, and so on.

job_ID

Characters 4 - 7 of the template name, if the template name contains five or more characters. Otherwise, only character 4 is used. Db2 HPU assigns the template name.

DB2_entry_ID

Two alphanumeric characters, AA - 99, that Tools Customizer assigns to a Db2 entry.

For example, the XYZBNDDB2_entry_ID_1 and XYZBNDDB2_entry_ID_2 jobs are generated from the XYZBNDGR template, and the XYZ4DB2_entry_ID_1 and XYZ4DB2_entry_ID_2 jobs are generated from the XYZ4 template. If the jobs are generated on two Db2 entries, the following member names are listed sequentially: A0BNDGAA, A0BNDGAB, A14AA, A14AB.

Customization jobs for an LPAR or the product

The members use the following naming convention:

```
<job_sequence_number><job_ID>
```

where

job_sequence_number

Two alphanumeric characters, A0 - Z9, that Tools Customizer assigns to a customization job. The number for the first template in the sequence is A0, the number for the second template is A1, and so on.

job_ID

Characters 4 - 8 of the template name, if the template name contains five or more characters. Otherwise, only character 4 is used. For example, for the XYZMAKE template, the job ID is MAKE. For the XYZM template, the job ID is M. Db2 HPU assigns the template name, and it is displayed in the Template column.

For example, the XYZBNDGR job is generated from the XYZBNDGR template, and the XYZ4 job is generated from the XYZ4 template. The following member names are listed sequentially: A0BNDGR, A14.

Procedure

1. Submit the generated customization jobs by following the process that you use in your environment or by using the following method:
 - a) Specify B or E against a customization job or the product customization library, and press Enter.
An ISPF browsing or editing session is started.
 - b) Browse the customization job or each member in the library to ensure that the information is correct.
 - c) Run the TSO SUBMIT command.

All customization jobs should end with a completion code of 0, except for the customization jobs related to the INZBIND template that can end with a completion code of 4 or less. If a customization job ends with a completion code greater than the expected code, review the job log to find out the reason of the problem and to determine which prior customization step might have led to the issue with the customization job in question. The more likely root cause of such a failure is the specification of an incorrect setting of one of the Db2 HPU parameters.

Running the **INZCHECK** customization jobs related to distinct Db2 subsystem in parallel can cause some of these jobs to fail with message INZI524E.

These failures can occur because the first steps of the **INZCHECK** job allocates the Db2 HPU parmlib data set in exclusive mode, which prevents the HPU (unload) steps from reading the parmlib members.

Db2 HPU implements a retry mechanism to avoid such failure. If this mechanism is not sufficient, just make sure not to run several **INZCHECK** customization jobs concurrently.

2. Press End.

Results

Db2 HPU is customized, and the **Customizer Workplace** panel is displayed. The status is Customized for the Db2 entries on which Db2 HPU was customized.

What to do next

You can generate more customization jobs for other Db2 entries, view a list of customization jobs that you previously generated, or recustomize Db2 HPU.

Browsing parameters

You can browse the product or component parameters, the LPAR parameters, and the Db2 parameters in read-only mode.

Procedure

1. On the **Customizer Workplace** panel, specify B next to the **Product parameters** field, the **LPAR parameters** field, or the Db2 entry that you want to browse, and press Enter.
The panel that corresponds to your specification is displayed.
2. Press End to exit.

Copying Db2 entries

You can copy associated and not associated Db2 entries to other Db2 entries or to new Db2 entries.

About this task

Go to the step that applies to your environment:

- To copy an associated Db2 entry to another associated Db2 entry or to an entry that is not associated, go to step 1.
- To copy an associated Db2 entry to a new entry, go to step 2.
- To copy a Db2 entry that is not associated to a new entry, go to step 3.

Procedure

1. To copy an associated Db2 entry to another associated Db2 entry or to an entry that is not associated, complete the following steps:
 - a) Specify C against a Db2 entry in the associated list of Db2 entries on the **Customizer Workplace** panel, and press Enter.
The **Copy Associated DB2 Entry** panel is displayed.
 - b) Select one or more Db2 entries to which information will be copied by specifying the / line command, and press Enter.
The Associated column indicates whether the Db2 entry is associated.
Tip: To copy information into all of the Db2 Entries in the list, issue the SELECTALL primary command, and press Enter.
The **Copy DB2 Parameter Values** panel is displayed.
 - c) Specify an option for copying common and product-specific Db2 parameter values.

Common Db2 parameter values apply to all Db2 entries for all products that you have customized by using Tools Customizer. Product-specific Db2 parameter values apply only to the product that you are currently customizing.

- To copy the common Db2 parameter values and the product-specific Db2 parameter values, specify option 1, and press Enter.
- To copy only the product-specified Db2 parameter values, specify option 2, and press Enter.

In some cases, the Db2 parameter values might contain the Db2 subsystem ID as an isolated qualifier in data set names. For example, in the DB01.DB01TEST.DB01.SANLLOAD, data set name, the DB01 subsystem ID is isolated in the first and third qualifiers but is not isolated in the second qualifier. When the Db2 subsystem ID is an isolated qualifier in data set names, the **Change DB2 Subsystem ID in DB2 Parameter Values** panel is displayed. Otherwise, the **Customizer Workplace** panel is displayed.

- d) If the **Change DB2 Subsystem ID in DB2 Parameter Values** panel is displayed, specify an option for changing the subsystem IDs. Otherwise, skip this step.
 - To change the subsystem ID in isolated qualifiers in data set names, specify option 1, and press Enter.
 - To use the same subsystem ID in all values, specify option 2, and press Enter.

The **Customizer Workplace** panel is displayed with the copied associated entry in the list.

2. To copy an associated Db2 entry to a new entry, complete the following steps:

- a) Specify C against a Db2 entry in the associated list of Db2 entries on the **Customizer Workplace** panel, and press Enter.

The **Copy Associated DB2 Entry** panel is displayed.

- b) Issue the CREATE command.

The **Create DB2 Entries** panel is displayed.

- c) Specify the SSID, the group attach name, or both in the appropriate columns for each new Db2 entry, and press Enter.

Tip: To add rows for additional entries, specify the *Inn* line command, where *nn* is the number of entries to be created, and press Enter.

The **Copy Associated DB2 Entry** panel is displayed with the new entries in the list. The new entries are preselected.

- d) Press Enter to complete the copy process.

The **Customizer Workplace** panel is displayed with the copied entries in the list.

3. To copy a Db2 entry that is not associated to a new entry, complete the following steps:

- a) Issue the ASSOCIATE command on the **Customizer Workplace** panel.

The **Associate DB2 Entry for Product** panel is displayed.

- b) Select one or more Db2 entries by specifying the / line command, and press Enter.

The **Copy a DB2 Entry** panel is displayed.

- c) Specify the SSID, the group attach name, or both in the appropriate columns for the new Db2 entry, and press Enter.

The **Associate DB2 Entry for product** panel is displayed with the copied entry in the list.

- d) If you want to associate the copied entry, specify A against it, and press Enter.

The **Customizer Workplace** panel is displayed with the copied entries in the list.

What to do next

Edit any of the parameters or generate the jobs.

Related concepts

[Tools Customizer terminology](#)

Tools Customizer uses several unique terms that you should be familiar with before you begin to use Tools Customizer.

Removing Db2 entries

You can remove Db2 entries from the associated list.

About this task

When you remove Db2 entries from the associated list, any customization jobs for the entries are removed from the list of jobs on the **Finish Product Customization** panel, and they are deleted.

Procedure

On the **Customizer Workplace** panel, specify R next to one or more Db2 entries that you want to remove, and press Enter.

The selected Db2 entries are removed from the associated list and added to the main list on the **Associate DB2 Entry for Product** panel, and the customization jobs are deleted.

Related concepts

[Tools Customizer terminology](#)

Tools Customizer uses several unique terms that you should be familiar with before you begin to use Tools Customizer.

Deleting Db2 entries

You can delete Db2 entries from the main list.

About this task

When you delete Db2 entries from the main list, any associations and all customization jobs for products that are customized on the entries will be deleted.

Procedure

1. On the **Customizer Workplace** panel, issue the ASSOCIATE command.

The **Associate DB2 Entry for Product** panel is displayed.

2. Specify D next to one or more Db2 entries that you want to delete, and press Enter.

If the entry is associated with any products, the **Delete Associated DB2 Entry** panel for the first Db2 entry that you selected is displayed. Otherwise, the **Delete DB2 Entry** panel is displayed.

3. To delete the Db2 entries, press Enter.

If the Db2 entries are associated with any products in the table on the **Delete Associated DB2 Entry** panel, any associations and all customization jobs for the products that are customized on it are deleted. Otherwise, only the Db2 entries are deleted. If you selected multiple Db2 entries to delete, the next Db2 entry that you selected is displayed on either the **Delete Associated DB2 Entry** panel or the **Delete DB2 Entry** panel. Otherwise, the **Associate DB2 Entry for Product** panel is displayed.

What to do next

If you selected multiple Db2 entries to delete, repeat step 3 until all selected entries are deleted. Then, continue the customization process.

Displaying customization jobs

You can view a list of the members that contain the customization jobs before or after you submit the jobs.

About this task

The customization jobs that you generate for one Db2 entry are also displayed when you customize Db2 HPU for another Db2 entry later.

Procedure

On the **Customizer Workplace** panel, issue the JOBLIST command.

The **Finish Product Customization** panel is displayed. This panel shows the list of jobs that you have previously generated. They are grouped by job sequence number. Use this panel to browse or edit the generated jobs before you submit them.

Maintaining customization jobs

Instead of deleting customization jobs outside of Tools Customizer, you can maintain the correct jobs for Db2 HPU by completing the steps for re-customization.

About this task

You cannot delete or rename customization jobs from the customization library by starting an ISPF browse or edit session from the **Finish Product Customization** panel. If you try to delete customization jobs by using this method, the CCQC034S message is issued. If you try to rename customization jobs, the CCQC035S message is issued.

If you delete or rename customization jobs from the customization library by using ISPF outside of Tools Customizer, Tools Customizer will not recognize that the jobs were deleted, and the **Finish Product Customization** panel will still display them. If you browse or edit jobs that were deleted from the library outside of Tools Customizer, the CCQC027S message is issued.

Procedure

To maintain the correct customization jobs in the customization library, complete the steps for re-customization.

Using Tools Customizer in a multiple-LPAR environment

Tools Customizer supports customizations on only the local LPAR. However, you can propagate customizations to additional LPARs.

About this task

In a multiple-LPAR environment, Tools Customizer identifies the LPAR to which you are logged on and uses this LPAR name for several parameter settings, including the data store. Therefore, you can use the Tools Customizer data store to customize only that LPAR.

Procedure

To customize products that run against Db2 subsystems on multiple LPARs, use one of the following methods:

- **Customize a single Db2 subsystem or data sharing group and copy the customization jobs to each LPAR**
 - a) Customize one Db2 subsystem or member.
For example, you might customize member DB1S in group DBGS in your sandbox environment.

b) If you are using data sharing, propagate that customization to the other members in the group:

a. Copy the customization jobs to the other members.

For example, copy the jobs for DB1S to member DB2S.

b. Edit the jobs as needed for the subsystem and LPAR.

For example, replace the member names. Depending on your environment, you might also need to replace data set names. You can use a REXX exec to do this customization.

c. Run those jobs.

Some jobs do not need to be run on every member in a group. Some jobs only need to run once per LPAR or Sysplex. To determine where a job needs to be run, look at the job listings on the **Finish Product Customization panel (CCQPCST)**. Depending on the values of the **SSID** and **GrpAttch** columns, take the following actions for each job:

Table 13.

SSID column value	GrpAttch column value	Action	Comments
--	--	Run once per LPAR	None
--	A group name	Run once per group	None
A member name	A group name	Run once per member in the group	None
An SSID	--	Run once	This entry is for a stand-alone Db2 subsystem.

c) Copy the jobs from the initial customized subsystem or member to all of your other subsystems or groups. Then, edit those jobs, preferably with a REXX exec, and run them.

For example, copy the jobs for DB1S in group DBGS to the members DB1D and DB2D in your development group DBGD, edit those jobs as needed, and run them. Then, copy the jobs for DB1S to the members DB1T and DB2T in your test group DBGT, edit those jobs, and run them. Continue until all groups are customized.

- **Generate customization jobs for each Db2 subsystem and copy those jobs to the appropriate LPARs**

a) Associate all Db2 entries in one instance of Tools Customizer on one LPAR, regardless of the LPARs on which the Db2 subsystem resides.

b) Generate customization jobs for each Db2 entry.

c) Copy the generated customization jobs to the LPAR to run against the specific Db2 entries. You might need to edit these customization jobs for specific LPARs. For example, you might need to edit the data set names. (Otherwise, you generally do not need to make manual changes to the jobs that are customized by Tools Customizer.)

Important: Tasks to perform when upgrading Db2 for z/OS but not Db2 HPU

About this task

After any upgrade affecting either of the following characteristics of the Db2 subsystem:

- Mode
- Level number
- Db2 current function level

Proceed as follows to make sure Db2 HPU will go on working correctly.

Procedure

1. Update the Db2 parameter according to the Db2 level (version or mode) of the upgraded subsystem(s).
2. Generate the customization jobs.
3. Submit the customization jobs associated to the INZBIND template.
4. Submit the customization jobs associated to the INZCHECK template.

Note: As after any maintenance of your Db2, it is advisable to make sure that the DB2 Call Level Interface still works and, especially, that its plan (named DSNACLI by default) is still valid.

Important: Tasks to perform when upgrading Db2 for z/OS but not Db2 HPU

About this task

After any upgrade affecting either of the following characteristics of the Db2 subsystem:

- Mode
- Level number
- Db2 current function level

Proceed as follows to make sure Db2 HPU will go on working correctly.

Procedure

1. Update the Db2 parameter according to the Db2 level (version or mode) of the upgraded subsystem(s).
2. Generate the customization jobs.
3. Submit the customization jobs associated to the INZBIND template.
4. Submit the customization jobs associated to the INZCHECK template.

Note: As after any maintenance of your Db2, it is advisable to make sure that the DB2 Call Level Interface still works and, especially, that its plan (named DSNACLI by default) is still valid.

Optional: Integrating Db2 HPU into Db2 Tools Launchpad

Optionally, you can integrate Db2 HPU into Db2 Tools Launchpad. Tools Customizer will create the necessary JCL, but you must manually complete some steps after you submit the customization job.

Before you begin

Before you complete these steps, ensure that the following prerequisites have been met:

- The Db2 Tools Launchpad is installed.
- Tools Customizer generated the job from the INZLAUNC template, and you submitted the job.

About this task

The Db2 Tools Launchpad is a centralized panel from which you can launch integrated Db2 Tools. After you integrate Db2 HPU, you can launch Db2 HPU from the Db2 Tools Launchpad.

Procedure

1. Run the CLIST INZADBI in SINZCLST.

The CLIST uses the high-level qualifier that you specify for the Db2 Admin data sets and the name of the library that contains the ADBDMTI EXEC.

The **Db2 Tools Table – ADD An Entry** panel is displayed, as shown in the following figure:

```

----- DB2 Tools Table - ADD An Entry ----- 08:57
Command ==>

Tool Name : HPU High Performance Unload
Code      : HPU          (User-defined code, for shortcut tool identifier)
Prog No.  : 5655-HP5     (IBM program product number or equivalent)
Release   : 520         (Product release number)
Group     : 2           (Tool category, as follows:
                        1 - Administration Tools
                        2 - Application Management Tools
                        3 - Performance Management Tools
                        4 - Recovery and Replication Management)
Installed : Y           (Y - yes, N - no)
Command   : SELECT CMD(INZHPU D LP )

```

Figure 12. Adding an entry to the Db2 Tools Launchpad panel

2. Press Enter to confirm the new Db2 HPU command.

Results

When INZADBI completes successfully, a new line, HPU, is added to the Db2 Tools Launchpad.

Optional: Integrating Db2 HPU into Db2 Administration Tool

Optionally, you can integrate Db2 HPU into Db2 Administration Tool (Db2 Admin). Tools Customizer will create the necessary JCL, but you must manually complete some steps after you submit the customization job.

Before you begin

Before you complete these steps, ensure that the following prerequisites have been met:

- Db2 Admin is installed.
- Tools Customizer generated the job from the INZADTOO template, and you submitted the job.

About this task

Db2 Admin helps you manage Db2 environments efficiently and effectively. After you have integrated Db2 HPU, you can run Db2 HPU unload operations by using Db2 Admin.

Procedure

1. Follow the instructions that are described in INZDB21X in the SINZCLIST library.
You can customize these instructions by changing the name of the library which contains Db2 Admin commands tables and the name of the library which contains the ADBDMTI EXEC.
Requirement: Before you can use the INZDB21X member, you must generate it with Tools Customizer whenever you change the library names.
2. Run the ADB21S and ADB21T procedures that you have modified. These procedures are used to re-create the Db2 Admin Tool command tables.

Results

When ADB21S and ADB21T complete successfully, you can start Db2 HPU interactively by using the Db2 Admin.

Related reference

[INZDB21X member](#)

Use the INZDB21X member to integrate Db2 HPU with Db2 Administration Tool.

Chapter 4. Input and output

Db2 HPU uses various sources of input data, various formats for output data, and a user exit to customize the output data set that is created by a SELECT statement.

Topics:

- [“Input data sources” on page 63](#)
- [“Output formats” on page 68](#)
- [“Specifying output file options” on page 74](#)
- [“LOB data processing” on page 78](#)
- [“XML data processing” on page 79](#)
- [“Output data consistency” on page 79](#)

Input data sources

Db2 HPU can unload from various input data sources.

Topics:

- [“Nonpartitioned table spaces” on page 63](#)
- [“Partitioned table spaces” on page 63](#)
- [“Full image copies or incremental image copies” on page 64](#)
- [“Last full image copies” on page 66](#)

Nonpartitioned table spaces

Db2 HPU can use nonpartitioned table spaces as input data.

If the selected tables belong to the same table space, multiple unload requests can be processed on this object in parallel.

Example: Unloading tables in parallel

The *mydb.myTS01* table space contains the *me.myTable01* table and the *me.myTable02* table. The UNLOAD command unloads both tables in parallel, as shown in the following example:

```
UNLOAD TABLESPACE mydb.myTS01

  SELECT * FROM me.myTable01
  OUTDDN (DDNTBL01)
  FORMAT VARIABLE END

  SELECT * FROM me.myTable02
  OUTDDN (DDNTBL02)
  FORMAT DSNTIAUL
```

Partitioned table spaces

Db2 HPU can use partitioned table spaces as input data.

Db2 HPU can use as input all partitions or a subset of partitions. As with nonpartitioned table spaces, Db2 HPU can process multiple unload requests in parallel.

The following examples show how to unload data in partitioned table spaces. In these examples, the *mydb.myTS02* table space has five partitions.

Example: Unloading a partitioned table space

This example shows how to unload all partitions in the *mydb.myTS02* table space. In this example, a single OUTDDN ddname, MYOUT, is allocated in the JCL. All rows are written in this ddname. If a ddname per partition is allocated in the JCL, such as MYOUT01, MYOUT02...MYOUT05, the rows from each partition are unloaded in the corresponding ddname.

```
UNLOAD TABLESPACE mydb.myTS02
SELECT * FROM me.myTable01
OUTDDN(MYOUT)
FORMAT DSNTIAUL
```

Example: Unloading specific partitions

This example shows how to unload partitions 1, 3, and 4 only.

```
UNLOAD TABLESPACE mydb.myTS02 PART (1,3,4)
SELECT * FROM me.myTable01
OUTDDN (MYOUT)
FORMAT VARIABLE END
```

Example: Unloading partition subsets by using multiple SELECT statements

This example shows how to unload different subsets of partitions from a single table space by using multiple SELECT statements. Instead of specifying the list of partitions to be unloaded at the table space level, you can specify the partitions at the SELECT level.

```
UNLOAD TABLESPACE mydb.myTS02
SELECT * FROM me.myTable01 PART (1,3,4)
OUTDDN (MYOUT)
FORMAT VARIABLE END
SELECT * FROM me.myTable01 PART (2,5)
OUTDDN (MYOUT1)
FORMAT DSNTIAUL
```

Example: Unloading a partitioned table space with one output file per partition in DB2 FORCE when an unsupported SELECT statement is used

This example shows how to unload data from partitions to get one output file per partition when an unsupported SELECT statement is used. The SELECT statement is not supported because the WHERE clause uses a subselect. A separate output file per partition is allowed because SQLPART (ALL) and a template that contains the &PART variable are specified.

```
TEMPLATE OUTFILE DSN qua11.&DB..&TS..&PART. UNIT SYSDA
SPACE(200, 200) CYL
UNLOAD TABLESPACE mydb.myTS02 DB2 FORCE
SELECT * FROM me.myTable01 SQLPART (ALL)
WHERE COL1 IN (SELECT COLREF FROM Reference.Table)
OUTDDN (OUTFILE)
FORMAT DSNTIAUL
```

Related concepts

[Full image copies or incremental image copies](#)

Db2 HPU can use full image copies (FIC) or incremental image copies as input data.

Full image copies or incremental image copies

Db2 HPU can use full image copies (FIC) or incremental image copies as input data.

When Db2 HPU unloads data from an image copy, it can process only physical unloads or logical unloads that correspond to SELECT statements that are natively supported.

When you specify the COPYDDN keyword, Db2 HPU can obtain input data from a full image copy (FIC) or an incremental image copy (IIC) or a set of a full image copy and one or several incremental image copies. The rules for processing are the same as the rules that apply to a table space:

- If the image copy is of the entire table space, Db2 HPU processes every partition by default unless you have requested partition filtering by using the PART keyword at the UNLOAD level or at the SELECT level.
- If the image copy is of a single partition of the table space, Db2 HPU processes the specific partition that is contained in the image copy.

If the input image copy is a global copy of an entire partitioned table space, Db2 HPU can generate one output file for every partition by allocating a ddname per unloaded partition in the JCL, or it can generate one output file per partition by using a TEMPLATE statement that contains the &PART variable.

When the input FIC corresponds to a table space that contains a single table, the header page contains the object ID (OBID) for this table. When this input FIC is unloaded and the ORIGINOBID keyword is specified, Db2 HPU checks to see whether both OBIDs match. If both OBIDs do not match, the unload is not processed, and an error message is issued.

The ddname that is specified in the COPYDDN keyword can correspond to a JCL-allocated file or to a TEMPLATE definition.

The following examples show how Db2 HPU uses FICs and incremental image copies as input to generate output files:

Example: Unloading data from an image copy of an entire partitioned table space in a single output file

The *mydb.myTS02* table space has five partitions. The COPYDDN ddname points to an image copy of this table space.

```
UNLOAD TABLESPACE mydb.myTS02
COPYDDN COPYDDN
SELECT * FROM me.myTable01
OUTDDN (MYOUT)
FORMAT VARIABLE END
```

Example: Unloading data from an image copy of an entire partitioned table space with partition filtering and with one output file per partition

The *mydb.myTS02* table space has five partitions. The COPYDDN ddname corresponds to a JCL-allocated file and points to a full image copy of this table space. One output file per partition is requested by using the &PART variable in the TEMPLATE definition for the output file. Partition filtering is requested by specifying the PART keyword in the UNLOAD command.

```
TEMPLATE OUTFILE DSN &USERID..&DB..&TS..U.P&PART. UNIT SYSDA
UNLOAD TABLESPACE mydb.myTS02 PART(1:3)
COPYDDN COPYDDN
SELECT * FROM me.myTable01
OUTDDN (OUTFILE)
FORMAT DSNTIAUL
```

Example: Unloading data from an image copy with COPYDDN and DDLDDN as input files

The COPYDDN1 and DDLDDN1 ddnames are used as input files.

```
//UNLOAD EXEC PGM=INZUTILB,PARM='DB81,DB2UNLOAD',
// REGION=0M,TIME=1440
//STEPLIB DD DSN=DB2UNL.SINZLINK,DISP=SHR
// DD DSN=DSNA10.SDSNLOAD,DISP=SHR
// DD DSN=DSNA10.SDSNLOD2,DISP=SHR
//COPYDDN1 DD DISP=SHR,DSN=HLQ.FIC
//SYSREC DD DISP=(NEW,CATLG,DELETE),DSN=HLQ.UNLOAD,
// SPACE=(CYL,(5,5),RLSE),UNIT=SYSDA
//DDLDDN1 DD DISP=SHR,DSN=HLQ.DDL
//SYSIN DD *
UNLOAD TABLESPACE
COPYDDN COPYDDN1 DDLDDN DDLDDN1
SELECT *
FROM me.myTable01
ORIGINOBID 0
OUTDDN (SYSREC)
FORMAT DSNTIAUL
```

Unload from a set of image copies (a full image copy and three incremental image copies) allocated under the ICCONCAT ddname.

As a concatenation of image copies is used as an input, the MERGE_IIC sub-option must be specified.

```
UNLOAD TABLESPACE
COPYDDN ICCONCAT,MERGE_IIC
SELECT *
FROM mytable
OUTDDN SYSREC
```

with ICCONCAT defined as follows:

```
//ICCONCAT DD DISP=SHR,DSN=full.image.copy.for.myts
//          DD DISP=SHR,DSN=incremental.image.copy.for.myts.n01
//          DD DISP=SHR,DSN=incremental.image.copy.for.myts.n02
//          DD DISP=SHR,DSN=incremental.image.copy.for.myts.n03
```

Example: Unloading data from an image copy of a table space created by the COPYTOCOPY utility into a single output file

The COPYDDN ddname points to the image copy of the table space that was created by the COPYTOCOPY utility.

```
UNLOAD TABLESPACE mydb.myTS02
COPYDDN COPYDDN, FROM_COPYTOCOPY
SELECT * FROM me.myTable01
OUTDDN (MYOUT)
FORMAT VARIABLE END
```

Related tasks

[Specifying one output file per partition](#)

You can unload each partition in a table space to a separate file.

Last full image copies

Db2 HPU can use last full image copies as input data.

You can request Db2 HPU to unload data from the last full image copy that was taken for a table space by specifying COPYDDN LAST_IC, as shown in the following example:

```
UNLOAD TABLESPACE mydb.myTS02
COPYDDN LAST_IC
SELECT * FROM me.myTable01
OUTDDN (MYOUT)
FORMAT VARIABLE END
```

The last full image copy of a partitioned table space can be an image copy of the entire table space or an image copy of each partition. You can control which types of image copies are used by specifying various keywords.

- By using the GLOBAL keyword, you can specify Db2 HPU to use only global image copies.
- By using the PARTITIONED keyword, you can specify Db2 HPU to use only image copies of partitioned table spaces.
- By using the ANYTYPE keyword, you can specify Db2 HPU to use any type of image copy.
- By using the CONSISTENT keyword, you can ensure that the image copies of all unloaded partitions have the same START_RBA value in the SYSCOPY column.

The following example shows how you can unload data from a consistent image copy per partition with one output file per partition.

Example: Unloading data from a consistent image copy per partition of a partitioned table space with one output file per partition

The *mydb.myTS02* table space has five partitions. One image copy per partition has been taken in a single COPY invocation. The ANYTYPE keyword authorizes Db2 HPU to use these image copies, if they

are the most recent for each partitions. The CONSISTENT keyword ensures that all the image copies that are used as input have the same START_RBA value in the SYSCOPY column. One output file per partition is requested by using the &PART variable in the TEMPLATE definition for the output file.

```
TEMPLATE OUTFILE DSN &USERID..&DB..&TS..U.P&PART. UNIT SYSDA
UNLOAD TABLESPACE mydb.myTS02
COPYDDN LAST_IC ANYTYPE CONSISTENT
SELECT * FROM me.myTable01
OUTDDN (OUTFILE)
FORMAT DSNTIAUL
```

Related reference

[Db2 HPU last full image copies: COPYDDN option](#)

See this topic for descriptions of the keywords in the GLOBAL OPTIONS block syntax.

Concurrent image copies

The concurrent image copies are not supported by Db2 HPU.

If a concurrent image copy is provided as an input via the COPYDDN ddname option, HPU fails.

If a concurrent image copy is referenced in the Db2 catalog and the COPYDDN LAST_IC or COPYDDN integer is specified, Db2 HPU ignores the concurrent image copies and does not take it into account when determining the rank of the image copy that satisfies the criteria specified as sub-option of the COPYDDN option.

Concatenation of image copies

When requesting to unload the data from image copies by using the "COPYDDN ddname" option, you may allocate a set of data sets under a single ddname. Before doing so, check the following requirements and considerations that apply to such a concatenation.

Items of the concatenation

The supported concatenations must:

- consist of non FlashCopy image copies of a single table space. If some of the data set do not contain the data from the expected table space, unpredictable results or failure can occur.
- satisfy one of the following requirements:
 - be a set of FIC of distinct partitions
 - be a set of a FIC and one or several IIC (requires the specification of the MERGE_IIC suboption)

Sequence of the data sets in the concatenation

There is no requirement for the sequence of the concatenated data sets except where the concatenation consists of image copies of partitions of a Universal Table Space -UTS), in which case the data sets must be concatenated according to the related partition number, in ascending order.

Consistency

As Db2 HPU cannot check the consistency of the concatenated data sets, the consistency of the unloaded data depends on the consistency of the input data.

Stacked image copies

When requesting to unload data from a set of images copies that were stacked on tape and might be located on common volumes, which Db2 HPU cannot systematically check, make sure to disable the LDS parallelism by specifying a PARALLELISM (1,...) option.

The only case where this is not mandatory is when the list of input images copies is retrieved from the Db2 catalog (i.e. the COPYDDN LAST_IC or COPYDDN -n is specified) and the information about the

volume where the image copy is located, in other words when the image copy was not cataloged. In such a case, Db2 HPU disables the PARALLELISM if necessary. If you only work with not cataloged image copies, consider not disabling the parallelism with a PARALELLISM (1,...) option so to take benefit from the parallelism whenever applicable.

Control of the integrity of the data sources

In order to avoid useless and fastidious controls, and for performance purposes, Db2 HPU mainly takes the integrity of the input data sources for granted. As a consequence, if the data source is corrupted or not adequate, Db2 HPU may either fail during the unload, or complete normally but produces incorrect data.

Db2 HPU performs the following checking of the input data anyway as described in the table below:

Checking	Native mode	SQL mode
The table to unload can be accessed for reading	YES	YES
Basic controls of broken page indicator, PGCOMB and some other controls.	YES	NO
The read page is the expected one.	YES if CHECK_INTEGRITY LEVEL1 applies (1)	NO
The image copy characteristics are suitable for the requested unload (2)	YES if COPYDDN option is specified	NO

(1) or if no CHECK_INTEGRITY option is specified, if the VUX038/CHECKINT parmlib parameter is set to LEVEL1.

(2) Db2 HPU determines the characteristics of an image copy by reading its first pages. This step is performed before the actual unload phase if any. As a result, the image copy dataset is allocated twice, and, for image copies on tape, the volume where the image copy is stored is mounted twice.

Output formats

Db2 HPU can create output files in various formats for physical and logical unloads.

Use a physical unload to unload the entire table space, which includes all tables, columns, and rows unless sampling was requested. Use a logical unload to filter the rows, select the columns, and compute the output fields that you want to unload by using SELECT statements.

Topics:

- [“Performing physical unloads” on page 68](#)
- [“Performing logical unloads” on page 69](#)
- [“Output encoding scheme” on page 74](#)

Performing physical unloads

A physical unload starts unloading at the beginning of a table space and does not stop unloading until the entire table space is unloaded unless sampling is requested. A physical unload uses the same format as the IBM Db2 REORG utility to physically unload the table space.

About this task

The main use of data that is unloaded by a physical unload is to reload it in a table space that has the same structure or the same table space by using a LOAD with FORMAT UNLOAD.

When you use the REORG unload-only format, the table space is unloaded regardless of the tables that it contains.

You must use an exit to select the rows to unload or to change the format of these rows. You can limit the number of rows to be unloaded and take a sample of some rows. The sampling is done before the call to the exit.

Procedure

Specify either the table space name or a LISTDEF statement in the UNLOAD command, and use the UNLDDN parameter in the UNLOAD command.

Example

The following example shows how you can take a sample of some rows when you do a physical unload.

Example: Sampling rows to be unloaded

The *mydb.myTS01* table space contains two tables. One out of every 10 rows is unloaded until the maximum number of rows is reached. The maximum number of rows is 150.

```
UNLOAD TABLESPACE mydb.myTS01
UNLDDN MYDDN
UNLMAXROWS 150
UNLFREQROWS 10
```

Important: When you do a physical unload, you can code one or more SELECT statements. However, you can have only one UNLDDN keyword per UNLOAD command.

The following example shows how you can unload data by using LISTDEF and TEMPLATE statements.

Example: Unloading data by using LISTDEF and TEMPLATE statements

The *mydb* database contains three table spaces. The LISTDEF and TEMPLATE statements unload each table space in a separate file with a DSN that includes the complete table space name and the date.

```
LISTDEF LIST1 INCLUDE TABLESPACE mydb.myTS%
TEMPLATE DDUNL DSN HLO.&DB..&TS..D&DATE..UNLOAD
UNLOAD TABLESPACE LIST(LIST1)
UNLDDN DDUNL
```

Performing logical unloads

A logical unload uses SELECT statements to filter the rows and columns that you want to unload. Use a logical unload to determine the exact content of the output data by using an SQL SELECT statement and to specify the output format.

Procedure

1. Specify one or more SELECT statements.

The SELECT statement can specify the name of a table or view, or you can use a LISTDEFTBV statement to automatically generate a logical unload for each table from each table space in the LISTDEF.

You can use SQL comment indicators in these SELECT statements.

2. Specify the OUTDDN keyword for each SELECT statement to specify the output data set for each SELECT statement.

The OUTDDN keyword can refer to a JCL-allocated file or to a template to use dynamic data set allocation.

3. Select one of the following output formats: DSNTIAUL, DELIMITED, VARIABLE, USER, EXTERNAL, or INTERNAL.

The following example shows how you can unload data by using SELECT statements.

Example: Unloading data by using SELECT statements

The *mydb.myTS01* table space contains two tables. One out of every 10 rows is unloaded until the maximum number of rows is reached. The maximum number of rows is 150. The SELECT statements request a logical unload of the same two tables.

```
UNLOAD TABLESPACE mydb.myTS01
UNLDDN MYDDN
UNLMAXROWS 150
UNLFREQROWS 10
  SELECT * FROM me.myTable01
  OUTDDN (MYOUTTB1)
  FORMAT VARIABLE END
  SELECT * FROM me.myTable02
  OUTDDN (MYOUTTB2)
  FORMAT VARIABLE END
```

Details about the various output formats are provided in the following sections.

DSNTIAUL format

When you create output in the DSNTIAUL format, the output is identical to the output that is produced by the DSNTIAUL program.

Unloading a table in DSNTIAUL format

The following example shows how to unload a table in DSNTIAUL format.

The *mydb.myTS01* table space contains two tables. This example shows how to unload the *myTable01* table in DSNTIAUL format.

```
UNLOAD TABLESPACE mydb.myTS01
SELECT * FROM myQual.myTable01
OUTDDN (MYDDN)
FORMAT DSNTIAUL
```

DELIMITED format

When you create output in the DELIMITED format, you can specify a separator character and a delimiter character.

CHAR, VARCHAR, GRAPHIC, and VARGRAPHIC columns are enclosed by the delimiter character. Null columns are not enclosed by the delimiter character if DELIM *val* and NULL DELIM are coded.

Unloading a table by using a delimiter and a separator

The following example shows how to use a delimiter and a separator when you unload a table.

The *mydb.myTS01* table space contains two tables. The example shows how to unload a table by using an asterisk (*) as the delimiter and a semicolon (;) as the separator.

```
UNLOAD TABLESPACE mydb.myTS01
SELECT * FROM myQual.myTable01
OUTDDN (MYDDN)
FORMAT DELIMITED SEP ';' DELIM '*'
```

Related reference

[Db2 HPU output data parameters](#)

The Db2 HPU output data parameters section on the Product Parameters panel (CCQPPRD) in Tools Customizer contains the parameters for configuring output data.

VARIABLE format

When you create output in the VARIABLE format, the output is compatible with the Db2 LOAD utility input data set.

Unloading a table so that all variable-length fields are treated as variables

The following example shows how to unload a table so that all variable-length fields are treated as variables.

Table space *mydb.myTS01* contains two tables. The example shows how to unload a table so that all the variable-length fields are treated as variables.

```
UNLOAD TABLESPACE mydb.myTS01
SELECT * FROM myQual.myTable01
OUTDDN (MYDDN)
FORMAT VARIABLE ALL
```

Related reference

[Db2 HPU output data parameters](#)

The Db2 HPU output data parameters section on the Product Parameters panel (CCQPPRD) in Tools Customizer contains the parameters for configuring output data.

USER format - deprecated

Please know that this format is deprecated. When you create output in the USER format, you can customize every output column in any manner that you want.

Redundant thus deprecated feature

The USER format feature is deprecated and is only supported for compatibility purpose. This feature that allowed to get a user-defined format and to specify the format at the column level was made redundant by the following capabilities:

- ability to customize any of the other formats via parmlib parameters,
- ability to specify the format at the column level via the INTO clause,
- ability to specify an OPTIONS block at the GLOBAL or UNLOAD level for all formats (VUU057/OPALLFMT parameter) and the more powerful REFORMAT feature that allow to defining rules for the format changes.

As no change (neither enhancements nor fixes) of this feature will ever occur, prefer using the above mentioned features.

For example, you can force the conversion between data types, change the date or time format, add or remove a length field, add or remove a null indicator, justify the content left or right, select a padding character, select a delimiter character for date or time, and so on.

Changing columns with FORMAT USER

In this example, the *mydb.myTS01* table space contains two tables. The example shows how to change column 1 from a VARCHAR(10) to a CHAR(15) with null indicator, pad the column with the number sign (#) and left align it. The other columns are unloaded in the default format.

```
UNLOAD TABLESPACE mydb.myTS01
SELECT * FROM myQual.myTable01
OUTDDN (MYDDN)
FORMAT USER (
  COL 1 TYPE CHAR(15)
        PADDING '#'
        NULLID YES
```

```
JUST LEFT
)
```

In this example, the *mydb.myTS01* table space contains two tables. The example shows how to change column 1 from a VARCHAR(10) to a CHAR(15) with null indicator, pad the column with the number sign (#) and left align it. The other columns are unloaded in the default format.

```
UNLOAD TABLESPACE mydb.myTS01
SELECT * FROM myQual.myTable01
OUTDDN (MYDDN)
FORMAT USER (
  COL 1 TYPE CHAR(15)
  PADDING '#'
  NULLID YES
  JUST LEFT
)
```

Concatenating columns with FORMAT USER

In this example, the *mydb.myTS01* table space contains two tables. The example shows how to concatenate columns FIRSTNAME, LASTNAME, and COMPANY to create a list of e-mail addresses. This example assumes that all these columns are VARCHAR.

```
UNLOAD TABLESPACE mydb.myTS01
SELECT FIRSTNAME, '.', LASTNAME, '@',
COMPANY, '.com' FROM myQual.myTable01
OUTDDN (MYDDN)
FORMAT USER (
  COL FIRSTNAME
  NULLID NO
  LENGTH REAL
  LENGTHBYTE NO
  COL LASTNAME
  NULLID NO
  LENGTH REAL
  LENGTHBYTE NO
  COL COMPANY
  NULLID NO
  LENGTH REAL
  LENGTHBYTE NO
)
```

The following output is the result:

```
john.smith@company.com
```

The following examples show how to replace the FORMAT USER feature by other features.

In these examples, *me.mytable* is a table with columns defined as follows:

```
COL_A SMALLINT NOT NULL
, COL_B VARCHAR(10) NOT NULL
, COL_C DECIMAL(5,2)
, COL_D VARCHAR(20)
, COL_E SMALLINT
```

Depending on your settings of the following parameters

- NULL indicator, format USER (VUU014/ULNULL)
- DATE, format USER (VUU015/ULDATE)
- TIME, format USER (VUU016/ULTIME)
- TIMESTAMP, format USER (VUU017/ULTMSTP)
- Decimal picture, format USER (VUU018/ULPIC)
- Display format for numeric values, format USER (VUU032/ULMASK)
- Position for NULL indicator, format USER (VUU022/NULLPOS)
- Fill NULL with padding character, format USER (VUU075/NULLPAD)

- Delimiter for external date, format USER (VUU055/DATEDEL)
- Delimiter in external time, format USER (VUU056/TIMEDEL)
- Trim the trailing blanks, format USER (VUU059/ULTRIM)

You might need to set the counterpart parameter for FORMAT VARIABLE with the same value to get the same output format as with FORMAT USER.

Replacement example #1: same format as with FORMAT USER with no field specification

Instead of using the USER format with no field specification such as in the following example:

```
UNLOAD TABLESPACE
SELECT * FROM me.mytable
OUTDDN(SYSREC)
FORMAT USER ( )
```

consider using the FORMAT VARIABLE ALL in an UNLOAD statement as follows:

```
UNLOAD TABLESPACE
SELECT * FROM me.mytable
OUTDDN(SYSREC)
FORMAT VARIABLE ALL
```

Replacement example #2: changing columns data type

Instead of the following UNLOAD statement:

```
UNLOAD TABLESPACE
SELECT * FROM me.mytable
OUTDDN(SYSREC)
FORMAT USER (
  COL COL_A TYPE CHAR(10)
  , COL COL_B TYPE INTEGER
  , COL COL_C TYPE DECIMAL(20,5)
  , COL COL_D TYPE CHAR(30)
  , COL COL_E TYPE DECIMAL(15,5)
)
```

consider using an UNLOAD statement as follows:

```
UNLOAD TABLESPACE
SELECT *
INTO
  COL_A CHAR(10)
  , COL_B TYPE INTEGER
  , COL_C TYPE DECIMAL(20,5)
  , COL_D TYPE CHAR(30)
  , COL_E TYPE DECIMAL(15,5)
FROM me.mytable
OUTDDN(SYSREC)
FORMAT VARIABLE ALL
```

Replacement example #3: applying rules for changing columns data type

Instead of the following UNLOAD statement:

```
UNLOAD TABLESPACE
SELECT * FROM me.mytable
OUTDDN(SYSREC)
FORMAT USER (
  COL COL_A TYPE CHAR(30)
  , COL COL_B TYPE DECIMAL(10,0)
  , COL COL_D TYPE CHAR(30)
  , COL COL_E TYPE DECIMAL(10,0)
)
```

consider using an UNLOAD statement as follows:

```
UNLOAD TABLESPACE
SELECT *
```

```

FROM me.mytable
OUTDDN(SYSREC)
FORMAT VARIABLE ALL
OPTIONS REFORMAT (
    TYPE VARCHAR INTO CHAR(30)
    ,TYPE SMALLINT INTO DECIMAL(10,0)
)

```

EXTERNAL format

When you create output in the EXTERNAL format, output fields are in the EXTERNAL format that corresponds to their default type, output records are fixed, and a field separator is not used.

Unloading files in FORMAT EXTERNAL and sorting the records in the table clustering index order

The following example shows how to unload each file in the EXTERNAL format and sort the records in the table clustering index order.

The *mydb* database contains three table spaces: *myTS01*, *myTS02*, and *myTS03*. Each of these table spaces contains three tables: *me.myTable01A*, *me.myTable01B*, and *me.myTable01C* for *myTS01*; *me.myTable02A*, *me.myTable02B*, and *me.myTable02C* for *myTS02*; and *me.myTable03A*, *me.myTable03B*, and *me.myTable03C* for *myTS03*.

```

LISTDEF LIST1 INCLUDE TABLESPACE mydb.myTS%
TEMPLATE DDUNL DSN HLQ.&DB..&TS..D&DATE..T&SEL.
GLOBAL OPTIONS TEMPLATESET( SEL = :SELNUM ) ;
UNLOAD TABLESPACE
SELECT * FROM LIST(LIST1) ORDER CLUSTER OUTDDN DDUNL FORMAT EXTERNAL

```

Related reference

[Db2 HPU output data parameters](#)

The Db2 HPU output data parameters section on the Product Parameters panel (CCQPPRD) in Tools Customizer contains the parameters for configuring output data.

Output encoding scheme

For the DSNTIAUL, DELIMITED, VARIABLE, USER, and EXTERNAL output formats, the translations from EBCDIC to ASCII and from ASCII to EBCDIC are supported only for single-byte character set (SBCS) character strings. Data is translated by using the translation tables in the SYSIBM.SYSSTRINGS table.

Other types of translation are done by using Unicode Conversion Services.

Related reference

[OPTIONS block syntax and description](#)

Use the OPTIONS block to specify the default conversions that are with the SELECT statements. This block can be used in the GLOBAL block, the UNLOAD block, and the SELECT block.

Specifying output file options

You can override the automatic output file allocation, specify one output file per partition, or limit the number of unloaded rows and call a user exit.

Db2 HPU allows to unload data into the following types of dataset:

- sequential data set
- spanned data set (for OUTDDN output dataset if SPANNED YES option is specified)
- PDS member
- HFS data set

Topics:

- [“Overriding the automatic output file allocation” on page 75](#)
- [“Specifying one output file per partition ” on page 75](#)

- [“Limiting the number of unloaded rows and calling a user exit” on page 76](#)

Overriding the automatic output file allocation

Db2 HPU automatically calculates the output file allocation by using the DCB parameters that you provided in the JCL for each OUTDDN and UNLDDN that is specified in the SYSIN. However, you can override the automatic allocation.

Before you begin

Ensure that the allocation that you want to specify is compatible with the unload that you request by ensuring that the record length is long enough to contain the longest row that you want to unload. If you do not specify a DCB parameter in the DD statement, Db2 HPU uses the calculated DCB.

Restriction: For spanned output datasets allocated for OUTDDDN when the SPANNED YES option is specified, the following specific rules apply, Db2 HPU systematically (regardless of the DCB attributes specified by the user) allocates the spanned output dataset with

- RECFM=VBS (user-specified value ignored regardless of VUM029/DFSIGDCB)
- LRECL=32756 (user-specified value ignored regardless of VUM029/DFSIGDCB)
- the user-specified BLKSIZE if compatible with the forced LRECL value and 0 otherwise, so that the system determines a relevant BLKSIZE value.

About this task

To override the automatic output file allocation:

Procedure

1. Ensure that the syntax that is used allows you to override the output file allocation, and specify DFSIGDCB YES.
2. Code DD statements in the JCL, or specify a TEMPLATE definition.
Db2 HPU generates the output data sets based on the JCL or the TEMPLATE definition.

Specifying one output file per partition

You can unload each partition in a table space to a separate file.

Procedure

To specify one output file per partition, do one of the following steps:

- Use a TEMPLATE with a dsname that contains the &PART variable or code a base ddname in the OUTDDN statement, and declare this ddname in your JCL.
- Use the partition number as a suffix on the base ddname.

The following example shows how to specify one output file per iteration by using the partition number as a suffix.

Example: Specifying one output file per iteration by using the partition number as a suffix on the base ddname

In this following example, the *mydb.myTS02* table space is a partitioned table space with five partitions. The example shows how to unload only partitions 1, 3, and 4 into separate output files by using the partition number as a suffix on the base ddname. The base ddname is MYOUT.

```
UNLOAD TABLESPACE mydb.myTS02 PART (1,3,4)

  SELECT * FROM me.myTable01
  OUTDDN (MYOUT)
  FORMAT VARIABLE END
```

In the JCL, specify the following DD statements:

```
MYOUT001 DD ...
MYOUT003 DD ...
MYOUT004 DD ...
```

The following example shows how to specify one output file per iteration by using a TEMPLATE statement.

Example: Specifying one output file per iteration by using a TEMPLATE statement

In this example, the *me.myTable02* table was created in a partitioned table space with 128 partitions. The example shows how to unload all partitions into separate output files. The unloaded data is sorted in the order of the clustering index, and the output files are dynamically allocated by using a template named PARTDS.

```
TEMPLATE PARTDS DSN HLQ.&DB..&TS..D&DATE..P&PART.
UNLOAD TABLESPACE
SELECT * FROM me.myTable02
ORDER CLUSTER
OUTDDN PARTDS FORMAT DSNTIAUL
```

The following example shows how to specify one output file per partition in an unload from a global full image copy.

Example: Specifying one output file per partition in an unload from a global full image copy

In this example, a global FIC exists for the DBINFDM.TSPART6 partitioned table space. This FIC is allocated in the JCL by using the COPYDD statement.

```
TEMPLATE SYSREC DSN IBMUSER.&DB..&TS..P&PART.
UNLOAD TABLESPACE DBINFDM.TSPART6
COPYDDN COPYDD
SELECT * FROM TBPART6
OUTDDN SYSREC
FORMAT DSNTIAUL
```

Limiting the number of unloaded rows and calling a user exit

An OUTDDN statement can be followed by one of several keywords that you can use to limit the number of unloaded rows, sample these rows, and call a user exit.

Procedure

1. To limit the number of rows, do one of the following steps:
 - For a physical unload, use the UNLMAXROWS and UNLFREQROWS keywords.
 - For a logical unload, use the OUTMAXROWS and OUTFREQROWS keywords.
 - For a SELECT statement that is processed by Db2, the OUTMAXROWS and OUTFREQROWS keywords are always applied on rows that are returned by Db2 after the WHERE and ORDER BY clauses are applied.
 - By default, for a SELECT statement that is natively processed by Db2 HPU, the OUTMAXROWS and OUTFREQROWS are applied when the rows are read in the VSAM LDS files. To be consistent with a SELECT statement that is processed by Db2, use the optional keyword ON_RESULT_TABLE after OUTMAXROWS and OUTFREQROWS.
2. To request that each output row that is produced by Db2 HPU be processed by a user exit before it is written to the output file, use the OUTEXIT option.

Unloading partitions into separate output files, sampling rows, and calling a user exit

The following example shows how to unload partitions into separate output files, sample rows, and call a user exit.

In this example, the *mydb.myTS02* partitioned table space has five partitions. The example shows how to unload only partitions 1, 3, and 4 into separate output files. One row out of 10 is selected and passed to a COBOL/2 user exit that applies user modifications before output. The unload process stops when 150 rows have been selected.

Requirement: The exit must be in STEPLIB or in LINKLIST and must reside in an authorized library.

```
UNLOAD TABLESPACE mydb.myTS02 PART (1,3,4)

  SELECT * FROM me.myTable01
  OUTDDN (MYOUT) OUTMAXROWS 150
           OUTFREQROWS 10
           OUTEXIT myExit COBOL2
  FORMAT VARIABLE END
```

Merging output

Db2 HPU can merge the data unloaded by several unloads.

Overall rules

You may want to merge the data unloaded by several unloads performed by Db2 HPU. This can be done by sharing a same dataset among the unloads:

- use case 1) from separated Db2 HPU steps
- use case 2) from separated UNLOAD statements in a single Db2 HPU step
- use case 3) from a single UNLOAD statement

You may choose to allocate the shared data set by either one of the following means:

- allocation method 1) external allocation (typically through a JCL DD statement)
- allocation method 2) dynamical allocation by specifying a TEMPLATE statement.

To successfully merge the unloaded data, you must make sure that the following conditions - that depend on both the use case and the allocation method mentioned above - are fulfilled:

- the shared output dataset is allocated with a relevant DISP attribute
- the shared dataset is assigned to the desired/expected unload

Uniqueness of the output data set and association with the correct unload

To make sure the unloaded rows from several unloads are merged into the same dataset, make sure the dataset allocated for all the involved unloads is always the same. To do so, take the following considerations into account.

- allocation method 1

If you use an external mechanism to allocate the output datasets (e.g JCL symbolics) and you want to merge the output of distinct Db2 HPU steps (case 1), make sure the mechanism generates the same data set name for all the involved steps.

If you use a DD name, and partitioned table spaces are involved, make sure the conditions for implicit request of an output data set per partition, i.e.:

- the DD name specified for OUTDDN or UNLDDN is dddd
- other dd names (actually at least one) are ddddnn where nn stand for a numerical suffix. are not fulfilled. In other words, use a target ddname that is not root of number-suffixed ddnames allocated to the same step.
- allocation method 2

If you use a template name, make sure the variables used in the dataset name template specified by the TEMPLATE statement do not prevent the uniqueness of the data set.

DISP attribute

Using the same dataset as an output for several unloads and getting all the expected data implies some requirement about the DISP attribute of the dataset.

- use case 1) there is no requirement for the DISP attribute of the data set for the first Db2 HPU step. The shared data set must be allocated with the DISP=MOD attribute by the subsequent Db2 HPU steps.
- use case 2) there is no requirement for the DISP attribute of the data set for the first UNLOAD statement. The shared data set must be allocated with the DISP=MOD attribute by the subsequent UNLOAD statements.
- use case 3) there is no requirement for the DISP attribute of the shared data set provided the dataset is allocated through a single DD name (either an actual DD name or a template name). The DISP=MOD attribute must be used for the shared data set if it is not allocated through the same DD name.

Sequence of the unloaded rows

- use case 1) The unloaded rows are added to the shared data set according to the sequence of the Db2 HPU steps.
- use case 2) Db2 HPU serializes the unloads from distinct UNLOAD statements and processes them according to the sequence of the UNLOAD statements in the UNLOAD command.
- use case 3) when processing the unloads from a single UNLOAD statement, Db2 HPU runs the tasks that write the data unloaded by in parallel. Therefore, the sequence of the unloaded rows in an output data set shared by several unloads is not predictable and can change from one run of an unload job to another.

Therefore, if you need to master the sequence of the rows coming from the merged unloads, specify only one unload to be merged per UNLOAD statement or run the unload that share the same output data sets in separate Db2 HPU steps.

LOB data processing

Db2 HPU can unload LOB data.

Supported LOB data sources

You can unload LOB input data on the base table space, but support is limited by the following restrictions.

- Db2 HPU cannot directly unload a LOB table space.
- Db2 HPU does not support the unloading of LOB data from non-flash image copies.
- Unloading LOB data is only supported for a logical unload. When a physical unload is done on a base table space that contains a table with an LOB column, the LOB data is not unloaded.

Unloading LOB data along with other data

Unloading LOB data in the same output data set that contains the remaining columns of the table is called instream processing. In-stream processing is supported only when the SELECT statement is processed by Db2, which means that DB2 FORCE or DB2 YES was specified along with an unsupported SELECT statement. When this method is used, Db2 HPU might have to truncate the LOB data to limit the record size to the maximum size that is allowed.

With the SPANNED YES option, you can unload LOB data and other data type columns (except for XML data) into a single data set without any risk of truncation and in any of the processing modes.

Unloading LOB data in separate data sets

Unloading LOB data by using a LOB file reference is supported in all cases (DB2 NO, DB2 YES, or DB2 FORCE), and truncation cannot occur. To use a LOB file reference, specify the BLOBF, CLOBF, or DBCLOBF option in a REFORMAT clause, an INTO clause, or a USER format definition.

Related reference

Example: [Unloading data from a table with a LOB column by using a TEMPLATE statement](#)

This example shows how to use a TEMPLATE statement to unload data from a table with a LOB column (COL_LOB).

XML data processing

Db2 HPU can unload XML data.

Supported XML data sources

You can unload XML input data from the base table space, but support is limited by several restrictions:

- Db2 HPU cannot directly unload an XML table space.
- Db2 HPU does not support the unloading of XML data from non-flash image copies.
- Unloading XML data is supported only for a logical unload. When a physical unload is done on a base table space that contains a table with an XML column, the XML data is not unloaded.

XML output

Unloading XML data by using a LOB file reference is supported in both native and SQL processing modes. This output option ensures no truncation of the XML data occurs. To use a LOB file reference, specify the BLOBF, CLOBF, or DBCLOBF option in a REFORMAT clause, an INTO clause, or a USER format definition.

XML data can be unloaded into the same record as the rest of the data (non XML and non LOB data) to unload. This is only supported in SQL mode. You can unload the data either into a regular dataset or into a spanned dataset:

- if the output dataset is specified, data truncation can occur. If an XML value is longer than the output field, an SQL CODE -433 error is issued by Db2, and the processing ends.
- if the SPANNED YES option is specified, the output dataset is a spanned dataset and no data truncation can occur. Unloading into a spanned dataset is supported only if a single XML column is involved and there is no LOB column to unload.

Related reference

Example: [Unloading data from a table with an XML column by using a TEMPLATE statement](#)

This example shows how to use a TEMPLATE statement to unload data from a table with an XML column.

Output data consistency

Ensuring output data consistency depends on the data source and the settings of various options.

The data consistency of the output during the unload process depends on the following data sources and keywords:

Data sources

- A table accessed through Db2 by SQL access.
- The table space that contains the table by direct access.
- An image copy data set of the table space.

Keywords

- LOCK and QUIESCE.

Topics:

- [“Interaction with the Db2 catalog” on page 80](#)
- [“Consistency considerations” on page 80](#)

Interaction with the Db2 catalog

Db2 HPU uses SQL access to read the descriptions of the unloaded objects in the Db2 catalog.

SQL access

Db2 HPU uses SQL to access the Db2 catalog. This method returns the most current value of information that is found in the Db2 catalog.

The user ID that is used to access the Db2 catalog depends on the setting of the VUM032/ACTLGUSR parameter.

Related reference

[Db2 HPU general parameters: VUM027/SQLACCES](#)

The Db2 parameters section on the Product Parameters panel (CCQPPRD) in Tools Customizer contains the Db2 parameters that are used by Db2 HPU.

Consistency considerations

You should understand the consistency considerations when you unload data from an image copy or from a table.

Data that is unloaded from an image copy

When you unload data from an image copy of the table space, the level of consistency is inherited from the SHRLEVEL option that was run with the COPY utility.

When you unload data from an image copy, the updates on the table at run time have no impact on the output data. Therefore, do not use the QUIESCE and LOCK keywords in this case because they are ignored.

When you unload data from image copies that are taken per partition with the COPYDDN LAST_IC PARTITIONED, COPYDDN LAST_IC ANYTYPE, or COPYDDN *number* PARTITIONED keywords, you can ensure the consistency between the image copies of each partition by using the CONSISTENT keyword so that all input full image copies that were used have been taken at the same START_RBA.

Data that is unloaded from a table or its underlying table space

When you unload from the table itself (the online data that is handled by Db2), the DB2, QUIESCE, and LOCK keywords can affect the output data consistency.

DB2

Db2 HPU retrieves the data from the table by using one of the following methods:

Direct access

When the SELECT statement can be evaluated by Db2 HPU, the data is read directly from the table space linear data sets (LDS) that contain the table and the related index space LDS, when they are applicable.

SQL access

When the SELECT statement cannot be handled by Db2 HPU, the data selection is done by Db2. The resulting level of consistency depends on both the use of the LOCK YES feature and the applicable isolation level. If the LOCK YES feature is enabled and honored, the output data has the maximum level of consistency as all of the tables involved in the SELECT statement are locked during the unload which prevents any update of the concerned data over the unload time. If LOCK YES is not requested or not honored, the level of consistency depends on the isolation level. If the concerned SELECT statement does not specify the isolation level via a WITH clause, the isolation level specified at BIND time of the Db2 HPU plan applies. The latter is ISOLATION(CS) if Db2 HPU was bound using the customization job generated from the shipped INZBIND template.

The setting of the DB2 parameter affects not only the data consistency but also the performance. Consider both data consistency and performance when you select the appropriate DB2 option.

The following options for the DB2 parameter are available:

FORCE

SQL access is always used.

YES

Direct access is used when the SELECT statement can be directly processed by Db2 HPU. Otherwise, SQL access is used.

NO

Direct access is used, or the UNLOAD statement is rejected because Db2 HPU cannot process it.

QUIESCE

When direct access is used with the unload, some data from the table might be updated, and the current data might be stored only in the Db2 buffers. To ensure that all the updates are written into the table space LDS, set the QUIESCE keyword to YES. However, new updates can occur during the unload. Specifying QUIESCE YES does not prevent new updates from happening, so this setting is not sufficient to ensure consistent data. You must specify QUIESCE YES when you use the Db2 direct access retrieval method.

LOCK

To prevent concurrent access for updates, set the LOCK keyword to YES. This option applies to SQL and/or direct access modes depending on the setting of the "Eligible processing mode(s) for locking data feature (VUU088/ULLOCKMO)" parmlib parameter. When you specify LOCK YES, the table can be accessed only in read-only mode while Db2 HPU is unloading data from the table. YES is required when any access mode is selected.

You can specify the DB2, QUIESCE, and LOCK keywords in the Db2 HPU SYSIN and when you customize Db2 HPU. Use the VUU011/ULSEDB2, VUU013/ULQSC, and VUU012/ULLOCK parameters to control the default behavior of Db2 HPU with these options.

When you specify QUIESCE, set an appropriate value for the VUU028/ULQSCB parameter.

Tip: To ensure data consistency, consider specifying QUIESCE YES and LOCK YES. The DB2 FORCE and LOCK YES combination also ensures data consistency, but reduces performance.

The following table shows the consistency level that is achieved when you specify different combinations of the QUIESCE, LOCK, and DB2 keywords:

Table 14. Consistency levels for QUIESCE, LOCK, and DB2 combinations

QUIESCE setting	LOCK setting	DB2 setting	Consistency level
NO	NO	NO	Not ensured (1,2)
NO	NO	YES	Not ensured (2,3)
NO	NO	FORCE	Not ensured (2)
NO	YES	NO	Not ensured (4)
NO	YES	YES	Not ensured (3)
NO	YES	FORCE	Ensured (5)
YES	NO	NO	Not ensured (2)
YES	NO	YES	Not ensured (2)
YES	NO	FORCE	Not ensured (2,6)
YES	YES	NO	Ensured
YES	YES	YES	Ensured
YES	YES	FORCE	Ensured (5,6)

Notes:

1. You can obtain data consistency by performing a QUIESCE or a STOP/START sequence against the table. However, other action might be needed to achieve consistency. Refer to notes 2 - 6 for more information.
2. Data consistency is obtained only if no Db2 update is made against the table while the unload process is in progress.
3. Data consistency depends on the SELECT statement because it can be processed in direct access mode or in SQL access mode. If direct access is selected by Db2 HPU, note 1 also applies.
4. Avoid this setting because it locks the table without ensuring that the output data is consistent.
5. Although this setting ensures consistency, it can lead to lower performance because any SELECT statement will be processed in the SQL access mode. Avoid using this setting.
6. Specifying QUIESCE YES in this case is useless because DB2 FORCE is also specified. Specify QUIESCE YES only when you specify DB2 NO or DB2 YES.

Related reference

Db2 HPU general parameters: VUM027/SQLACCES

The Db2 parameters section on the Product Parameters panel (CCQPPRD) in Tools Customizer contains the Db2 parameters that are used by Db2 HPU.

Chapter 5. Db2 HPU batch mode operation

You use the Db2 HPU batch utility program to unload Db2 data.

Db2 HPU uses syntax and JCL that is compatible with the standard Db2 UNLOAD utility. However, Db2 HPU does not support the entire Db2 syntax for SELECT statements. SELECT statements that are not supported are passed to Db2 for processing.

Topics:

- [“Required privileges for running Db2 HPU ” on page 83](#)
- [“JCL for running Db2 HPU in batch mode” on page 85](#)
- [“Db2 HPU EXEC statement” on page 85](#)
- [“RESTART feature” on page 88](#)
- [“Ddname allocation” on page 97](#)
- [“Db2 HPU syntax” on page 100](#)
- [“The SYSPRINT data set” on page 252](#)

Required privileges for running Db2 HPU

Some privileges are required to run Db2 HPU in batch mode.

The following table displays the required privileges and the related userids they must be given to.

Required privilege	Scope of the requirement	Note	UserID					
			Submitter of the job	VUM031 QUITUSR	VUM032 ACTLGUSR	VUM035 EXPLNUSR	VUM028 DISPLUSR	VUM037 CRYPTUSR
Db2 privileges								
SELECT privilege on the tables or views to be unloaded	any unload	1	Yes					
DISPLAYDB privilege on the database containing the data to be unloaded	any unload		if DISPLUSR= CURRENT_USER				Yes	
to execute DISPLAY GROUP	any unload		if DISPLUSR= CURRENT_USER				Yes	
to execute DISPLAY DDF	any unload	2	if DISPLUSR= CURRENT_USER				Yes	
to execute DISPLAY DATABASE	any unload		if DISPLUSR= CURRENT_USER				Yes	
EXECUTE privilege on the plan specified by the parmlib parameter VUX044/CLIPLAN	any unload		if EXPLNUSR=CURRENT_USER or ACTLGUSR=CURRENT_USER		Yes	Yes		
EXECUTE privilege on the Db2 HPU plan	any unload	3	Yes					
to run an EXPLAIN statement on the SELECT statements involved in the UNLOAD commands	OPTIMIZE_PART_RANGE feature is used in native mode or LOCK YES is honored in SQL mode	4	if EXPLNUSR)= CURRENT_USER			Yes		
to run the QUIESCE utility against the table space to unload	QUIESCE YES requested and unload run in native mode from the online table		if QUITUSR= CURRENT_USER	Yes				

Table 15. Privileges required to run Db2 HPU in batch mode (continued)

Required privilege	Scope of the requirement	Note	UserID						
			Submitter of the job	VUM031 QUITUSR	VUM032 ACTLGUSR	VUM035 EXPLNUSR	VUM028 DISPLUSR	VUM037 CRYPTUSR	
to run the STOP and START commands against the table space to unload	QUIESCE YES requested and unload run in native mode from the online table and QUIESCE utility cannot be performed.		if QUITUSR= CURRENT_USER	Yes					
to run SQL LOCK against the table to unload and a START RO command against the related table space	LOCK YES requested and ULLOCKTE=START_RO			Yes					
SELECT privilege on all tables of the unloaded table space	LOCK YES requested and ULLOCKTE=LOCK or physical unload requested	1	Yes						
SELECT privilege on the Db2 catalog table SYSIBM.SYSDUMMY1	Any unload		Yes						
Privileges regarding data sets									
READ authority on the Db2 data sets that contain the Db2 catalog, the table spaces and indexes involved in the unload	unload in native mode	5	if ACTGLUSER= CURRENT_USER		Yes				
to run a LISTCAT against the Db2 data set	unload in native mode and either RTSESTIM=NO or non-partitioned table space involved	6	Yes						
READ authority on the input image copy data set	unload in native mode with COPYDDN option		Yes						
to use the key label for any of the encrypted data set containing the table space (and indexspace) to be unloaded	unloaded table in LDS encrypted using ICSF key label	7	if CRYPTUSR= CURRENT_USER						Yes
to use the key label of the involved encrypted image copy data set	unloaded image copy encrypted using ICSF key label		Yes						
Miscellaneous system privileges									
to write into the JES spool	any unload		Yes	Yes	Yes	Yes	Yes		
to have a profile that contains an OMVS segment.	any unload		Yes						

(1) The UNLOAD privilege is not taken into account by Db2 HPU. The Db2 HPU privilege checking is based on SQL by running a prepare statement. For a logical unload, Db2 HPU requests the specified SELECT statement be prepared. For a physical unload, it requests a "SELECT * FROM table" be prepared for each table from the specified table space. In other words, Db2 HPU behaves like the IBM UNLOAD with AUTH_COMPATIBILITY= SELECT_FOR_UNLOAD.

(2) A DISPLAY DDF is done by Db2 HPU to get the Db2s location name to use the Db2 CLI for SQL access to the Db2 catalog.

(3) The authority should be given by submitting the customization jobs related to the INZBIND template. If several users use Db2 HPU, set VUX011 to PUBLIC. If VUX011 is set to a specific userid, make sure that all the Db2 HPU jobs are submitted on behalf of a userid that has or inherits the EXECUTE privilege on the Db2 HPU plan.

(4) The userid in question must own a PLAN_TABLE and a DSN_PGRANGE_TABLE EXPLAIN tables.

(5) When RACF® is used, the READ authority is not required on Db2 data sets that contain the loaded Db2 table spaces and indexes because Db2 HPU bypasses the RACF control.

(6) The LISTCAT is always performed to determine the number of LDSes of non-partitioned table spaces.

(7) For a Db2 like behavior, set the VUM037/CRYPTUSR parmlib parameter to a userid that has the authorization to access the key label for any of the encrypted data set involved by your Db2 HPU jobs.

JCL for running Db2 HPU in batch mode

Sample JCL for running Db2 HPU in batch mode is provided in SINZSAMP member INZEXECU. You can copy and modify this JCL as needed for your environment.

For example, two SELECT statements have been added to the following JCL. These SELECT statements unload data from the USER01.TABLE01 table and the USER01.TABLE02 table, both of which reside in the DBNAME1.TSNAME1 table space.

```
//*****
//*
//* DB2 UNLOAD JCL
//*
//* IN THIS SAMPLE :
//*
//* - THE DB2 SUBSYSTEM IS DB2P
//* - THE DB2 UNLOAD LOAD MODULES ARE
//*   IN THE LOADLIB &VIZ004
//*
//* - THE EXECUTION REPORT WILL BE
//*   WRITTEN ON THE ddname SYSPRINT
//*
//*****
//STEP1 EXEC PGM=INZUTILB,REGION=0M,DYNAMNBR=99,
//      PARM='DB2P,DB2UNLOAD'
//STEPLIB DD DSN=DB2UNLOAD.LOAD,DISP=SHR
//        DD DSN=PRODDDB2.DSNEXIT,DISP=SHR
//        DD DSN=PRODDDB2.DSNLOAD,DISP=SHR
//*
//SYSIN DD *
UNLOAD TABLESPACE DBNAME1.TSNAME1
DB2 YES
QUIESCE YES
OPTIONS DATE DATE_A
SELECT COL1,COL2 FROM USER01.TABLE01
ORDER BY 1 , COL2 DESC
OUTDDN (UNLDDN1)
FORMAT VARIABLE ALL
SELECT COL3,COL4 FROM USER01.TABLE02
OUTDDN (UNLDDN2)
FORMAT DSNTIAUL
LOADDDN LOADDDN1 LOADOPT (RESUME NO REPLACE)
/*
//SYSPRINT DD SYSOUT=*
//*
//***** ddnameS USED BY THE SELECT STATEMENTS *****
//*
//UNLDDN1 DD DSN=.....,DISP=SHR
//UNLDDN2 DD DSN=.....,DISP=SHR
//LOADDDN1 DD DSN=.....,DISP=SHR
```

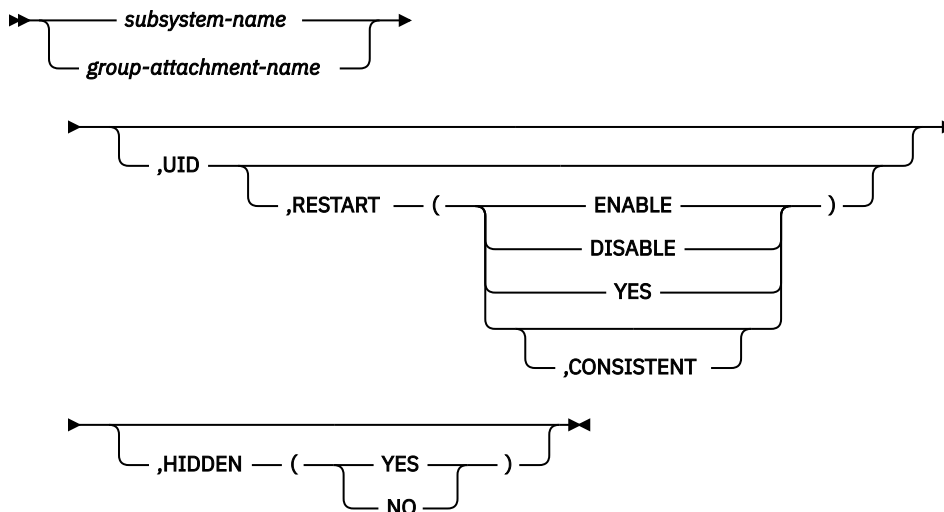
Db2 HPU EXEC statement

A sample EXEC statement that you use to run Db2 HPU in batch mode is provided in SINZSAMP member INZEXECU. You can copy and modify this sample as needed for your environment.

The following example shows the format of the EXEC statement:

```
EXEC PGM=module-name,PARM='subsystem-name/group-attachment-name,UID[,HIDDEN(YES/NO)]'
```

Db2 HPU EXEC statement



The EXEC statement contains the following parameters. Content in the PARM field must be enclosed in single quotation marks (').

Module-name

INZUTILB: Specify this name to process

- a Db2 HPU native syntax
- an Unload Plus syntax
- a Fast Unload syntax.

INZUTILC: Specify this name to process

- a Db2 UNLOAD syntax

Note: INZUTILB is an alias on either the INZUTIB1 or INZUTIB2 load modules defined through the customization job built from the template INZALIAS. The relevant load module is chosen at customization time according to the setting for Management of exit written in C or COBOL (VUU079/EXITHLL).

subsystem-name/group-attachment-name

Specifies the name of the Db2 subsystem. In a non-data-sharing environment, this value is the name of a Db2 subsystem. In a SYSPLEX data-sharing environment, this value may be either a Db2 group attachment name or the name of one of the subsystems that belongs to the data sharing group. The name must be one of the SSID listed on the Tool Customizer "Associate Db2 Entry for Product".

UID

Specifies the unique identifier for your Db2 HPU step. Special characters are not permitted. This identifier is used as a utilid when Db2 HPU needs to invoke a Db2 utility (for example the QUIESCE utility).

This parameter is mandatory if the RESTART feature (see "RESTART feature" on page 88) is requested. It may be omitted otherwise. If not specified, Db2 HPU uses the following default value, depending on the situation, as described hereafter:

- if the FastUnload syntax is used, the value is built with jobname.userid
- the value is built with userid.jobname otherwise

where jobname is the JES jobname of the job the step belongs to and userid is the user name of the submitter of the job

Db2 HPU uses the value of this parameter as a utilid when launching Db2 utilities is needed and as a part of the RESTART dataset name when the RESTART feature is used.

For concurrency purpose, make sure you do not try to run simultaneously Db2 HPU steps using the same "UID" against the same Db2 subsystem or datasharing group if one of the following conditions applies:

- the QUIESCE YES feature is requested
- the RESTART feature is used

HIDDEN

Specifies whether hidden columns are unloaded when a SELECT * statement from a table name or from a LISTDEF statement is used. This parameter is optional. It applies only to SELECT statements that are processed natively Db2 HPU. Use the HIDDEN keyword in the OPTIONS block to override this parameter.

NO

Specifies that hidden columns are not unloaded when a SELECT * statement is used.

YES

Specifies that hidden columns are unloaded when a SELECT * statement is used. For SELECT statements that are processed by Db2, the HIDDEN parameter is ignored.

If the HIDDEN parameter is not specified in the SYSIN or in the PARM field, the default value is the value that is specified for the VUU042/ULHIDDEN PARMLIB parameter.

RESTART

Specify this option to use - or to disable the use of - the RESTART feature (see [“RESTART feature” on page 88](#)).

ENABLE

specifies that the Db2 HPU step must be run in RESTARTABLE mode. This mode requires the "RESTART dataset template (VUU091/RSTTMPL)" parmlib parameters be set. In case of failure, restarting the step will be possible.

DISABLE

Specifies that the Db2 HPU step must not be run in RESTARTABLE mode regardless of the value set for the "Enable RESTART mode (VUU090/RSTENABL)" parmlib parameter. In case of failure, restarting the step will not be possible.

YES

Specifies that the Db2 HPU step must be run in RESTART mode. This mode requires the "RESTART dataset template (VUU091/RSTTMPL)" parmlib parameters be set. If this step was previously run in RESTARTABLE mode and the step failed, the RESTART mode is available and consists in:

- creating or creating again only the output datasets not successfully created by the previous runs of the step.
- and, if CONSISTENT is specified after YES, creating or creating again also the dataset that were successfully created by previous runs of the step if the output dataset is an output dataset created for an unload that fulfills following conditions:
 - it is run in native mode
 - it involves a partitioned table space and requests output datasets per partition
 - the LOCK YES feature applies to this unload
 - at least one of the output datasets expected for this unload was not correctly created by the previous runs of the step

Important: If you specify FASTUNLOAD in SYSIN to use the Fast Unload syntax, precede *subsystem_name/group_attachment_name.job_id* in the PARM field with the EP=UTLGLCTL positional parameter, as shown in the following example:

```
PARM='EP=UTLGLCTL/DSN5 , , , DB2UNLOAD'
```

Note: The input parm string can be specified in a file allocated to the ddname PARM or to the ddname specified in the EXEC PARM, using the syntax PARM= ' DDNAME=ddname ' positional parameter, as shown in the following example:

```
EXEC INZUTILB, PARM= ' DDNAME=MYDD '
MYDD DD *
DBP, MYUID
/*
```

RESTART feature

An unload step can generate multiple output datasets containing the unloaded data. When such an unload step fails after the first unload task has started, some of the unload tasks can have completed and produced the expected output dataset. In such a case, you may want to resume the unload step requesting that Db2 HPU only performs the unload tasks that did not complete successfully in the previous run of the step as it makes completing the job easier and faster. Easier because you don't need to delete the datasets generated by the falling run of the unload step and faster because it allows to save up execution time by avoiding running the unload tasks that completed successfully again. The RESTART feature allows you to design Db2 HPU steps that can be restarted this way.

Db2 HPU steps that are eligible to the RESTART feature

The RESTART feature is available for Db2 HPU steps having all their output datasets - requested by the OUTDDN, UNLDDN and LOADDDN options - allocated through TEMPLATE statements. Consequently, only syntaxes allowing TEMPLATE statements to be specified are eligible, i.e. the Db2 HPU genuine syntax and the Db2 UNLOAD utility syntax as well.

Important: When the RESTART feature is invoked for a step that is not eligible, the RESTART feature is not put into action. A message is issued to inform about the situation and the process continues in regular mode without any impact on the Db2 HPU step completion code. Therefore, enabling the RESTARTABLE mode by default by setting the “Enable RESTART mode (VUU090/RSTENABL)” parmllib parameter to ENABLE has only a minor impact – i.e. informational messages - on the jobs that are not eligible to the RESTART feature.

Considerations about consistency when the RESTART feature is used

When a Db2 HPU step is completed in RESTART mode, some of the data sets are created a while after the other. Db2 HPU only makes sure the unload command is identical to the one used during the initial run of the step. The compliance of the datasets created by the step run in RESTART mode and the consistency of the whole set of datasets created by both the initial run and the run of the step in RESTART mode may be affected if some changes occur between the initial run and the runs in RESTART mode. The changes and the related major potential impacts are listed in the table below:

Changes	Major potential impacts
the data in the involved tables	consistency between data unloaded for distinct unload tasks and consistency of datasets per partitions generated for a single unload (if the CONSISTENT suboption is not specified or if the unload was run in SQL mode)
the list of existing objects	when lists (LISTDEF or LISTDEFTBV are involved, datasets for missing objects at the time of RESTART are not created even if not created during previous run
the Db2 HPU settings	output format, evaluation of some SQL scalar functions
the Db2 settings	output format, evaluation of some SQL scalar functions

Changes	Major potential impacts
the definition of the involved objects	discrepancy between unloaded data and generated LOAD control cards - even if the CONSISTENT suboption is not specified -, non-unique fields definitions among a set of output datasets per partition generated for a single unload task

How to use the RESTART feature

The RESTART feature is a two-step feature. To be able to restart an eligible Db2 HPU step, you must first run the step in RESTARTABLE mode that allows the step to be restarted, i.e. to be run in RESTART mode, if the initial run fails. These two modes are described below.

RESTARTABLE mode

Enabling the RESTARTABLE mode

The RESTARTABLE mode can be enabled

- for a specific Db2 HPU step, by specifying RESTART(ENABLE) in the PARM attribute of the Db2 HPU EXEC statement
- for any Db2 HPU step with no RESTART option specified in the PARM attribute of the Db2 HPU EXEC statement, by setting the "Enable RESTART mode (VUU090/RSTENABL)" parmlib parameter is set to YES

In other words, if "Enable RESTART mode (VUU090/RSTENABL)" parmlib parameter is set to YES, the RESTART mode is the behavior by default, i.e. if no RESTART option is specified in the PARM attribute of the Db2 HPU EXEC statement.

Conditions to be able to restart a Db2 HPU step

Enabling the RESTARTABLE mode is not enough to guarantee the job can be restarted with a later run of the step. The Db2 HPU step must also be eligible to the RESTART feature in which case Db2 HPU creates and populates a restart dataset that is exploited further at restarting time.

To make sure the step can be run in RESTART mode, check that the initial run in RESTARTABLE mode confirms a RESTART dataset was created and not deleted afterwards.

In other words, the job is restartable if the following conditions are fulfilled:

- the INZU565I message was issued
- the INZU569I message was not issued
- the restart dataset created by the initial run of the step and mentioned by the INZU565I message has not been altered or removed by any process or action

RESTART mode

Requesting the RESTART mode

The RESTART mode is requested by specifying the RESTART(YES[,CONSISTENT]) option in the PARM attribute of the Db2 HPU EXEC statement after having removed the RESTART option already specified if any.

Conditions to restart a Db2 HPU step

A Db2 HPU step can be run in RESTART mode if the following conditions are fulfilled:

- the step was previously run in RESTARTABLE mode
- the RESTART dataset created by the run in RESTARTABLE mode is still catalogued and has not been altered by any process or action
- the name of the catalogued RESTART dataset is compliant with the setting of the RESTART dataset template (VUU091/RSTTMPL) in the Db2 HPU parmlib used for the restarted step.
- the PARM attribute of the EXEC statement of the restarted step specifies the same UID and subsystem-name/group-attachment-name options.
- the unload command of the restarted step is the same as the unload command used for the run in RESTARTABLE mode except for the TEMPLATE statements for which only the template-

name and either the name-expression (from the DSN option) or the path-name (from the path-expression) must be identical.

Important: The possibility to alter the TEMPLATE statement is especially meant to help solve lack of storage space issues – for example, ABENDSx37 issues. For such issues, changing the SPACE or the UNIT option may be necessary to prevent such issues to reoccur when the step is run is restarted. However, for more flexibility, almost all the characteristics of the TEMPLATE statement can be changed at restart time. Before changing any characteristics, consider that such changes might not be compliant with the requirements of some subsequent processes that exploit the output dataset of the restart step.

What does Db2 HPU do when restarting a step?

When restarting a step, Db2 HPU considers all the datasets that the step should produce and checks which of them was completed written during the previous run of the step.

Db2 HPU:

1. Determines which output datasets must be created or created again according to the following rules:
 - any output dataset that was created but not completely written or that was not created at all must be created or created again
 - except if the output dataset was created for a SELECT * FROM LIST statement and the involved object - found during the first run - no longer exists at restart time
 - if RESTART(YES,CONSISTENT) was specified, if the missing or incomplete dataset is part of a set of output dataset per partition to be produced for a single logical (OUTDDN option) unload run in native mode or a physical (UNLDDN option) unload for which the LOCK YES feature was requested, for consistency purpose, the whole set of output datasets must be created again
 - no new output dataset is created which implies that:
 - if a SELECT * FROM LIST statement is involved and the list of objects resolved at the time of restart has more objects than during the first run, the extra objects are ignored and no output dataset is created for them.
2. Restarts the unload tasks to create all the datasets to be created or created again. Each time an unload process is started, the related former output datasets, if any, are removed and new output datasets are created with names generated from the related TEMPLATE specifications at the first run of the step. Consequently, the time and date variables are evaluated with the time of the first run.
 - if all the output datasets with unloaded data for a given unload

Focus on SELECT * FROM LIST statements

For a Db2 HPU step involving a SELECT * FROM LIST statement with a related LISTDEF or LISTDEFTBV statement that specifies generic object names, the list of objects retrieved by the first run of the step and the list of objects retrieved when the step is restarted might differ from each other. Such a situation is handled as follows:

- if new objects are retrieved at restart time, they are ignored. No data is unloaded for them and an informational message reports the situation.
- if objects are missing at restart time, this is not considered as an error. The processing continues, and no message is issued.

RESTART dataset

The RESTART feature exploits a dedicated sequential dataset automatically allocated by Db2 HPU according to the values set for the following parmlib parameters:

- "RESTART dataset template (VUU091/RSTTMPL)" which is required
- "RESTART dataset unit (VUU092/RSTUNIT)" which may be omitted

Db2 HPU writes into this dataset all the information needed to restart the job when requested and exploits this information when the job is restarted.

RESTART dataset uniqueness

For a correct exploitation of the RESTART feature, each job using this feature must own a dedicated RESTART dataset. The uniqueness of the dataset is ensured through two variables to be specified in the RESTART dataset template (VUU091/RSTTMPL), i.e.:

- &SSID that stands for the value of the subsystem-name/group-attachment-name specified in the PARM attribute of the Db2 HPU EXEC statement.
- &UID that stands for the value of the job-ID specified in the PARM attribute of the Db2 HPU EXEC statement.

For example, if the "RESTART dataset template (VUU091/RSTTMPL)" parmlib parameter is set to DB2HPU.RESTART.&SSID.&UID the RESTART dataset related to the following Db2 HPU step // HPUSTEP EXEC PGM=INZUTILB,PARM='DSN1,MYJOB1,RESTART(ENABLE)', the RESTART dataset is named DB2HPU.RESTART.DSN1.MYJOB1

Because of the template structure and the uniqueness requirement, two jobs using the RESTART feature that can be run simultaneously against the same subsystem-name/group-attachment-name must have distinct job-IDs.

For example, if the "RESTART dataset template (VUU091/RSTTMPL)" parmlib parameter is set to DB2HPU.RESTART.&SSID.&UID, the following Db2 HPU steps // JOB1HPU EXEC PGM=INZUTILB,PARM='DSN1,MYJOB1,RESTART(ENABLE)' and //JOB2HPU EXEC PGM=INZUTILB,PARM='DSN1,MYJOB2,RESTART(ENABLE)' as their RESTART datasets are distinct and respectively DB2HPU.RESTART.DSN1.MYJOB1 and DB2HPU.RESTART.DSN1.MYJOB2.

RESTART dataset handling

When RESTART(ENABLE) applies - either by default or specified in the PARM attribute of the EXEC statement - Db2 HPU attempts to create its own RESTART dataset. If the allocation fails, Db2 HPU terminates in error.

When RESTART(YES[,CONSISTENT]) is specified in the PARM attribute of the EXEC statement and the related RESTART dataset does not exist, Db2 HPU terminates in error.

When HPU terminates successfully - either when RESTART(ENABLE) or RESTART(YES) applies -, the restart dataset is deleted.

Memory use considerations

Before running Db2 HPU, take the following considerations into account to estimate the memory needs and determine suitable memory settings.

24 bit and 31 bit memory

Db2 HPU requires 24 bit and 31 bit memory. Here is some advice to help you determine the relevant value of the REGION parameter required for a Db2 HPU step.

Impacting parameters

The amount of 24 bit and 31 bit memory needed for a Db2 HPU step depends on a lot of parameters such as:

- the Db2 object composition (number of partitions or datasets, number of related indexes, number and data types of columns)
- the unload statement complexity (number of involved Db2 objects, number of SELECT, number of output datasets...)
- the processing mode (native vs SQL mode, parallelism degree, SORT program used...)

Minimum value

The minimum amount of memory can be determined by running a plain unload or, better, what you consider your typical unload and to measure the amount of memory. It should be at least:

- 30M if VUU079/EXITHLL is set to NO
- 40M if VUU079/EXITHLL is set to YES

Maximum value

Most of the memory is allocated above the 16 MB bar and increases with the unload complexity if the parallelism degree is not limited. However, as some memory must be allocated below the 16 MB bar, the maximum complexity that an unload can reach is limited by the 16 MB memory thus preventing an unload job to use a very big amount of memory above the 16 MB. However, as computing and predicting the exact amount of memory needed for a given unload job is very complicated and does not make much sense when parallelism is involved, it is recommended to set the REGION parameter to 0M so that the required memory is available to the unload job.

64 bit memory

Db2 HPU uses 64 bit memory. It especially uses it when it creates threads to perform tasks in parallel. Any Db2 HPU step requires at least a few threads and a much bigger number of threads can be required if either the zIIP use or the parallelism between unloads are enabled (see the ZIIP and PARALLELISM options or related parmlib parameters).

A thread run by Db2 HPU may invoke a sort process. Therefore, the consumption of 64 bit memory by the sort program has an impact on the amount of 64 bit memory needed for a Db2 HPU step.

Minimum MEMLIMIT value

Db2 HPU honors the MEMLIMIT value. As the amount of memory needed for one regular thread - i.e. not invoking a sort program - is about 1 MB (this value is referred to as THREAD_64MEM hereafter), it is advisable to set the MEMLIMIT to a value greater than or equal to $\text{MAX_THREADS} * \text{THREAD_64MEM}$ where MAX_THREADS is the number of threads needed for the Db2 HPU step. This number is not easily predictable but it should not exceed 300 for any Db2 HPU step. Therefore, the MEMLIMIT value applicable to a Db2 HPU step should not be less than 300M (this value is referred to as HPU_MIN_64MEM hereafter).

Taking SORT programs 64 bit memory consumption into account

As the sort program Db2 HPU invokes when it needs to sort data (see SORTUTIL option and parmlib parameter) may allocate 64 bit memory, the maximum amount of 64 bit memory that may be used by the sort program must be taken into account to set the MEMLIMIT value needed for a Db2 HPU step. The way MEMLIMIT must be set depends on the sort program's behavior regarding the 64 bit memory allocation which depends on both the sort program and its settings as detailed below:

a) Sort program with no limit to 64 bit memory use

If the settings of the sort program allow it to exhaust the 64 bit memory up to MEMLIMIT (depending on their settings, some sort programs may be allowed to use as much memory as needed, even exceeding the MEMLIMIT value), MEMLIMIT should be set to NOLIMIT to make sure that **Db2 HPU** can always run more than one thread as required for any Db2 HPU step. Otherwise, the step might fail with a memory outage especially if the parallelism is enabled. Not setting MEMLIMIT to NOLIMIT would require to disable the parallelism or drastically lower its degree for unloads involving sort processes.

b) Sort program with use of limited amount of 64 bit memory

If the settings of the sort program limit the amount of 64 bit memory used by a single sort process to a maximum value (referred to as SORT_MAX_64MEM hereafter), the value of MEMLIMIT should be set to $p * \text{SORT_MAX_64MEM} + \text{HPU_MIN_64MEM}$ where p is the maximum parallelism degree allowed to the Db2 HPU step. For DB2SORT, the PAGEMONL parameter allows to set such a limit of the 64b bit memory available to the sort program, with a minimum of 300M.

c) Sort program with reservation of 64 bit memory for the caller

If the settings of the sort program specify that it must honor the MEMLIMIT value and reserve a given amount of 64 bit memory (referred to as SORT_RESERVED_64MEM hereafter) to the caller, SORT_RESERVED_64MEM should be set to HPU_MIN_64MEM.

Processing mode considerations

Native processing versus SQL mode processing

Db2 HPU retrieves the data to be unloaded in two ways:

- either by directly accessing the data from the data sets where it is stored (either the VSAM data sets handled by Db2 or the image copy data sets),
- or by requesting Db2 to provide the data from its buffers.

The first is called the native processing (also referred to as native mode) and the latter is called the SQL processing (also referred to as SQL mode). The applicable modes depend on the kind of unload to be performed. When both modes are available for a given unload, the mode to be used can be specified via the DB2 option or its default counterpart in the Db2 HPU settings (VUU011/ULSEDB2) with the Db2 HPU syntax or with an equivalent keyword with the other syntaxes.

The table below shows which mode is applicable.

Unload request	Native mode	SQL mode
Physical unload (1)	YES	NO
Unload from an image copy (2)	YES	NO
Logical unload (3) with a supported SQL statement (4)	YES (5)	YES (5)
Logical unload (3) with an unsupported SQL statement (4)	NO	YES

(1) Db2 HPU UNLDDN option or equivalent feature with other syntaxes.

(2) Db2 HPU COPYDDN option or equivalent feature with other syntaxes.

(3) Db2 HPU OUTDDN option or equivalent feature with other syntaxes.

(4) Db2 HPU only supports a part of the SQL SELECT statements (see [“Fast select, fast listdef and fast listdeftbv select blocks syntax and description”](#) on page 206 for more details).

(5) Db2 HPU selects the mode according to the instructions or preferences given by the DB2 option or its default counterpart in the Db2 HPU settings (VUU011/ULSEDB2).

SQL processing details

When Db2 HPU passes a SELECT statement to Db2 to retrieve the data (SQL mode), the following systematical or optional actions that might have an influence on the way Db2 processes the statement are performed.

- The FOR READ ONLY clause is appended to the SELECT statement (1).
- The USE CURRENTLY COMMITTED or WAIT FOR OUT-COME is appended to the SQL statement according to the ACCPREP specification (via the ACCPREP option in technical parameters block or the VUU061/ACCPREP parameter) (2).
- The SQL statement, with potential changes described above is run after some special registers have been set as follows:
 - The CURRENT DEGREE special register is set according to the ULDEGREE option in technical parameters block or the VUU021/ULDEGREE parameter (1)
 - The CURRENT SQLID special register is set according to the SQLID specified via the GLOBAL OPTIONS block (2).
 - The CURRENT QUERY ACCELERATION special register is set according to the QUERY_ACCELERATION option in the OPTIONS block (2).

- The CURRENT OPTIMIZATION HINT special register is set according to the OPTIMIZATION_HINT option in the OPTIONS block (2).
- According to the UNLROWSET option or the VUU035/ULROWSET parameter, the SQL statement is run in either single or multi-row fetch mode (1).

(1) systematical action

(2) optional action

Understanding and mastering parallelism in Db2 HPU

When Db2 HPU is run, the unload command generally requires several single/elementary tasks/processes. Some of these tasks can be processed in parallel. Enabling the parallelism helps reducing the elapse time needed for a Db2 HPU step to complete. As parallelism saves up elapse time but requires a bigger amount of other resources such as memory, CPU time and TIOT table inputs, understanding when the parallelism is triggered helps tuning the degree of parallelism suitable for your use case.

The tasks that are eligible to parallelism are:

- reading tasks
- writing tasks

A reading task does the following:

- in native mode, it reads the data from a dataset, i.e., either an LDS from the tablespace or from an image copy dataset used as input. There are as many tasks as dataset to be handled. For partitioned tablespace, there are as many tasks as the number of involved partitions of the tablespace unloaded in native mode.
- in SQL mode, it retrieves the data through an SQL cursor. The WHERE clause and the ORDER clause if any from the related SELECT statement are processed by Db2 at the same time. There is one task of that kind by SELECT statement processed in SQL mode except if the SQLPART is used, in which case, there can be up to as many tasks as the number of partitions involved in the unload.

A writing task does the following:

- in native mode, it applies the WHERE clause and the ORDER clause, if any
- in SQL and native modes, it writes the unloaded data with the requested format and takes the OUTMAXROWS, UNLFREQROWS and OUTEXIT options, if any. There can be up to as many tasks as the number of output dataset defined through the OUTDDN or UNLDDN options. When the UNLOAD requests to create one dataset by partition and the request can be honored, there are as many output datasets as the number of partitions involved by the unload.

Parallelism in Db2 HPU can concern some of these tasks. This User's Guide uses the following terms to designate the parallelism or related notions as described below:

- **partition parallelism:** this applies to native mode only and stands for the parallelism between reading tasks processing the dataset (either LDS or image copy data sets) of the partition from a single tablespace. It is driven by the PARALLELISM lds or PARALLELISM (lds,.....) option or the VUX025/PARALLEL parmlib parameter. Such parallelism of reading can be enabled or disabled when a partitioned table space is unloaded into a single output dataset with the VUU036/GBLPARAL parmlib parameter. When the zIIP use is requested, the ZIIPMXPL option from the technical parameters options block or the VUX042/ZIIPMXPL parmlib parameter is also taken into account.
- **Db2 parallelism:** this applies to SQL mode only and stands for the parallelism between the reading tasks for the SELECT statement specified under the same UNLOAD statement. It is driven by the PARALLELISM (...db2,...) option or the VUX031/DB2PARAL parmlib parameter.
- **table space parallelism:** this applies to native mode only and stands for the parallelism between reading tasks related to distinct table spaces. It is driven by the PARALLELISM (...ts) option or the VUX030/UTLPARAL parmlib parameter. When the zIIP use is requested, the ZIIPXMU option from the technical parameters options block or the VUX043/ZIIPMXPU parmlib parameter is also taken into account.

- global parallelism: this designates the overall parallelism including partition parallelism, Db2 parallelism and table space parallelism.

Note: The Db2 parallelism mentioned above is distinct from the parallelism put into action by Db2 when it processes a SELECT statement received from Db2 HPU. This degree, that is driven by the Db2 CURRENT DEGREE special register, can also be set through Db2 HPU either by setting the VUU021/ULDEGREE parmlib parameter or by specifying the ULDEGREE option from the technical parameters block.

OMVS threads requirements

Db2 HPU uses OMVS threads for any batch processing. Each Db2 HPU step (EXEC statement) launches a single OMVS process that is closed when the Db2 HPU step ends. This process is launched on behalf of the UID associated to the userid of the submitter of the job that includes the Db2 HPU step.

Consequently, the settings of some z/OS Unix parameters have an impact on the Db2 HPU jobs as described below. Take these impacts into account to choose settings that meet your requirements in terms of Db2 HPU use.

MAXTHREADTASKS

This parameter has an impact on the maximum parallelism degree allowed for a single OMVS process thus for a Db2 HPU step.

The number of threads needed for an unload strongly depends on the processing mode and is much bigger for the unload processes run in native mode.

For the native mode, the number of threads needed by Db2 HPU can be computed with the help of following rules:

- 20 base threads always used per unload statement and,
- for every partition unloaded in parallel -- 2 threads always used -- 1 thread if the data is unloaded from an INLINE image copy -- 2 threads if ZIIP mode is enabled -- 1 thread if a SORT process is involved -- 1 thread for every LOB column to unload -- 4 threads for every XML column to unload -- 1 thread if SPANNED YES is requested

For example, for an unload, run in native mode, from a partitioned table space with no LOB or XML to be unloaded and partition parallelism set to 50, the number of threads needed is $20 + 50(2 + 1) = 170$ threads.

The MAXTHREADTASKS parameter should be set to a value greater than or equal to the number of threads needed for the more demanding of your unload steps in terms of threads. A rough and very likely oversized (unless you have objects with a large number of LOB or XML columns) estimate based on the number of partitions of the table space to unload is given by the following formula: $20 + \text{partitions_number} * 12$.

For unload steps with several unload statements and table space parallelism enabled (via the third argument of the PARALLELISM option VUX030/UTLPARAL PARMLIB parameter), the contributions of the table space processed in parallel must be added to compute the number of threads of the step.

The MAXTHREADS parameter's value has to be equal or higher (preferably higher) than the MAXTHREADTASKS value.

MAXTHREADS should be set at least 2 times higher than the MAXTHREADTASKS value.

MAXPROCSYS and MAXPROCUSER

The number of Db2 HPU steps that can be run concurrently is limited by the following rules:

- the number of Db2 HPU steps, regardless of the userid of the submitter of the related job, does not exceed the value set for MAXPROCSYS
- the number of Db2 HPU steps in jobs submitted by userids associated with the same z/OS Unix UID does not exceed the value set for MAXPROCUSER

The actual limit set by the second rule depends on:

- the way z/OS userids are associated with z/OS Unix UIDs

- the dispatching of jobs submitters

The limit increases whenever:

- the number of involved UID increases
- the distribution of jobs among UID is flatter

For a strictly flat distribution, i.e. each UID is associated to the same number of Db2 HPU jobs, the maximum number of Db2 HPU steps that can be run simultaneously is given by the following formula ; $\min(\text{MAXPROCSYS}, \text{number_of_UID_involved} * \text{MAXPROCUSER})$. The number of jobs that can actually be run in parallel can be less than this value if other programs use z/OS Unix processes or if the outage of another shared system resource occurs.

Enabling the use of zIIP processors

The use of zIIP processors can be requested:

- either by default (for all unload jobs) by setting the VUX039/ZIIP parmlib parameter
- or at the job level by using the ZIIP option of the Technical parameters block in the GLOBAL OPTIONS block

If you want to use the zIIP processors, either set VUX039/ZIIP to 100 or specify ZIIP 100 in your unload SYSIN. Do not specify another value unless directed to by the IBM support.

In most cases (i.e. in any processing mode, unload jobs involving complex formatting and, in native mode, unload jobs with a SELECT statement involving SQL expressions or WHERE clause), the use of zIIP processor is efficient. Therefore, enabling the use of zIIP processor via the parmlib parameter is relevant. However, for some specific unloads among those are not supposed to benefit from the zIIP use (unload in INTERNAL or physical format), the use of zIIP processors might bring no gain or even lead to a slight increase of the Global Purpose CPU use. For such unloads, consider adding ZIIP OFF to the GLOBAL OPTIONS block to disable the zIIP whatever the corresponding parmlib setting. As the ZIIP option applies to all unloads of the unload step, avoid mixing unloads that can benefit from the zIIP processors use and others that do not take advantage of it in a single unload command.

If no zIIP processor is available, specify ZIIP OFF via the parmlib parameter to prevent Db2 HPU from checking if a zIIP processor can be used.

When you request Db2 HPU to use the zIIP processors (i.e. “ZIIP percentage” applies), some messages report how the request has been taken into account.

For example, if ZIIP 100 is specified on a machine where no zIIP processor is available, messages such as the following are issued:

```
INZI211I ONLINE CPU(S)
  2 GENERAL CPU
  0 ZIIP CPU
  0 OTHER CPU

INZI212I NO ZIIP AVAILABLE, ZIIP SET TO OFF
```

and messages as follows are issued if a zIIP processor is available.

```
INZI211I ONLINE CPU(S)
  2 GENERAL CPU
  1 ZIIP CPU
  0 OTHER CPU

INZI210I ZIIP ENABLE - SET TO 100 %
```

If a technical issue prevents Db2 HPU to use the zIIP processor as requested, the INZI213W message is issued.

Dbname allocation

Db2 HPU uses two types of ddnames: ddnames that Db2 HPU allocates and ddnames that you must allocate.

Db2 HPU-allocated ddnames

Db2 HPU dynamically allocates some of the ddnames that are required to run unload jobs.

The following reserved ddnames are allocated dynamically by Db2 HPU:

dispparm

This user-defined ddname - named dispparm hereafter - is dynamically allocated by Db2 HPU as a SYSOUT data set if the "Display implicit parameters" feature - driven either by the VUU083/DISPPARM parmlib parameter or the SYSIN DISPLAY_PARMLIB option from the Technical parameters options block - is enabled by choosing the YES,dispparm and the dispparm ddname is not already allocated by the user.

dispexpl

This user-defined ddname - named dispexpl hereafter - is dynamically allocated by Db2 HPU as a SYSOUT data set if the "display of a EXPLAIN report" feature - driven either by the VUU087/DISPEXPL parmlib parameter - is enabled by choosing the YES,dispexpl and the dispexpl ddname is not already allocated by the user. Db2 HPU sets RECFM=VB and LRECL=124 as DCB attributes of this dataset, regardless of explicit DCB parameters specified through the DD statement.

ICxx-ICxxxxnnnn

The ddname that is used to allocate the input image copy, where *xx* is a unique two-character alphanumeric value, and *nnnn* is the partition number. This ddname is used in the following conditions:

- When you specify COPYDDN LAST_IC or COPYDDN *integer*, the ddname that is used to allocate the input image copy is ICxx or ICxxxxnnnn, depending on whether you specified the PARTITIONED keyword or the ANYTYPE keyword.
- When you use the COPYDDN keyword with a template name, ICxx is used to allocate a global input image copy, and ICxxxxnnnn is used to allocate an input image copy per partition.

LBFnnnnn

The ddname that is used to allocate the output file for a LOB file reference, where *nnnn* is the partition number. The same ddname is reused during the unload process to allocate all LOB file references for a specific LOB column and a specific partition.

SORT ddnames

Db2 HPU calls the sort utility when you specify an ORDER BY clause or an ORDER CLUSTER clause, which means that sort ddnames are dynamically allocated.

RSTARTDD

This ddname must be reserved to Db2 HPU when the RESTART feature – see [“RESTART feature” on page 88](#) - is used. It is the DDname under which the RESTART data set is allocated.

User-allocated ddnames

To run unload jobs, you must allocate certain ddnames in the Db2 HPU JCL.

To allocate ddnames, specify the following DD statements in your Db2 HPU JCL. Some of these DD statements are required and some are optional:

STEPLIB or JOBLIB

To use Db2 HPU, the job must have access to the Db2 HPU LOADLIB, the Db2 DSNLOAD and the Language Environment SCEERUN and SCEERUN2 libraries. The Db2 DSNLOD2 library is needed if the DSNAO64C module is stored in this library. Make sure that any library allocated under the STEPLIB ddname is APF authorized. You can give Db2 HPU access to these libraries by specifying a JOBLIB DD statement, a STEPLIB DD statement, or by including the library names in the LINKLIST.

If you do not specify the DSNEXIT library in the VZD007 PARMLIB parameter for the corresponding Db2 subsystem, you must specify the DSNEXIT library in the STEPLIB or JOBLIB libraries, and you must specify it before the Db2 DSNLOAD in the concatenation.

SYSIN

This data set contains commands for Db2 HPU.

SYSPRINT

This ddname specifies the data set that receives the report from Db2 HPU.

Restriction: if you allocate SYSPRINT to a non-SYSOUT data set and your Db2 HPU step involves an unload run in native mode with a request to QUIESCE the related table space (QUIESCE YES option or no QUIESCE option and VUU013/ULQSCE set to YES), the DISP parameter for this data set must be MOD. Otherwise, the part of the SYSPRINT written before the output of the QUIESCE utility misses from the SYSPRINT data set.

HPUPRINT

Allocate this optional ddname to get INZCI0559 row count/completion messages printed in this separate data set. This is a deprecated feature. Consider using the more flexible SELMSG feature instead.

SYSTEM

This ddname is optional. It receives the additional diagnostic information from running Db2 HPU.

SYSABEND

This ddname is optional. Because the INZUTILB module runs in key 7, the standard dump mechanism does not apply. If an abend occurs, a dump is produced by using the SNAP macro in the SYSABEND ddname, if this ddname is allocated in the JCL. The VZM009 parameter defines a list of system codes, such as system codes for X37 abends, for which dumps are not produced.

Other dump ddnames, such as SYSUDUMP and SYSMDUMP, are not used by Db2 HPU.

UTPRINT

This ddname is optional. It specifies the output data set for sort utility messages. If the VUX020/SORTCLAS PARMLIB parameter is set to a nonblank value, the UTPRINT ddname is not used for the sort messages, and Db2 HPU dynamically allocates one ddname for the messages of each sort that is invoked.

INFPLIB

This ddname is conditional. It connects Db2 HPU to the PARMLIB that contains the INZUTIL member.

If the INZPARM member was customized and submitted during installation, you can omit this ddname.

copydd

This DD statement is optional. Specify a DD statement with a name that matches the value of *copydd* in the COPYDDN parameter that is specified in the SYSIN DD. You can use a TEMPLATE statement instead of allocating a DD statement in the JCL.

This DD statement names the image copy data set from which the unload is to be done.

For nonpartitioned table spaces or to use a global image copy of a partitioned table space, allocate the COPYDD ddname in your JCL. You can also concatenate image copies for each partition under a single ddname to avoid using partition parallelism. See [“Concatenation of image copies”](#) on page 67 section.

To enable Db2 HPU to process partitioned table spaces in parallel by using image copies as input, use a 1- to 7-digit sequential number to specify one *copyddnnn* statement for each partition that you want to unload. The following example shows how you might specify this DD statement:

```
copydd01
copydd02
copyddnnn
```

where *nnn* is a 1- to 7-digit sequential number. Db2 HPU searches for all possible ddnames and partition numbers, with or without leading zeros. For example, if you specify COPYDDN CPY, for

partition 1, Db2 HPU searches in the following order for CPY00001, CPY0001, CPY001, CPY01, and CPY1, and uses the first ddname that is found. Ddnames that are allocated for partitions can be different lengths, such as CPY1, CPY02, CPY003, and CPY00004.

outdd

This DD statement is optional. Specify a DD statement with a name that matches the value of *outdd* in the OUTDDN parameter that is specified in the SYSIN DD. You can use a TEMPLATE statement instead of a DD statement that is allocated in the JCL.

This DD statement names the data set that will contain the result of a SELECT statement (logical unload).

unldd

This DD statement is optional. Specify a DD statement with a name that matches the value of *unldd* in the UNLDDN parameter that is specified in the SYSIN DD. You can use a TEMPLATE statement instead of a DD statement that is allocated in the JCL.

This DD statement names the data set that will contain the physical unload of your table space.

loaddd

Specify a DD statement with a name that matches the value of *loaddd* in the LOADDDN parameter that is specified in the SYSIN DD. You can use a TEMPLATE statement instead of a DD statement that is allocated in the JCL.

This DD statement names the data set that will contain the SYSIN DD for a load that allows a RELOAD of a SELECT statement in DSNTIAUL or VARIABLE format into the same or a different table.

Restriction: Depending on the type of format, Db2 HPU cannot generate the RELOAD of a SELECT statement if records of variable size that do not contain headers are detected. When this situation occurs, the following conditions exist:

- The DELIMITED format is supported only in Db2 Version 8 and later releases because the Db2 LOAD utility accepts this format.
- Except for the variable columns without headers, the DSNTIAUL, VARIABLE, USER, and EXTERNAL formats are supported. Db2 HPU does not generate a LOADDDN statement when you specify LENGTHBYTE NO and LENGTH REAL with variable columns in the USER format, an INTO clause, or a REFORMAT clause.

dispparm

This DD statement is optional. Specify a DD statement with a user-defined name - named *dispparm* hereafter - to enable the "Display implicit parameters" feature - driven either by the VUU083/DISPPARM parmlib parameter or the SYSIN DISPLAY_PARMLIB option from the Technical parameters options block - when the value chosen for this feature is IF,*dispparm* or by the value YES,*dispparm*. The default DCB attributes that Db2 HPU sets for this data set are RECFM=VB and LRECL=124. However, the useful part of the report is contained in the left 80 characters and this data set can be allocated with LRECL=80 without any lack of information.

dispexpl

This DD statement is optional. Specify a DD statement with a user-defined name - named *dispexpl* hereafter - to enable the "display of EXPLAIN report" feature - driven either by the VUU087/DISPEXPL parmlib parameter - when the value chosen for this feature is IF,*dispexpl* or by the value YES,*dispexpl*. Db2 HPU sets RECFM=VB and LRECL=124 as DCB attributes of this dataset, regardless of explicit DCB parameters specified through the DD statement.

Related reference

[TEMPLATE block syntax and description](#)

Use the TEMPLATE control statement to allocate data sets without using JCL DD statements when an UNLOAD command is processed.

[Db2 HPU Db2 parameters: VZM009](#)

The Db2 parameters section on the Product Parameters panel (CCQPPRD) in Tools Customizer contains the Db2 parameters that are used by Db2 HPU.

[Db2 HPU SELECT syntax: OUTDDN](#)

The SELECT statement specifies that a logical unload is to be done and indicates the parameters that are associated with the unload job. The SELECT block is a part of the UNLOAD block.

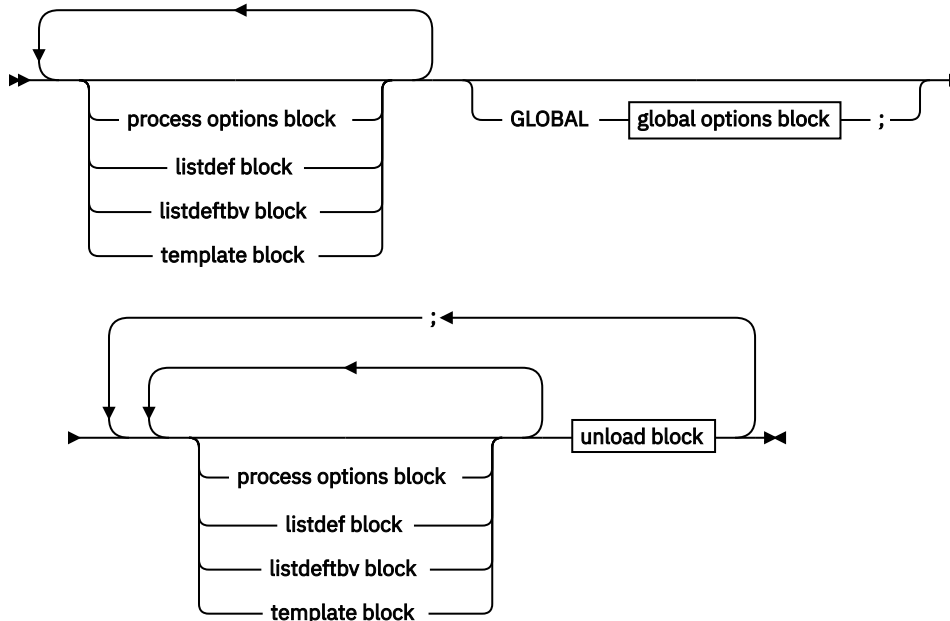
Db2 HPU UNLOAD syntax: UNLDDN

See this topic for descriptions of the keywords in the GLOBAL OPTIONS block syntax.

Db2 HPU syntax

The Db2 HPU syntax is divided into five major blocks: PROCESS OPTIONS, LISTDEF, LISTDEFTBV, TEMPLATE, GLOBAL OPTIONS, and UNLOAD. Only the UNLOAD block is required. All other major blocks are optional.

The following syntax diagram describes the Db2 HPU syntax and how to code the different major syntax blocks.



You can specify the PROCESS OPTIONS block, LISTDEF block, LISTDEFTBV block and TEMPLATE block either before the GLOBAL OPTIONS block or before each UNLOAD command. LISTDEF, LISTDEFTBV and TEMPLATE definitions are processed sequentially and can be used in all UNLOAD commands that follow their definition.

You cannot redefine a TEMPLATE with a name that is already defined in the same SYSIN. However, you can redefine a TEMPLATE in the SYSIN that is defined in a TEMPLATE library.

The Db2 HPU parsers accepts comment lines that begin with two dashes (--) LISTEDFTBV block in column one.

Comment lines that begin with an asterisk (*) in column one are also accepted when they are coded before the first keyword of the SYSIN.

Topics:

- [“PROCESS OPTIONS block syntax and description” on page 101](#)
- [“LISTDEF and LISTDEFTBV block syntax and description” on page 102](#)
- [“TEMPLATE block syntax and description” on page 107](#)
- [“GLOBAL OPTIONS block syntax and description” on page 123](#)
- [“UNLOAD block syntax and description” on page 132](#)

PROCESS OPTIONS block syntax and description

Use the PROCESS OPTIONS control statement to change and restore the default ddnames that Db2 HPU uses for LISTDEF and LISTDEFTBV definition libraries and TEMPLATE definition libraries.

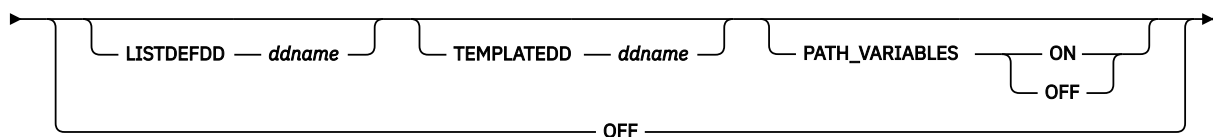
The PROCESS OPTIONS control statement corresponds to a subset of functions in the OPTIONS control statement in the Db2 utilities. To avoid confusing the OPTIONS keyword that exists in the Db2 HPU syntax with the OPTIONS control statement in the Db2 utilities, the equivalent keyword in Db2 HPU is PROCESS_OPTIONS.

The LISTDEFDD and TEMPLATEDD parameters can point to an existing LISTDEF and LISTDEFTBV definition library or to a TEMPLATE definition library that is used by the standard Db2 utilities. Any unsupported keywords in the LISTDEF and LISTDEFTBV definitions or TEMPLATE definitions are ignored.

You must specify at least one keyword after you specify PROCESS_OPTIONS. The following diagram shows the syntax of the PROCESS_OPTIONS block:

PROCESS OPTIONS block

► PROCESS_OPTIONS ►



LISTDEFDD ddname

Specifies the ddname of the LISTDEF and LISTDEFTBV definition library. A LISTDEF and LISTDEFTBV definition library is a data set that contains only LISTDEF and /or LISTDEFTBV control statements. This data set is processed only when a referenced LIST is not found in the SYSIN.

The default value is SYSLISTD.

TEMPLATEDD ddname

Specifies the ddname of the TEMPLATE definition library. A TEMPLATE library is a data set that contains only TEMPLATE control statements. This data set is processed only when a referenced name does not exist in the job step as a ddname and is not found in the SYSIN as a TEMPLATE name.

The default value is SYSTEMPL.

PATH_VARIABLES

Specifies whether template variables are substituted in path names.

ON

Specifies that template variables are substituted.

OFF

Specifies that template variables are not substituted. Specified path names are used as they are coded.

The default value is ON.

OFF

Specifies that all default options are to be restored. You cannot specify any other PROCESS_OPTIONS keywords if you specify PROCESS_OPTIONS OFF. Specifying PROCESS_OPTIONS OFF is equivalent to specifying OPTIONS LISTDEFDD SYSLISTD TEMPLATEDD SYSTEMPL PATH_VARIABLES ON.

Related reference

[LISTDEF and LISTDEFTBV block syntax and description](#)

Use the LISTDEF control statement to group table spaces into reusable lists and to specify these lists in UNLOAD commands or in SELECT statements to indicate that all the items in the lists are to be processed. Use the LISTDEFTBV control statement to group tables and/or views into lists and to specify these lists in SELECT statements to unload data from the selected tables and/or views. It differs from LISTDEF which behavior when a TABLE is specified is to retrieve its TABLESPACE and then unload the entire TABLESPACE.

TEMPLATE block syntax and description

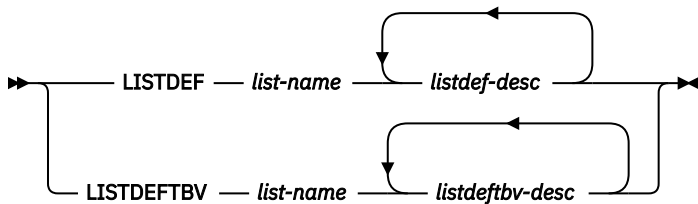
Use the TEMPLATE control statement to allocate data sets without using JCL DD statements when an UNLOAD command is processed.

LISTDEF and LISTDEFTBV block syntax and description

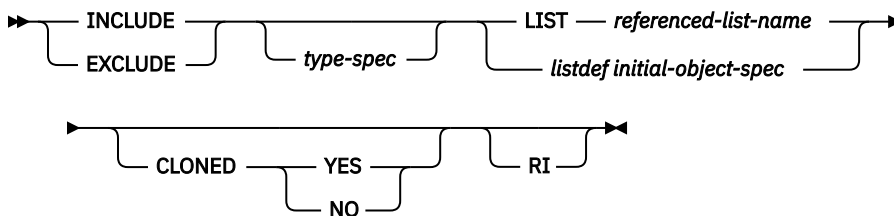
Use the LISTDEF control statement to group table spaces into reusable lists and to specify these lists in UNLOAD commands or in SELECT statements to indicate that all the items in the lists are to be processed. Use the LISTDEFTBV control statement to group tables and/or views into lists and to specify these lists in SELECT statements to unload data from the selected tables and/or views. It differs from LISTDEF which behavior when a TABLE is specified is to retrieve its TABLESPACE and then unload the entire TABLESPACE.

The following diagram shows the syntax of the LISTDEF and LISTDEFTBV block.

LISTDEF and LISTDEFTBV block



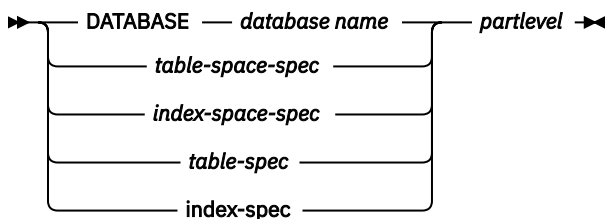
listdef-desc



listdeftbv-desc:



listdef-initial-object-spec



listdeftbv-initial-object-spec:

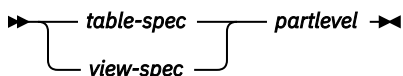
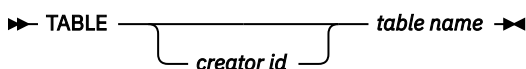
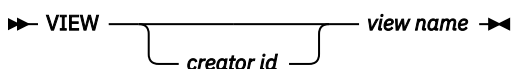


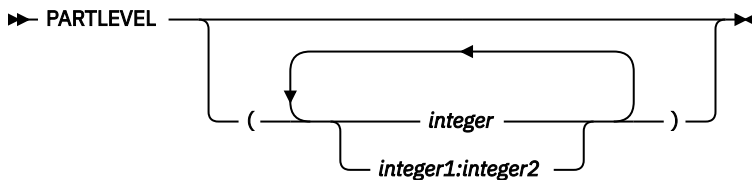
table-spec:



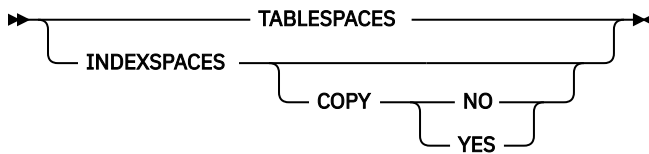
view-spec:



partlevel



type spec



initial object spec

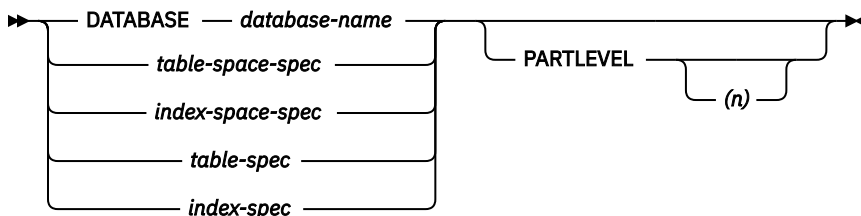
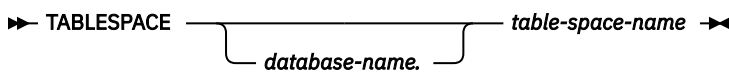


table space spec



index space spec

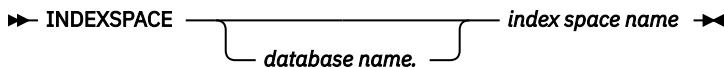
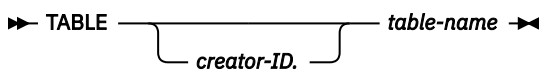
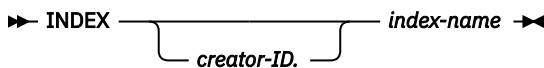


table spec



index spec



Attention: To share LISTDEF libraries with Db2 utilities, Db2 HPU accepts, but ignores, all other keywords that are not part of the LISTDEF block syntax.

Unlike Db2 utilities, the Db2 HPU implementation of the LISTDEF statement always returns a list of base table spaces. Because you cannot unload an index, index spaces are not selected by the LISTDEF statement. LOB table spaces are not selected by the LISTDEF statement. To unload LOB data, use a SELECT statement on the base table.

LISTDEF list-name

Defines a list of Db2 table spaces and assigns a name to that list. The list name makes the list available for subsequent processing as the object of an UNLOAD command or as an element of another LISTDEF statement.

Specify the name of the defined list. Valid values are 1 - 18 characters. You can put LISTDEF statements either in a separate LISTDEF library data set or before an UNLOAD command that refers to the list name.

LISTDEFTBV *list-name*

Defines a list of Db2 tables or views and assigns a name to that list. The list name makes the list available for subsequent processing as the object of a SELECT statement.

Specify the name of the defined list. Valid values are 1 - 18 characters. You can put LISTDEFTBV statements either in a separate LISTDEF library data set or before an UNLOAD command that refers to the list name.

INCLUDE

Specifies that the list of table spaces that results from the subsequent expression will be added to the list. You must first specify an INCLUDE clause. You can then specify subsequent INCLUDE or EXCLUDE clauses in any sequence to add clauses to or delete clauses from the existing list.

EXCLUDE

Specifies, after the initial INCLUDE clause, that the list of table spaces that results from the subsequent expression will be excluded from the list if the objects are in the list. If the table spaces are not in the list, they are ignored, and Db2 HPU processes the next INCLUDE or EXCLUDE clause.

TABLESPACES

Specifies that the INCLUDE or EXCLUDE clause will create a list of related table spaces. TABLESPACES is the default type for lists that use a table space or a table for the initial search. For lists that use other object types for the initial search, you must explicitly specify TABLESPACES. Db2 HPU can process only lists of table spaces.

INDEXSPACES COPY YES|NO

Specifies that the INCLUDE or EXCLUDE clause will create a list of related index spaces. INDEXSPACES is accepted only for compatibility with the syntax of the LISTDEF statement in the Db2 utilities. Db2 HPU cannot process lists of index spaces.

LIST *referenced-list-name*

Specifies the name of a previously defined object list that will be expanded and used for the initial search for the object. You must explicitly specify the *referenced-list-name* name. You cannot specify pattern-matching characters, such as %, *, ?, and _ , for lists. You can use the LIST keyword to make aggregate lists of lists, to exclude entire lists from other lists, and to develop lists of objects that are related to other lists.

DATABASE *database-name*

Specifies the database that will be used for the initial search for the object. You can specify the database name explicitly or as a pattern-matched name. DATABASE * and DATABASE % are not supported. If you specify DATABASE, you must also specify either TABLESPACES or INDEXSPACES as the list type. Depending on the list type that you specify, Db2 HPU includes all table spaces or index spaces in the database name that satisfy the pattern-matching expression in the list. You cannot specify DSNDB01, DSNDB06, DSNDB07, or user-defined work file databases in a LISTDEF definition.

TABLESPACE *database-name.table-space-name*

Specifies the table space that will be used for the initial search for the object. If you specify TABLESPACE, the default list type is TABLESPACES. All table spaces that satisfy the pattern-matching expression are included in the list unless the list is modified by other keywords. TABLESPACE *.* and TABLESPACE %.% are not supported.

Use *database-name* to specify the name of the database to which the table space belongs. The default value is DSNDB04. Use *table-space-name* to specify the name of the table space. You can explicitly specify *database-name*, *table-space-name* or both, or you can use pattern-matching characters to specify these values. You cannot include any objects in DSNDB07 or any user-defined work file databases in a LISTDEF definition. Pattern matching is not supported for DSNDB01 and DSNDB06 objects.

LOB and XML table spaces are not selected when they match a LISTDEF definition that was processed by Db2 HPU.

INDEXSPACE *database-name.index-space-name*

Specifies the index space that will be used for the initial object search. If you specify INDEXSPACE, the default list type is INDEXSPACES. All index spaces that satisfy the pattern-matching expression

are included in the list unless the index spaces are excluded by other LISTDEF options. INDEXSPACE *.* and INDEXSPACE %.% are not supported.

Use *database-name* to specify the name of the database to which the index space belongs. The default value is DSNDB04. Use *index-space-name* to specify the name of the index space. You can explicitly specify *database-name*, *index-space-name* or both, or you can use pattern-matching characters to specify these values. You cannot include any objects in DSNDB07 or any user-defined work file databases in a LISTDEF definition. Pattern matching is not supported for DSNDB01 and DSNDB06 objects.

TABLE *creator-ID.table-name*

Specifies the table that will be used for the initial search for the object. If you specify TABLE with LISTDEF, the default list type is TABLESPACES, if you specify TABLE with LISTDEFTBV, the default list type is TABLES (Db2 objects TABLEs of type VIEW will be excluded).

All tables that satisfy the pattern-matching expression are included in the list unless the list is modified by other keywords. TABLE *.* and TABLE %.% are not supported.

Use *creator-ID* to specify the qualifier creator ID for the table. The default value is the user identifier for the utility. Use *table-name* to specify the name of the table. You can explicitly specify or use pattern-matching characters to specify *creator-ID*, *table-name*, or both.

However, the underscore (_) pattern-matching character is ignored in a table name. Pattern matching is not supported for catalog and directory objects. When you include a catalog and directory objects in a LISTDEF or LISTDEFTBV statement, you must use their fully qualified names. If the name contains a blank, enclose it in quotation marks.

VIEW *creator-ID.view-name*

Specify a view identifier. This option is allowed for LISTDEFTBV statements and not supported for LISTDEF statements. All views that satisfy the pattern-matching expression are included in the list unless the list is modified by other keywords. VIEW *.* and VIEW %.% are not supported.

Use *creator-ID* to specify the qualifier creator ID for the view. The default value is the user identifier for the utility. Use *view-name* to specify the name of the view. You can explicitly specify or use pattern-matching characters to specify *creator-ID*, *view-name*, or both. However, the underscore (_) pattern-matching character is ignored in a view name. Pattern matching is not supported for catalog and directory objects. When you include a catalog and directory objects in a LISTDEFTBV statement, you must use their fully qualified names. If the name contains a blank, enclose it in quotation marks.

INDEX *creator-ID.index name*

Specifies the index that will be used for the initial search for the object. If you specify INDEX, the default list type is INDEXSPACES. All index spaces that contain indexes that satisfy the pattern-matching expression are included in the list unless the list is modified by other keywords. INDEX *.* and INDEX %.% are not supported.

Use *creator-ID* to specify the qualifier creator ID for the index. The default is the user identifier for the utility. Use *index-name* to specify the name of the index. You can explicitly specify *creator-ID*, *index-name*, or both, or you can use pattern-matching characters to specify these values. However, the underscore pattern-matching character is ignored in an index name. Pattern matching is not supported for catalog and directory objects. When you include a catalog and directory objects in a LISTDEF statement, you must use their fully qualified names. If the name contains a blank, enclose the index name in quotation marks.

PARTLEVEL

Specifies the partition granularity for partitioned objects. The integer partition number *n* is greater than or equal to zero ($n \geq 0$). If you specify PARTLEVEL 0, the resulting list contains one entry for each nonpartitioned object. If you specify PARTLEVEL with a nonzero operand, the resulting list contains one entry for the specified partition for partitioned objects and one entry for each nonpartitioned object. If you specify PARTLEVEL without specifying the integer part number, the resulting list contains one entry for each partitioned object and one entry for each nonpartitioned object. Using PARTLEVEL without specifying the integer part number *n* does not mean that data is unloaded per partition. You can remove an INCLUDE clause with the PARTLEVEL keyword from the list only by using an EXCLUDE clause with the PARTLEVEL keyword.

integer

Integer is the physical partition number where integer $n \geq 0$.

If you specify PARTLEVEL 0, the resulting list contains one entry for each non-partitioned object.

If you specify PARTLEVEL with a nonzero operand, the resulting list contains one entry for each partition in the partitioned object and one entry for each non-partitioned object.

If you specify PARTLEVEL without specifying "integer", the resulting list contains one entry for each partitioned in the partitioned object and one entry for each non-partitioned object.

integer1:integer2

integer1:integer2 indicates the physical partitions or a range of partitions to be specified in a list. The partition range must follow these guidelines:

- integer 1 \geq 1
- integer 1 < integer 2

An INCLUDE with the PARTLEVEL keyword can be removed from the list only by an EXCLUDE with PARTLEVEL.

Partition processing with LISTDEF or LISTDEFTBV and PARTLEVEL

A LISTDEF definition that includes the PARTLEVEL keyword without a partition number is supported only for compatibility purposes with the IBM LISTDEF utility and has no impact on how Db2 HPU unloads the data.

LISTDEF or LISTDEFTBV definitions such as these do not activate partition parallelism.

When Db2 HPU writes in a separate file per partition, partition parallelism is activated automatically. When Db2 HPU writes to a single output file, partition parallelism can be forced by using the PARALLELISM keyword of the UNLOAD command or by setting the VUU036/GBLPARAL PARMLIB parameter to YES. In Db2 HPU, when the list that is generated by a LISTDEF or LISTDEFTBV control statement contains a partitioned table space, and if the DSNAME that is defined in the TEMPLATE statement contains the &PART variable, the unloaded rows are written in a separate file for each partition. Otherwise, all rows that are unloaded from the partitioned table space are written in a single file. This condition applies to output files that are generated by the UNLDDN or OUTDDN keywords. When the list that was generated by a LISTDEF or LISTDEFTBV control statement is used, the PART keyword in the UNLOAD command is ignored, and the PART keyword in the SELECT statement is not valid. You can select partitions by using the PARTLEVEL keyword in the LISTDEF or LISTDEFTBV statement. All partitions of the same object that are defined in the list that was created by the LISTDEF are processed together. The unloaded rows are written in the file that was allocated by the TEMPLATE with these limitations, depending on the usage of the &PART variable.

When you specify DB2 FORCE and you use the PARTLEVEL keyword in a LISTDEF statement to select partitions, the selected partitions can be used only to select table spaces. When you specify DB2 FORCE to select a partitioned table space, the complete table space is unloaded in a single unload file.

When you specify DB2 FORCE and you use the PARTLEVEL keyword in a LISTDEFTBV statement to select partitions, the complete table is unloaded.

CLONED

This option is supported only with a LISTDEF statement. Specifies that the INCLUDE or EXCLUDE clauses will return only the names of cloned tables, table spaces that contain cloned tables, indexes on cloned tables, or index spaces that contain indexes on cloned tables. If you specify CLONED, other keywords in the LISTDEF statement that refer to related objects refer to the clones of those objects. If you also specify a table name, the CLONED keyword is ignored.

RI

Specifies that all objects that are referentially related to the object expression (PRIMARY KEY <--> FOREIGN KEY) will be included in the list. Db2 HPU processes all referential relationships repeatedly until the entire referential set is developed. You cannot specify RI with PARTLEVEL(n).

Related reference

[PROCESS OPTIONS block syntax and description](#)

Use the PROCESS OPTIONS control statement to change and restore the default ddnames that Db2 HPU uses for LISTDEF and LISTDEFTBV definition libraries and TEMPLATE definition libraries.

LISTDEF specification

When you specify LISTDEF, the LISTDEF that you specify depends on whether the unload is a physical unload or a logical unload.

For physical unloads (UNLDDN), specify LIST(*list-name*) in the UNLOAD TABLESPACE command instead of specifying the table space name. A physical unload is generated for each table space that is contained in the generated list of table spaces. If the UNLDDN uses a template, a separate data set is allocated for each table space that was unloaded.

For logical unloads (SELECT + OUTDDN), specify LIST(*list-name*) in the FROM clause of the SELECT statement, and do not specify a table space name in the UNLOAD TABLESPACE command. A SELECT statement is generated for each table of each table space in the list. If a template is used for the OUTDDN and for the LOADDN, a separate file is dynamically allocated for each table of each table space in the generated list.

LISTDEFTBV specification

LISTDEFTBV is only usable with logical unloads (SELECT+OUTDDN). Specify LISTTBV (*list-name*) in the FROM clause of the SELECT statement, and do not specify a table space name in the UNLOAD TABLESPACE command. A SELECT statement is generated for each table of each table space in the LIST. If a template is used for the OUTDDN and for the LOADDN, a separate file is dynamically allocated for each table or view in the generated list.

TEMPLATE block syntax and description

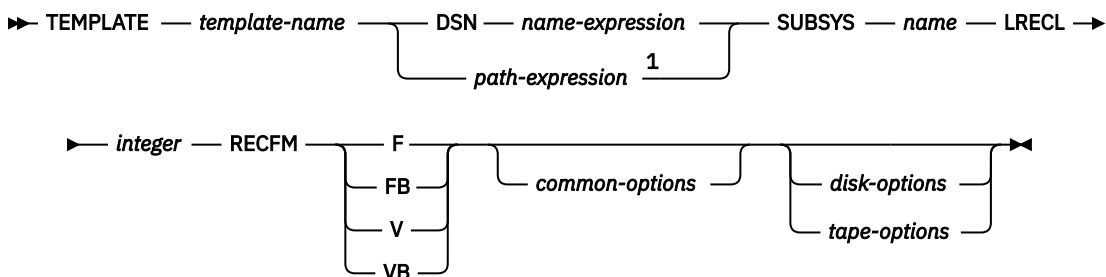
Use the TEMPLATE control statement to allocate data sets without using JCL DD statements when an UNLOAD command is processed.

You can use the TEMPLATE control statement when you process a LISTDEF or LISTDEFTBV list, but the statement can also be used with standard UNLOAD commands. In its simplest form, the TEMPLATE statement defines the data set naming convention. You can also write TEMPLATE statements so that they contain allocation parameters that define data set size, location, and attributes.

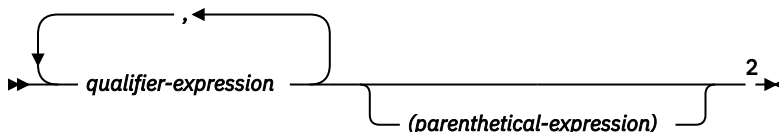
The TEMPLATE statement uses the z/OS DYNALLOC macro (SVC 99) to perform data set allocation. Therefore, the facility is constrained by the limitations of this macro and by the subset of DYNALLOC that is supported by TEMPLATE.

The following diagram shows the syntax of the TEMPLATE block:

TEMPLATE block

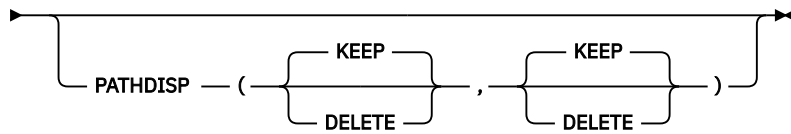
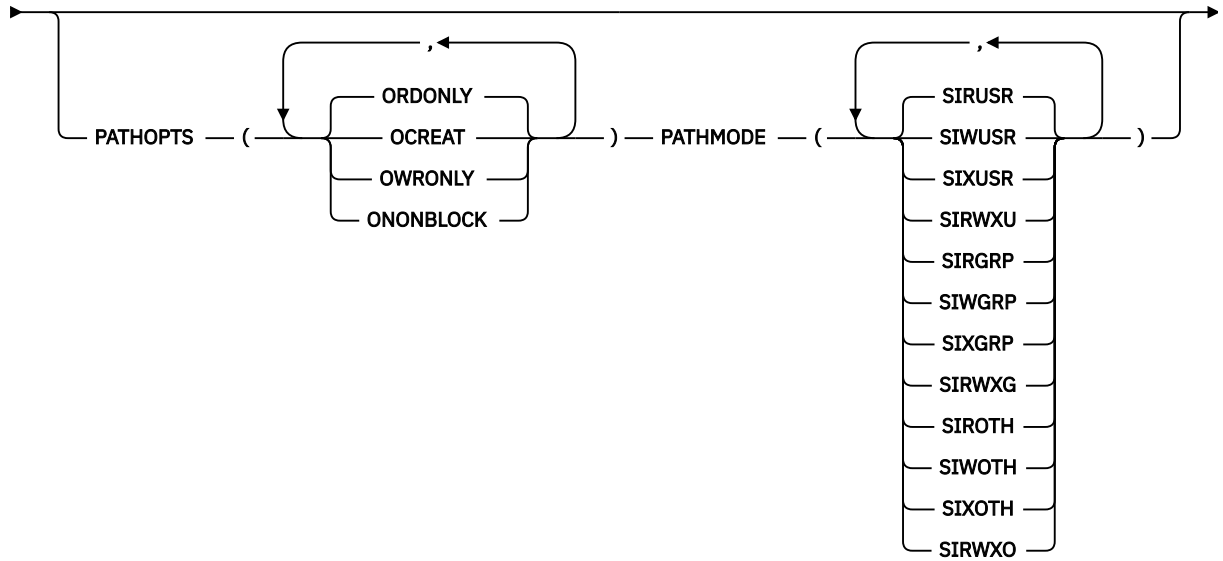
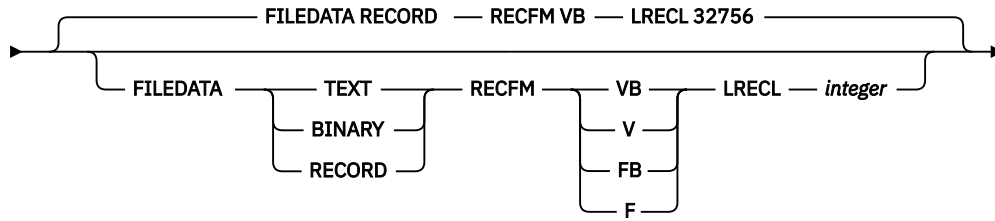


name expression

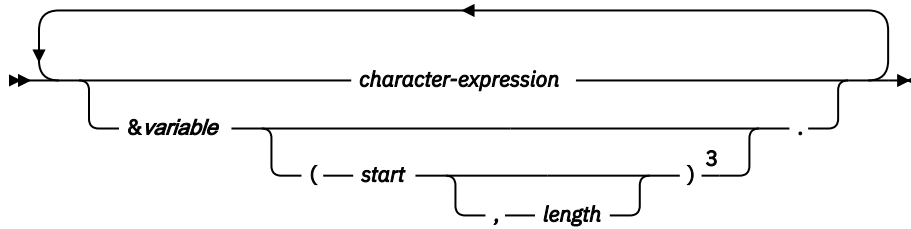


path expression

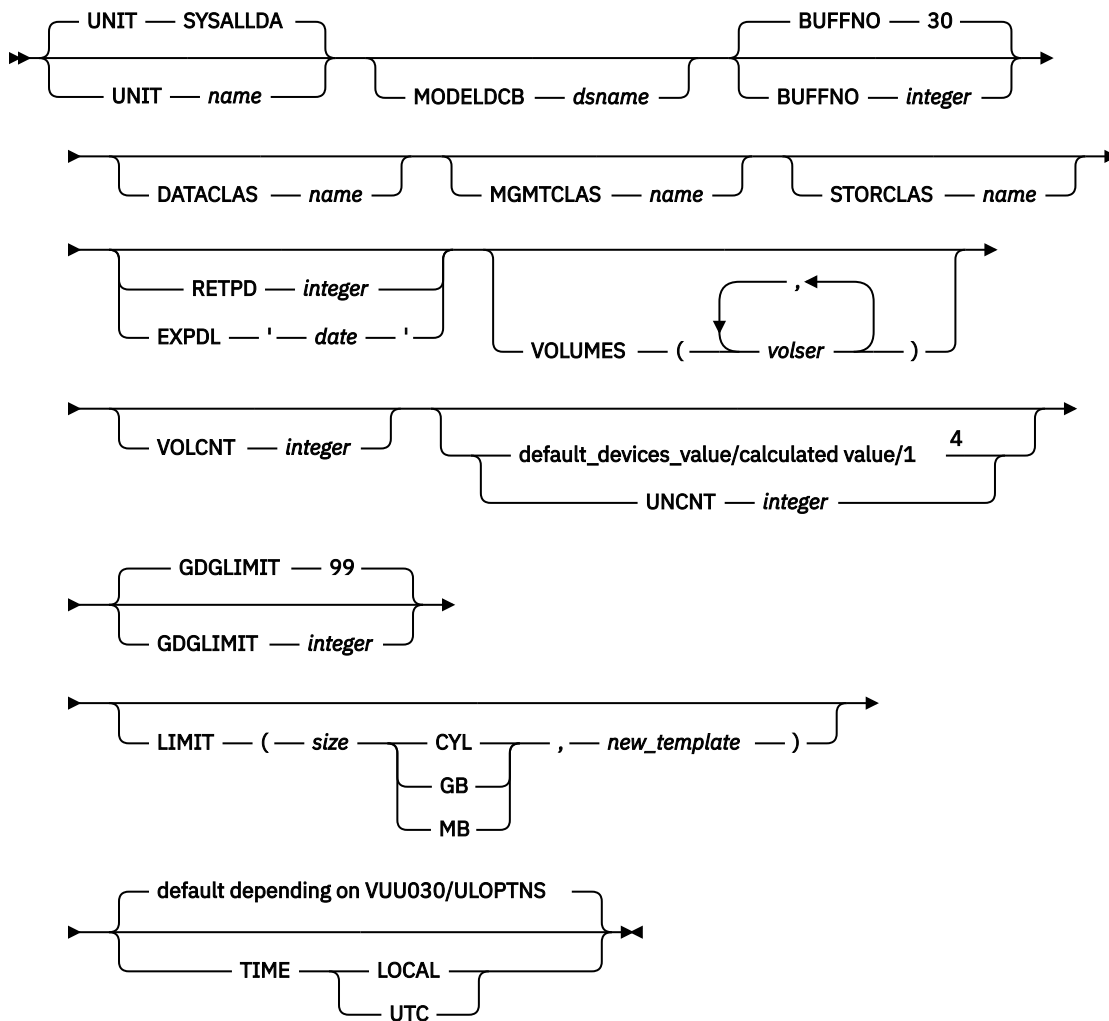
➔ PATH — *path-name* ➔



qualifier expression

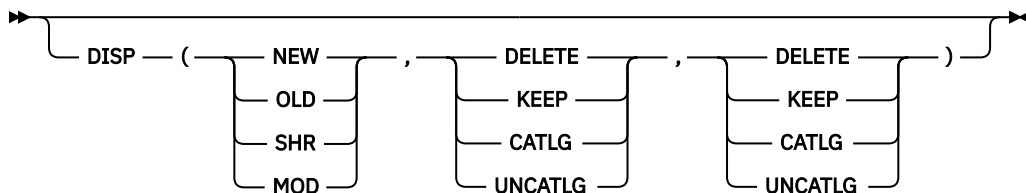


common options

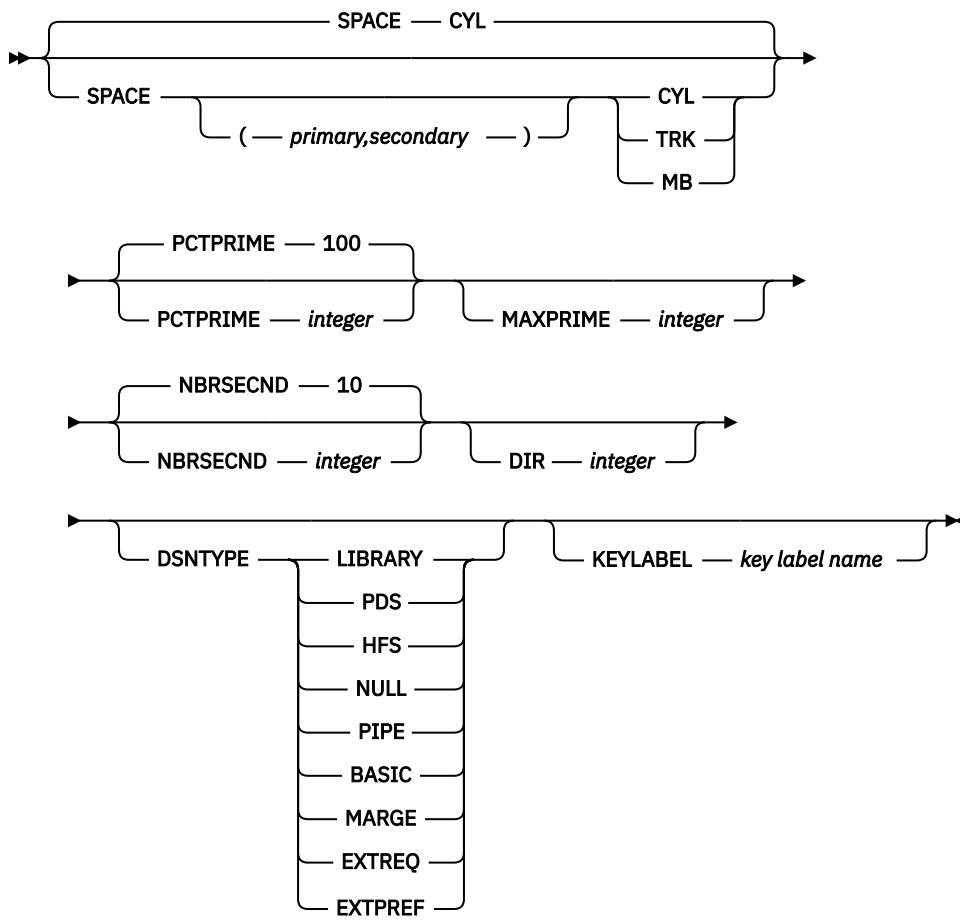


Notes:

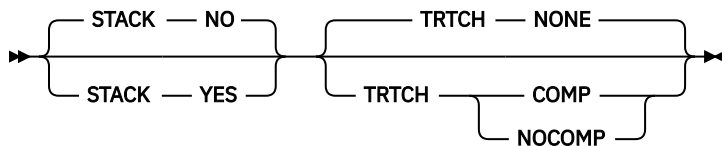
- ¹ SUBSYS and *path-expression* are mutually exclusive.
- ² The entire name expression represents one character string and cannot contain any blanks.
- ³ If you use substring notation, the entire DSN operand must be enclosed in single quotation marks, such as 'P&PA(4,2):'.
- ⁴ If a TAPEUNIT specification (defined either by a TAPEUNIT option or the TAPEUNIT parmlib parameter) applies to the UNIT specified by the UNIT suboption of the TEMPLATE statement, the default_devices_value is used as a default UNCNT value. For allocation of sequential data sets on disk, i.e. when no TAPEUNIT specification applies to the UNIT specified by the TEMPLATE statement, where MAXPRIME is specified and no VOLUME is specified, the value of UNCNT is calculated to allow the data set to be written over several volumes according to the estimated amount data it must store. If none of the previous condition is fulfilled, a value of 1 is used for UNCNT.



disk options



tape options



Important: To share TEMPLATE libraries with other Db2 utilities, Db2 HPU accepts, but ignores, all keywords that are not specified in the syntax diagram.

TEMPLATE *template-name*

Defines a data set allocation template and assigns a name to the template for subsequent reference in an UNLOAD command. The name is followed by keywords that control the allocation of tape and disk data sets. You cannot specify both disk options and tape options in the same TEMPLATE statement. The UNIT keyword specifies a generic unit name that is already defined on your system.

Valid values are 1 - 8 alphanumeric characters and must begin with an alphabetic character.

DSN *name-expression*

Specifies the TEMPLATE for the z/OS data set name. You can specify the data set name by using symbolic variables, non-variable alphanumeric or national characters, or any combination of these characters. The name must adhere to the z/OS data set naming rules, including those rules about name length, valid characters, name structure, and qualifier length.

Data set names consist of a series of qualifiers and qualifier expressions that are separated by a period and an optional expression in parentheses. Embedded blanks are restricted. If the DSN name operand contains any special characters, it must be enclosed in single quotation marks. For example,

in the following TEMPLATE statement, the DSN operand contains parentheses as special characters, so the entire operand is enclosed in single quotation marks:

```
TEMPLATE X DSN 'A.GDG.VERSION(+1)'
```

Parentheses around the DSN name operand are optional. The following DSN specification shows a DSN name operand in parentheses:

```
DSN(&DB. .&TS. .D&DATE.)
```

Important: If you use the RESTART feature (see “RESTART feature” on page 88), make sure the name-expression you specify, once evaluated at run time, gives a different name than the one generated for the name-expression defined by the value of the VUU091/RSTTMPL parmlib parameter.

When the name-expression specifies the creation of a new GDS, i.e. by specifying an expression such as `gdg_name (+1)`, a new GDS is created each time the nested template is used in the HPU SYSIN. This default behavior can be changed with the `ONE_GDS_TEMPLATE` option (see GLOBAL OPTIONS block).

PATH *path-name*

Specifies a z/OS UNIX System Services (USS) file path name. This path name can be a USS pipe path name. The path name must be in single-byte EBCDIC format and must not exceed 255 bytes. If the path name contains blanks, you must enclose it in single quotation marks.

Db2 HPU can use a template with the PATH keyword only for the following types of files:

- UNLDDN for output of physical unloads
- OUTDDN for output of logical unloads
- LOADDN for the LOAD SYSIN for logical unloads
- DDLDDN to specify the DDL for unloading from an image copy
- A template that is used to define a LOB file reference when LOB or XML data is unloaded

You can use a variable name for a complete directory name or part of a directory name. Before the files are generated, Db2 HPU ensures that the directory exists. Db2 HPU does not create the directory. If the directory does not exist, Db2 HPU issues an error.

Syntax rules regulate how Db2 HPU interprets variable names. When you use an ampersand (&), Db2 HPU interprets the ampersand as the introduction to a variable name. To generate an ampersand in the path name, you must use a backslash (\) as an escape character before the ampersand. In the following example, `&TS.` is coded as a variable name, and `&SPECIAL` is coded as regular text.

```
PATH '/u/&TS. \&SPECIAL'
```

After variables have been replaced, the following path name is generated:

```
/u/TS01&SPECIAL
```

To create a USS pipe file, you must specify `DSNTYPE PIPE` in the TEMPLATE statement.

FILEDATA

Specifies the content type of a z/OS USS file. Valid values are TEXT, BINARY, and RECORD.

The default value is RECORD, and RECFM VB and LRECL 32756 are assumed.

RECFM

Specifies the record format of the z/OS USS file. The RECFM option is required when FILEDATA is specified. The following values are valid:

- F (Fixed)
- FB (Fixed block)
- V (Variable)
- VB (Variable block)

If FILEDATA is not specified, RECFM VB is assumed with FILEDATA RECORD LRECL 32756.

LRECL

Specifies the record length of the z/OS USS file. The LRECL option is required when FILEDATA is specified.

If FILEDATA is not specified, LRECL 32756 is assumed with FILEDATA RECORD RECFM VB.

PATHOPTS

Specifies the access and status for the z/OS USS file that is named in the PATH parameter. The following values are valid:

ORDONLY

Specifies that the utility will open the file only for read access.

OCREAT

Specifies that files are created based on the following conditions:

- If the file does not exist, the system creates it.
- If a directory that is specified in the path name does not exist, the directory and the new file are not created.
- If the file exists, the existing file is used by the utility.

OWRONLY

Specifies that the utility will open the file only for write access.

ONONBLOCK

Specifies that an open() function will return or block (wait) based on conditions for the following file types:

For a first-in first-out (FIFO) special file, such as a USS pipe file:

- If ONONBLOCK is specified with ORDONLY access, an open() function for only reading returns a file descriptor (handler) without delay.
- If ONONBLOCK is not specified with ORDONLY access, an open() function for only reading waits until a process opens the file for writing.
- If ONONBLOCK is specified with OWRONLY access, an open() function for only writing returns an error if a process does not currently have the file open for reading.
- If ONONBLOCK is not specified with OWRONLY access, an open() function for only writing waits until a process opens the file for reading.

For a character special file that supports nonblocking open:

- If ONONBLOCK is specified, an open() function returns a file descriptor without waiting until the device is ready or available. The device response depends on the type of device.
- If ONONBLOCK is not specified, an open() function waits until the device is ready or available.

Specifying ONONBLOCK does not affect other file types.

The default values are OCREAT and OWRONLY.

PATHMODE

Specifies the file mode of the HFS file. The following values are valid:

SIRUSR

Allows the file owner to read the file.

SIWUSR

Allows the file owner to write the file.

SIXUSR

If the file is a directory, allows the file owner to search; if the file is not a directory, allows the file owner to run the program in the file.

SIRWXU

If the file is a directory, allows the file owner to read, write, and search; if the file is not a directory, allows the file owner to read, write, and run the file. Specifying SIRWXU is equivalent to specifying SIRUSR, SIWUSR, and SIXUSR together.

SIRGRP

Allows users in the file group class to read the file.

SIWGRP

Allows users in the file group class to write the file.

SIXGRP

If the file is a directory, allows users in the file group class to search; if the file is not a directory, allows users in the file group class to run the program in the file.

SIRWXG

If the file is a directory, allows users in the file group class to read, write, and search; if the file is not a directory, allows users in the file group class to read, write, and run the file. Specifying SIRWXG is equivalent to specifying SIRGRP, SIWGRP, and SIXGRP together.

SIROTH

Allows users in the file other class to read the file.

SIWOTH

Allows users in the file other class to write the file.

SIXOTH

If the file is a directory, allows users in the file other class to search; if the file is not a directory, allows users in the file other class to run the program in the file.

SIRWXO

If the file is a directory, allows users in the file other class to read, write, and search; if the file is not a directory, allows users to read, write, and run the file. Specifying SIRWXO is equivalent to specifying SIROTH, SIWOTH, and SIXOTH together.

The default value is SIRUSR.

PATHDISP

Specifies the disposition of a z/OS USS file when the job step ends. Valid values are KEEP and DELETE.

The MVS system default is KEEP,KEEP.

SUBSYS *name*

Specifies the MVS BATCHPIPES SUBSYSTEM name. The specified name must be a valid BATCHPIPES SUBSYSTEM name and must be 1 - 8 characters. When SUBSYS is specified, LRECL and RECFM are required, and TEMPLATE keywords that are not compatible with SUBSYS, such as UNIT, are ignored.

Restriction: When you use BATCHPIPES and TEMPLATE with the SUBSYS keyword, the utility cannot be restarted, and the LOAD DISCARD DDN keyword is not supported.

LRECL *integer*

Specifies the record length of the MVS BATCHPIPES SUBSYSTEM file. LRECL is required when SUBSYS is specified.

RECFM

Specifies the record format of the MVS BATCHPIPES SUBSYSTEM file. RECFM is required when SUBSYS is specified. Valid values are F, FB, V, or VB.

character-expression

Specifies the data set name or part of the data set name by using nonvariable alphanumeric or national characters.

&variable

Specifies the data set name or part of the data set name by using nonvariable alphanumeric or national characters.

In addition to the list of variables, you can use user-defined variables in the DSN expression. You set the values for these user-defined variables by using the TEMPLATESET keyword in the OPTIONS block. Syntax rules for such user-defined variables are identical to the rules for standard variables.

To avoid duplicate data set names when you specify a TEMPLATE statement with a LISTDEF and LISTDEFTBV list that contains a multi-table table space, specify TEMPLATESET and use a user-defined variable that corresponds with the :SELNUM predefined variable in the DSN expression.

Each symbolic variable is substituted with its related value at run time to form a specific data set name. When you use substitution variables in a DSN expression, they begin with an ampersand sign (&) and end with a period (.), as shown in the following example:

```
DSN &DB. .&TS. .D&JDATE. .P&PART.
```

If you use only numeric variables, an invalid data set qualifier for all numeric-type variables, such as all date or time-type variables, &SEQ, and &PART, is generated. These variables must be preceded by character constants to form valid DSN qualifiers. The following specifications are valid:

```
P&PART.
D&DATE.
```

Some variables inherit default values when their values are not known. For example, the default value of &PART becomes 00000 for nonpartitioned objects.

You can also use substring notations for the data set name. This notation can prevent the data set name from exceeding the 44-character maximum. If you use substring notation, you must enclose the entire DSN operand in single quotation marks. To specify a substring, use the form &variable(start). or &variable(start,length).

The following table contains a list of JOB variables and their descriptions:

Table 16. JOB variables and descriptions

Variable	Description
&JOBNAME. or &JO.	The z/OS job name.
&STEPNAME. or &ST.	The z/OS step name. This variable might be needed if data set names from two different job steps conflict.
&USERID. or &US.	The user ID of the person who is running Db2 HPU. Valid values are 1 - 8 characters.
&UTILID. or &UT.	The utility ID truncated to eight characters and checked for invalid DSN characters.
&SSID. or &SS.	Db2 identifier against which Db2 HPU is run. This variable is resolved taking the value of the subparameter TEMPLATE_SSID_SUBSTITUTION of the VUU030/ULOPTNS parmlib parameter into account. <ul style="list-style-type: none"> if TEMPLATE_SSID_SUBSTITUTION is set to MEMBER_NAME or is not specified the &SSID or &SS variable is substituted with the current Db2 member name to which Db2 HPU has connected. if TEMPLATE_SSID_SUBSTITUTION is set to GROUP_NAME the &SSID or &SS variable is substituted with the Db2 member name in a non datasharing environment and with the group attachment name for datasharing environment.

The following table contains a list of UTILITY variables and their descriptions:

Table 17. UTILITY variables and descriptions

Variable	Description
&UTILNAME. or &UN.	The utility name. The value is set to Db2 HPU.
&SEQ. or &SQ.	The sequence number of the list item.

The following table contains a list of OBJECT variables and their descriptions:

Table 18. OBJECT variables and descriptions

Variable	Description
&LIST. or &LI.	The name of the list that is defined by using the LISTDEF and LISTDEFTBV control statement and that is referenced on the same control statement as this TEMPLATE.
&DB.	The database name.
&TS.	The table space name.
&SN.	The table space name.
&PART. or &PA.	The five-digit partition number, padded with leading zeros.

Notes:

- To generate one output file per partition, use the &PA. variable when you process LISTDEF and LISTDEFTBV lists that include partitioned table spaces.
- When you specify the &TS. or &SN. variables in a TEMPLATE statement that is used by an UNLOAD statement with BLOBF, CLOBF, or DBCLOBF columns, Db2 HPU substitutes the name of the table space that stores the LOB column value, not the base table space name. This substitution enables Db2 HPU to generate unique data set names for each LOB column with partitioned table spaces.
- When the SELECT statement in which the TEMPLATE is used is processed by using SQL (DB2 FORCE or DB2 YES with an unsupported SELECT statement), the &PART variable is set to one of the following values based on whether SQLPART is used:
 - The partition number when the SQLPART keyword is used,
 - 00000 when the SQLPART keyword is not used.

The &DB, &TS, and &SN variables are set to DB*n*, TS*n*, LOB*n* or XML*n*, depending on the table space type, where *n* is a sequential number. This sequential number ensures unity, but it does not have a specific meaning regarding the actual database or the table space that it represents.

- In Db2 HPU V3.1, when a partitioned table space was unloaded from a global full image copy (FIC) that used a template with a DSNAME that contains the &PART variable, a single output file with partition number set to 00000 was generated. In Db2 HPU V3.2, an output file per partition with the &PART variable set to the partition number is generated.

The following table contains a list of DATE and TIME variables and their descriptions:

Table 19. DATE and TIME variables and descriptions

Variable	Description
&DATE. or &DT.	YYYYDDD
&TIME. or &TI.	HHMMSS
&JDATE. or &JU.	YYYYDDD
&YEAR. or &YE.	YYYY portion of &DATE.
&MONTH. or &MO.	MM
&DAY. or &DA.	DD
&JDAY. or &JD	DDD portion of &DATE.
&HOUR. or &HO.	HH portion of &TIME.
&MINUTE. or &MI.	MM portion of &TIME.

Table 19. DATE and TIME variables and descriptions (continued)

Variable	Description
&SECOND. or &SC.	SS portion of &TIME.
&UNIQ. or &UQ.	Unique eight characters that Db2 HPU derives from the system clock. This set of characters begins with an alphabetic character and is followed by seven alphabetic or numeric characters.

Attention: All date and time values are set by using the STCK instruction and reflect the date and time value in Greenwich Mean Time (GMT). DATE and TIME values are captured during the initialization phase of Db2 HPU and remain constant during the STEP.

start

Specifies the substring starting byte location within the current variable base value at run time.

length

Specifies the length of the substring. If you specify *start* but do not specify *length*, the default value for *length* is the number of characters from the start character to the last character of the variable value at run time. For example, given a five-digit base value, &PART(4). specifies the fourth and fifth digits of the value. The *length* value must be an integer that does not cause the substring to extend beyond the end of the base value.

parenthetical-expression

Specifies part of the data set name by using nonvariable alphanumeric or national characters that are enclosed in parentheses. For example, the following expressions are valid: Q1.Q2.Q3(*member*) and Q1.Q2.Q3(+1).

UNIT

Specifies the device number, device type (generic), or group name for the data set. The default value is SYSALLDA.

MODELDCB *dsname*

Specifies the name of the data set on which the TEMPLATE statement is based. DCB information is read from this model data set.

When the template corresponds to a GDG, MODELDCB uses the VUX033/TMPLDSCB PARMLIB parameter as the default value.

BUFNO *integer*

Specifies the number of BSAM buffers. Valid values are 0 - 99. The default value is 30.

DATACLAS *name*

Specifies the SMS data class. The *name* value must be a valid SMS data class and must be 1 - 8 characters. If you specify DATACLAS, the data set is cataloged. If you do not specify DATACLAS, no SMS DATACLAS is specified.

MGMTCLAS *name*

Specifies the SMS management class. The *name* value must be a valid SMS management class and must be 1 - 8 characters. If you specify MGMTCLAS, the data set is cataloged. If you do not specify MGMTCLAS, no MGMTCLAS is specified to SMS.

STORCLAS *name*

Specifies the SMS storage class. The *name* value must be a valid SMS storage class and must be 1 - 8 characters. If you specify STORCLAS, the data set is cataloged. If you do not specify STORCLAS, no STORCLAS is specified to SMS.

RETPD *integer*

Specifies the retention period in days for the data set. Valid values are 0 - 9999. If you specify DATACLAS, MGMTCLAS, or STORCLAS, the class definition might control the retention. RETPD cannot be specified with EXPDL.

EXPDL '*date*'

Specifies the expiration date for the data set, in the form YYYYDDD, where YYYY is the 4-digit year, and DDD is the 3-digit Julian day. The '*date*' value must be enclosed in single quotation marks. If you

specify DATACLAS, MGMTCLAS, or STORCLAS, the class definition might control the retention. EXPDL cannot be specified with RETPD.

VOLUMES (volume-1,volume-2,...)

Specifies a list of volume serial numbers for this allocation. The specified number of volumes cannot exceed the specified value or default value of the VOLCNT keyword. The first volume must contain enough space for the primary space allocation. If an individual volume serial number contains leading zeros, it must be enclosed in single quotation marks.

VOLCNT (integer)

Specifies the maximum number of volumes that an output data set might require. Valid values are 0 - 255.

Unless a tape storage class is used, the default value for tape templates is 95. If a tape storage class is used, the default value is the value that is set by the tape storage class.

Db2 HPU does not set a default value for disk templates. Operating system defaults apply.

UNCNT integer

Specifies the number of devices that are to be allocated. The integer value must range from 0 to 59 and must not exceed the maximum value defined by the TAPEUNIT option applicable to the related unit. When not specified, the maximum value (defined by the TAPEUNIT option) is assumed. If UNIT specifies a specific device number, the value of UNCNT must either be 1 or be omitted. If several templates share the same unit, the sum of the UNCNT parameters must be less or equal to the related TAPEUNIT parameter.

GDGLIMIT (integer)

Specifies the number of entries that are to be created in a GDG base if a GDG DSN is specified and the base does not exist. If a GDG base does not exist and you do not want to define one, specify GDGLIMIT (0). Valid values are 0 - 255.

The default value is 99.

LIMIT

Specifies that the template switching feature applies, i.e. that an alternate TEMPLATE is to be used when the estimated amount of data to unload exceeds a given size.

Important: This keyword is taken into account only if TEMPLATE_LIMIT(YES) is specified in the setting for the VUU030/ULOPTNS parmlib parameter.

The following details must be specified. The output data set size taken into account is an estimate. The estimation method, thus its result, depends on the setting for the VUX036/RTSESTIM parmlib.

n

Specifies the maximum size of the output data set that is permitted using this TEMPLATE. This number is expressed in the unit specified by one of the following keywords:

- CYL: Cylinders
- GB: Gigabytes
- MB: Megabytes

new_template

Specifies a character string that specifies the name of a TEMPLATE to use if the size limit is exceeded.

Restriction:

- You cannot switch to a DD card.
- The template control statement that LIMIT references must exist in SYSIN or SYSTEMPL and it cannot refer to itself. If the reference contains also a LIMIT statement, the limit size must be greater than the referee.
- You cannot use LIMIT for LOADDDN file, LOB or XML file.

- Data set names patterns specified in the templates chained by the template switching feature must be consistent regarding the &PART. variable : if one template of among the related templates specify the &PART. variable, all the other templates must specify a pattern with the &PART. variable as well.
- If the SPACE option is specified, the LIMIT option is ignored.

TIME

Specifies time used in expansion of date and time DSN variables. The default TIME value is determined by the TEMPLATE_TIME subsystem parameter if USE_ADMIN_INFO_SYSPARM(YES) is specified for the VUU030/ULOPTNS parameter. Otherwise, UTC applies.

LOCAL

Use local time at the DB2 server in the expansion of date and time in DSN variables.

UTC

Use Coordinated Universal Time (UTC) in the expansion of date and time in DSN variables.

DISP (status, normal-termination, abnormal-termination)

Specifies the data set disposition. You must specify values for all of the following variables:

status

Specify one of the following standard z/OS values: NEW, OLD, SHR, and MOD.

normal-termination

Specify one of the following standard z/OS values: DELETE, KEEP, CATLG, and UNCATLG.

abnormal-termination

Specify one of the following standard z/OS values: DELETE, KEEP, CATLG, and UNCATLG.

Default values for the disposition are NEW,CATLG,CATLG for output files for TEMPLATE statements that UNLDDN, OUTDDN, or LOADDDN statements, and SHR,KEEP,KEEP for input files for TEMPLATE statements that use COPYDDN or DDLDDN statements. When a PDS or PDSE is created by a TEMPLATE statement, its default disposition is NEW,CATLG,CATLG. When new members are created in the PDS or PDSE, the disposition is SHR,KEEP,KEEP.

SPACE (primary,secondary)

Specifies the z/OS disk space allocation parameters. If you specify (*primary,secondary*) values, these values are used instead of the values that are calculated Db2 HPU. When specifying primary and secondary quantities, you must either specify both values or omit both values. Use the MAXPRIME option to set an upper limit on the primary quantity.

Valid values are 1 - 1677215

CYL

Specifies that allocation quantities, if present, are to be expressed in cylinders and that allocation is to occur in cylinders. If SPACE CYL is specified, without (*primary,secondary*), the Db2 HPU-calculated quantities are allocated in cylinders by using 3390 quantities for byte conversion.

TRK

Specifies that, in the absence of values for (*primary,secondary*), the Db2 HPU-calculated quantities are to be allocated in tracks by using 3390 disk drive quantities for byte conversion. If the amount calculated is greater than one cylinder, the TRK keyword is ignored, and the data set is allocated in cylinders (CYL).

MB

Specifies that if allocation quantities are present, they are to be expressed in megabytes, and that allocation is to occur in records. One MB is 1048576 bytes. If SPACE MB is specified without (*primary,secondary*), the Db2 HPU-calculated quantities are allocated in records by using the average record length for the data set.

The default value is CYL.

Consider the following settings and keywords for default SPACE values for allocating NEW data sets:

Default SPACE values for allocating NEW data sets

DB2 NO or DB2 YES with supported SELECT statements

When Db2 HPU uses a TEMPLATE statement to allocate an output file (using UNLDDN or OUTDDN), the space that is allocated is calculated by using the catalog statistics for the unloaded object. If there are no statistics, Db2 HPU uses the physical characteristics of the underlying data set to compute the space for the output files. If necessary, you can override the calculated space allocation by using the SPACE parameter of the TEMPLATE definition.

DB2 FORCE or DB2 YES with unsupported SELECT statements

Use the SPACE keyword with specification of primary and secondary allocation in the TEMPLATE statement, or an error message is issued.

RLSE keyword

The RLSE (release) keyword is always used to allocate new data sets so that unused space is released on deallocation except when the allocated data set is a PDS or a PDSE (using DSNTYPE PDS or LIBRARY parameters).

PCTPRIME integer

Specifies the percentage of the estimated required space that will be obtained as the primary quantity. Use the MAXPRIME keyword to set the upper limit of this value for large objects.

The default value is 100.

MAXPRIME integer

Specifies the maximum allowable primary space allocation. The value is expressed in cylinders (CYL). This value constrains the primary space value, the PCTPRIME calculation, and the size of each secondary allocation.

NBRSECND integer

Specifies the division of secondary space allocations. After the primary space is allocated, an amount of space equal to the estimated required space is divided into the specified number of secondary allocations. Valid values are 1 - 10.

The default value is 10.

DIR integer

Specifies the number of 256-byte records that are to be allocated for the directory of a new (DISP NEW or DISP MOD) partitioned data set (DSNTYPE PDS) or library (DSNTYPE LIBRARY).

With DSNTYPE PDS, the DIR option must be specified unless the dataset is used in an UNLOAD statement with BLOBF, CLOBF, or DBCLOBF. In such a case, if DIR is omitted, Db2 HPU calculates the number of 256-byte records to allocate by dividing the estimated number of records of the table to unload by 20. You may specify your own value by specifying a DIR option if the value calculated by Db2 HPU is not suitable.

With DSNTYPE LIBRARY, the DIR option is not mandatory as Db2 uses 1 as a default value. Be aware that the DIR option for a PDSE has almost no impact as it would be used only in case of a future conversion of the PDSE (LIBRARY) into a PDS dataset. If such a conversion is planned, setting a DIR option to a suitable value is advisable.

DSNTYPE

Specifies the type of data set to be allocated.

LIBRARY

Specifies that a partitioned data set extended (PDSE) will be allocated.

PDS

Specifies that a partitioned data set (PDS) will be allocated.

HFS

Specifies that a hierarchical file system (HFS) file will be allocated. An HFS file is allowed only when a TEMPLATE is used to allocate a LOB file reference (CLOBF, BLOBF, or DBCLOBF columns).

NULL

Specifies a null file. Use this value for a TEMPLATE statement with UNLOAD CLOBF, BLOBF, or DBCLOBF columns to unload a null LOB value. In this case, the unload data set contains a null file name.

PIPE

Specifies a USS pipe file. Specify PIPE only when you allocate a new pipe output file by using the PATH option in the TEMPLATE statement. You cannot use DSNTYPE PIPE when you allocate input files, existing pipe files, standard z/OS files with the DSN option, or a LOB file reference.

BASIC

Specifies that a basic data set will be allocated. Basic format data sets are sequential data set that are specified as neither extended-format nor large-format. Basic format data sets have a size limit of 65 535 tracks (4 369 cylinders) per volume.

LARGE

Specifies that a large data set will be allocated. Large format data sets are sequential data sets that can grow beyond 65 535 tracks (4 369 cylinders) up to 16 777 215 tracks per volume.

EXTREQ

Specifies that an extended format data set will be allocated. The allocation should fail if that is not possible.

EXTPREF

Specifies that allocation is preferred to be in extended format, but if the necessary system resources for extended are not available, then the data set should be allocated as BASIC.

If you omit DSNTYPE, the type of data set is determined by other data set attributes, the data class for the data set, or an installation default.

KEYLABEL key-label-name

Specifies the key label for the allocation of the data set. If the security administrator has specified a key label for RACF data set profile, that key label takes precedence over the DB2 provided key label.

STACK

Specifies whether output data sets are to be stacked contiguously on the same tape volumes.

NO

Specifies that output data sets are not stacked contiguously on tape.

YES

Specifies that output data sets are stacked as successive files on one tape volume. A logical tape volume can consist of an aggregate of more than one volume.

Stacking is allowed only for the output data sets from a physical unload (UNLDDN) or a logical unload (OUTDDN). When you unload LOB or XML data, stacking output files on tape is not supported for CLOBF, DBCLOBF, or BLOBF columns.

TRTCH

Specifies the track recording method for magnetic tape drives that have improved data recording capability.

NONE

Specifies that a track recording method is not specified during dynamic allocation.

COMP

Specifies that data is written in compacted format.

NOCOMP

Specifies that data is written in standard format.

See *MVS JCL Reference* for more information about the PATHOPTS and PATHMODE options.

Related reference

[User-allocated ddnames](#)

To run unload jobs, you must allocate certain ddnames in the Db2 HPU JCL.

[PROCESS OPTIONS block syntax and description](#)

Use the PROCESS OPTIONS control statement to change and restore the default ddnames that Db2 HPU uses for LISTDEF and LISTDEFTBV definition libraries and TEMPLATE definition libraries.

How to use TEMPLATES

As an alternative to using JCL to specify the data sets, you can use the TEMPLATE control statement to dynamically allocate Db2 HPU data sets.

How to use TEMPLATES

As an alternative to using JCL to specify the data sets, you can use the TEMPLATE control statement to dynamically allocate Db2 HPU data sets.

You can specify the following information with the TEMPLATE statement:

- The data set naming convention
- DFSMS parameters
- Disk allocation parameters

By using TEMPLATE statements, you can standardize data set allocation, which reduces the need to customize and alter Db2 HPU job streams.

You can specify a TEMPLATE statement in the SYSIN data set, preceding the UNLOAD command that references the TEMPLATE statement, or in a TEMPLATE library.

A TEMPLATE library is a data set that contains only TEMPLATE statements. You can specify a TEMPLATE data set DD name by using the TEMPLATEDD keyword in the PROCESS OPTIONS statement. This specification applies to all subsequent UNLOAD commands until the end of input or until Db2 HPU encounters the next PROCESS_OPTIONS TEMPLATEDD(*ddname*) statement.

You can use a template name instead of a JCL-allocated ddname with the following keywords:

COPYDDN

Input image copy file.

DDLDDN

Input DDL specification for image copy files of dropped objects.

UNLDDN

Output file for physical unload.

OUTDDN

Output file for logical unload.

LOADDDN

Output file that contains the generated LOAD SYSIN for a logical unload.

Additionally, a template name can be used for unloading LOB columns by using LOB file reference CLOBF, DBCLOBF, or BLOBF data type attributes.

When a name is specified in the COPYDDN, DDLDDN, UNLDDN, OUTDDN, or LOADDDN keywords, Db2 HPU searches for the following items in the following sequence:

1. A generic ddname (DDNxxxx) that is already allocated in the JCL that corresponds to the ddnames that are used for processing per partition. This item applies only to the COPYDDN, UNLDDN, and OUTDDN keywords.
2. A DD statement that is allocated in the JCL that corresponds to the exact name specified in the SYSIN data set.
3. A template with the same name that is defined in the SYSIN data set.
4. A template with the same name that is defined in the TEMPLATE library.

In order to avoid subsequent errors related to the allocation of output data sets defined by TEMPLATE statements, Db2 HPU checks that identical data set names defined through TEMPLATE statements are used for distinct unload processes only if :

- The common data set name is defined by a single TEMPLATE statement

- The common data set is not to be written on tape
- The common data set is not a member of a PDS or PDSE library
- The common data set is meant to contain the same kind of data (OUTDDN, UNLDDN or LOADDN). In other words, they are associated to only one of the OUTDDN, UNLDDN or LOADDN option.
- The common data set is not used more than once as the target data set for a single OUTDDN or UNLDDN option. For example, OUTDDN(TEMPLAT1,TEMPLAT1) where TEMPLAT1 is a TEMPLATE name is not allowed.

If any of the above rules is not fulfilled, the INZT034E error message is issued.

Db2 HPU always assumes that the object has at least 1000 records. Therefore, the allocated size for the output LOB files is at least 1000 times the size of the LOB. To get a better estimate of the size of the output data sets, specify YES for VUX036/RTSESTIM.

When a huge amount of data is expected for the output data sets (OUTDDN and UNLDDN), which allocation is specified through a TEMPLATE statement, it is advisable to specify the MAXPRIME option to make sure the system limit allowed for such data sets is not exceeded. This is particularly useful for non SMS and non extended data sets

Related reference

[TEMPLATE block syntax and description](#)

Use the TEMPLATE control statement to allocate data sets without using JCL DD statements when an UNLOAD command is processed.

Example: Unloading data from a table with an XML column by using a TEMPLATE statement

This example shows how to use a TEMPLATE statement to unload data from a table with an XML column.

In this example, data is unloaded from the HISTORY XML column in the DSN81010.CUSTOMER table into CLOBF files that are written in an output PDS. The output PDS is named LABO.XMLFILES.P10459A. The other column in the SELECT statement is unloaded into a single data set that is allocated as ddname OUTPUT.

```

TEMPLATE XMLFILE DSN LABO.XMLFILES.P10459A(R&TMP.)
UNIT WORK DSNTYPE PDS DIR 20
UNLOAD TABLESPACE
OPTIONS TEMPLATESET (TMP=:RECNUM)
QUIESCE YES
DB2 NO
SELECT CID,
       HISTORY
INTO
       HISTORY_CLOBF VARCHAR(44) CLOBF XMLFILE
FROM DSN81010.CUSTOMER
FORMAT DSNTIAUL
OUTDDN(OUTPUT)

```

Related concepts

[XML data processing](#)

Db2 HPU can unload XML data.

Example: Unloading data from a table with a LOB column by using a TEMPLATE statement

This example shows how to use a TEMPLATE statement to unload data from a table with a LOB column (COL_LOB).

In this example, data from the base table and data from the LOB column, which is unloaded as LOB files, are unloaded into HFS files.

```

TEMPLATE FILEL PATH '/u/test/MYDATA/LOB.&COL.&NUM.'
PATHOPTS (OCREAT,OWRONLY) PATHMODE(SIRUSR,SIWUSR)
TEMPLATE FILED PATH '/u/test/MYDATA/BASE.TS.'

```

```

PATHOPTS(OCREAT,OWRONLY) PATHMODE(SIRUSR,SIWUSR)
TEMPLATE LOAD DSN MYLOAD.RELOAD(HPULOB1) UNIT WORK

UNLOAD TABLESPACE
DB2 NO

OPTIONS
TEMPLATESET (COL =: COLNAME,
             NUM =: RECNUM )

REFORMAT( TYPE CLOB INTO VARCHAR(100) CLOBF FILEL)

SELECT COL_INT, COL_LOB
FROM ME.MYTABLE
OUTDDN(FILED)
FORMAT DSNTIAUL
LOADDDN (LOAD) LOADOPT(RESUME NO REPLACE)
;
/*

```

After the statement is run, data is unloaded into the following HFS files. Data from the COL_INT column in the base table is unloaded into /u/test/MYDATA/BASE.MYTS. Data from the COL_LOB column is unloaded into the following files:

- /u/test/MYDATA/LOB.COL_LOB00000001
- /u/test/MYDATA/LOB.COL_LOB00000002
- /u/test/MYDATA/LOB.COL_LOB00000003
- ...

Each data set contains a single LOB.

Related concepts

LOB data processing

Db2 HPU can unload LOB data.

Example: Unloading into a data set allocated via a TEMPLATE with DSNTYPE EXTREQ

In this example, you unload data in XML format with an SQL statement involving SQL expressions from an identified table.

```

TEMPLATE XMLFILE DSN LAB0.XMLFILES.P10459A(R&TMP.)
UNIT WORK DSNTYPE EXTREQ DIR 20
UNLOAD TABLESPACE
OPTIONS TEMPLATESET (TMP=:RECNUM)
QUIESCE YES
DB2 NO
SELECT CID,
HISTORY
INTO,
HISTORY_CLOBF VARCHAR(44) CLOBF XMLFILE
FROM DSN81010.CUSTOMER
FORMAT DSNTIAUL
OUTDDN(OUTPUT)

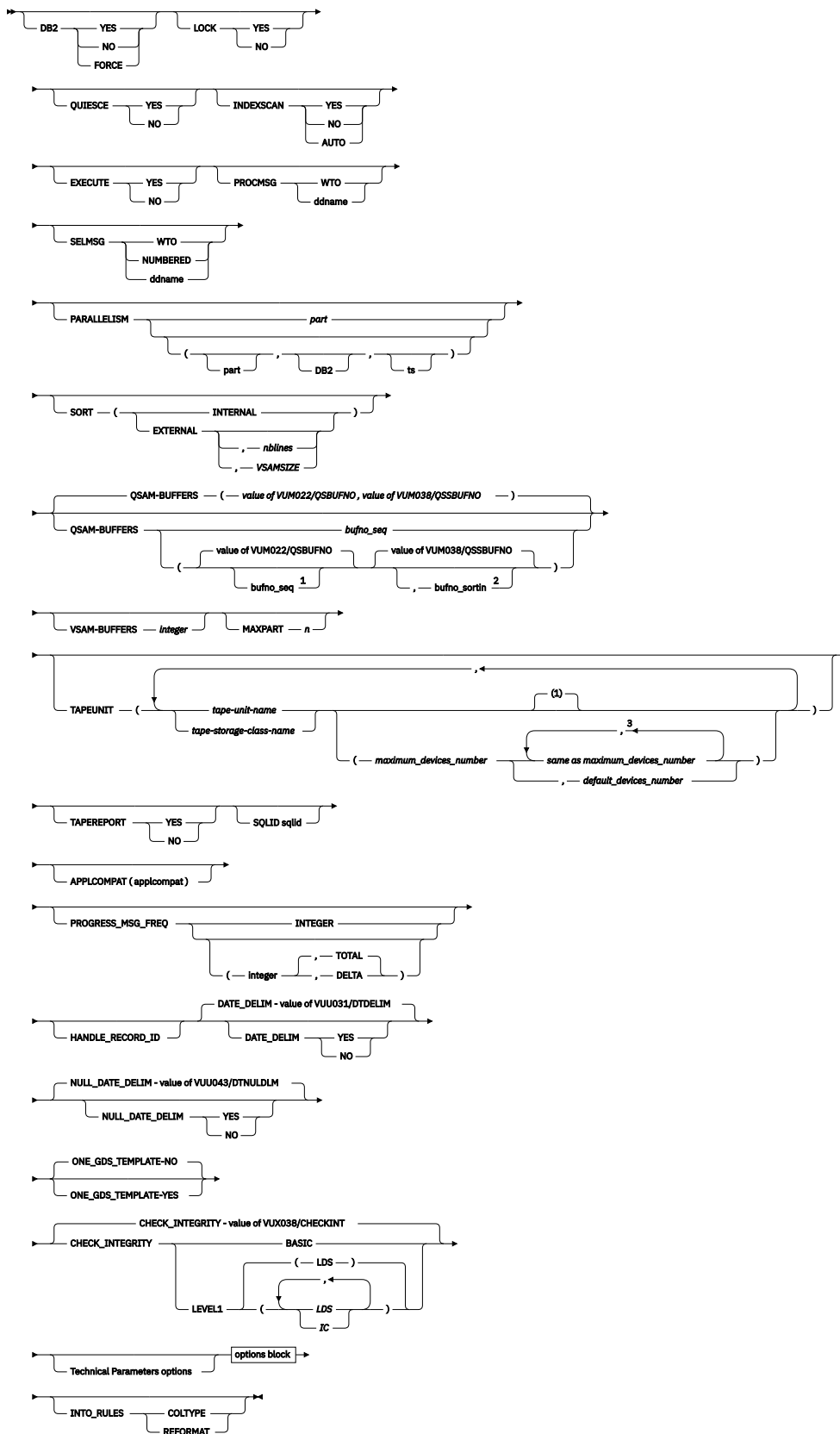
```

GLOBAL OPTIONS block syntax and description

A Db2 HPU command may contain several UNLOAD blocks. Use the GLOBAL OPTIONS block to specify default values that apply to all UNLOAD blocks that you specify in your SYSIN. If you specify a keyword or value in both the GLOBAL OPTIONS block and the UNLOAD block, the value in the UNLOAD block is used.

A keyword that is specified in the GLOBAL OPTIONS block applies to all UNLOAD TABLESPACE statements. Keywords that are specified in an UNLOAD TABLESPACE statement apply only to the specific UNLOAD statement.

GLOBAL OPTIONS block



Notes:

- 1 Either bufno_seq or ", bufno_sortin" must be specified. "QSAM-BUFFERS ()" is not supported.
- 2 Either bufno_seq or ", bufno_sortin" must be specified. "QSAM-BUFFERS ()" is not supported.

³ the rule depends on whether TAPEUNIT_DEFAULT_DEV_TO_MAX is specified in the value of the VUU030/ULOPTNS parmlib parameter.

Note: Options DB2, LOCK, QUIESCE, INDEXSCAN, EXECUTE, PARALLELISM, SORT, QSAM-BUFFERS, VSAM-BUFFERS and MAXPART can also be specified through UNLOAD block. See the [UNLOAD block syntax and description](#) section for explanations of these options.

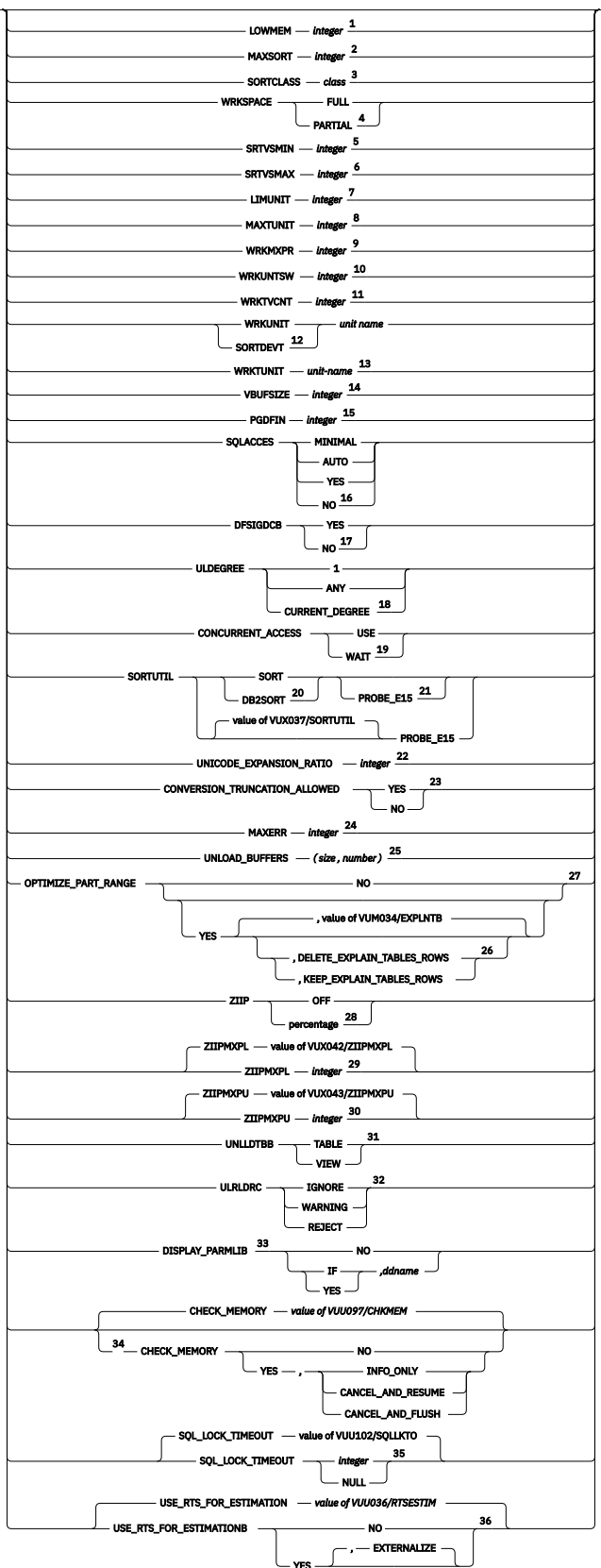
- PROCMSG
- SELMSG
- TAPEUNIT
- TAPEREREPORT
- SQLID
- APPLCOMPAT
- PROGRESS_MSG_FREQ
- HANDLE_RECORD_ID

Technical Parameters options block

Use the Technical Parameters options block to specify processing parameters. Most of these parameters have a counterpart parmlib parameter that can be overridden this way, thus allowing to change the Db2 HPU behavior for a specific Db2 HPU step.

These keywords can be specified only in the GLOBAL OPTIONS block after the GLOBAL keyword. They apply to all the UNLOAD commands that are coded in the SYSIN dataset.

The same keyword can be specified only once.



Notes:

¹ **LOWMEM integer:** Overrides the value of the VUX004/LOWMEM parmlib parameter. See “Customization reference” on page 535 for details.

- ² **MAXSORT integer**: Overrides the value of the VUX005/MAXSORT parmlib parameter. See [“Customization reference” on page 535](#) for details.
- ³ **SORTCLASS class**: Overrides the value of the VUX020/SORTCLAS parmlib parameter. See [“Customization reference” on page 535](#) for details.
- ⁴ **WRKSPACE FULL/PARTIAL**: Overrides the value of the VUX006/WRKSPACE parmlib parameter. See [“Customization reference” on page 535](#) for details.
- ⁵ **SRTVSMIN integer**: Overrides the value of the VUM025/SRTVSMIN parmlib parameter. See [“Customization reference” on page 535](#) for details.
- ⁶ **SRTVSMAX integer**: Overrides the value of the VUM026/SRTVSMAX parmlib parameter. See [“Customization reference” on page 535](#) for details.
- ⁷ **LIMUNIT integer**: Overrides the value of the VUX010/LIMUNIT parmlib parameter. See [“Customization reference” on page 535](#) for details.
- ⁸ **MAXUNIT integer**: Overrides the value of the VUX017/MAXTUNIT parmlib parameter. See [“Customization reference” on page 535](#) for details.
- ⁹ **WRKMXPR integer**: Overrides the value of the VUX019/WRKMXPR parmlib parameter. See [“Customization reference” on page 535](#) for details.
- ¹⁰ **WRKUNTSW integer**: Overrides the value of the VUX016/WRKUNTSW parmlib parameter. See [“Customization reference” on page 535](#) for details.
- ¹¹ **WRKTVCNT integer**: Overrides the value of the VUX032/WRKTVCNT parmlib parameter. See [“Customization reference” on page 535](#) for details.
- ¹² **WRKUNIT/SORTDEVT unit name**: Overrides the value of the VUM013/WRKUNIT parmlib parameter. See [“Customization reference” on page 535](#) for details.
- ¹³ **WRKTUNIT unit-name**: Overrides the value of the VUA007/WRKTUNIT parmlib parameter. See [“Customization reference” on page 535](#) for details.
- ¹⁴ **VBUFSIZE integer**: Overrides the value of the VUX022/VBUFSIZE parmlib parameter. See [“Customization reference” on page 535](#) for details.
- ¹⁵ **PGDFIN integer**: Overrides the value of the VUX023/PGDFIN parmlib parameter. See [“Customization reference” on page 535](#) for details.
- ¹⁶ **SQLACCES MINIMAL/AUTO/YES/NO**: Overrides the value of the VUM027/SQLACCES parmlib parameter. The value of the SQLACCES keyword is forced to YES in DB2 10 for z/OS enabling-new-function mode and later releases. See [“Customization reference” on page 535](#) for details.
- ¹⁷ **DFSIGDCB YES/NO**: Overrides the value of the VUM029/DFSIGDCB parmlib parameter. See [“Customization reference” on page 535](#) for details.
- ¹⁸ **ULDEGREE 1/ANY/CURRENT_DEGREE**: Overrides the value of the VUU021/ULDEGREE parmlib parameter. See [“Customization reference” on page 535](#) for details.
- ¹⁹ **CONCURRENT_ACCESS USE/WAIT**: Overrides the value of the VUU061/ACCPREP parmlib parameter. See [“Customization reference” on page 535](#) for details.
- ²⁰ **SORTUTIL SORT/DB2SORT**: Overrides the value of the VUX037/SORTUTIL parmlib parameter. See [“Customization reference” on page 535](#) for details.
- ²¹ **PROBE_E15**: Requests that Db2 HPU estimates the amount of memory below the 16 MB line used by the E15 exit of the applicable sort program (either specified by the SORTUTIL option or its parmlib parameter counterpart VUX037/SORTUTIL. This allows to determine a ready to use value for LOWMEM suitable to your sort program. This option is meant to be used along with a very simple unload involving only a single sort to evaluate, at runtime, a suitable value for LOWMEM.
- ²² **UNICODE_EXPANSION_RATIO integer**: Overrides the value of the VUU068/ULUNIEXP parmlib parameter. See [“Customization reference” on page 535](#) for details.
- ²³ **CONVERSION_TRUNCATION_ALLOWED YES/NO**: Overrides the value of the VUU067/ULCNVTRC parmlib parameter. See [“Customization reference” on page 535](#) for details.
- ²⁴ **MAXERR integer**: Overrides the value of the VUU073/MAXERR, parmlib parameter applicable to the Db2 HPU syntax (Error message limit, Db2 HPU parameters). See [“Customization reference” on page 535](#) for details.
- ²⁵ The arguments of the UNLOAD_BUFFERS options are associated with the parameters as follows:
 size: is associated with the « Size of work areas buffers (VUX040/UBUFSIZE) » parameter.
 number : is associated with the « Size of work areas buffers (VUX040/UBUFSIZE) » parameter.

- ²⁶ **DELETE_EXPLAIN_TABLES_ROWS/KEEP_EXPLAIN_TABLES_ROWS**: Overrides the value of the VUM034/EXPLNTB parmlib parameter. DELETE_EXPLAIN_TABLES_ROWS corresponds to the value DELETE and KEEP_EXPLAIN_TABLES_ROWS of the VUM034/EXPLNTB corresponds to the value KEEP. The default value depends on the value of the VUM034/EXPLNTB PARMLIB parameter. If this parameter is not specified its default value applies. See [“Customization reference” on page 535](#) for details.
- ²⁷ **NO/YES**: Overrides the value of the VUM033/OPTRGPRT parmlib parameter.
- ²⁸ **ZIIP OFF/percentage**: Overrides the value of the VUX039/ZIIP parmlib parameter. See [“Customization reference” on page 535](#) for details.
- ²⁹ **ZIIPMXPL integer**: Overrides the value of the VUX042/ZIIPMXPL parmlib parameter. See [“Customization reference” on page 535](#) for details.
- ³⁰ **ZIIPMXPU integer**: Overrides the value of the VUX043/ZIIPMXPU parmlib parameter. See [“Customization reference” on page 535](#) for details.
- ³¹ **UNLLDTBB TABLE/VIEW**: Overrides the value of the VUU081/UNLLDTBB parmlib parameter. See [“Customization reference” on page 535](#) for details.
- ³² **ULRLDRC IGNORE/WARNING/REJECT**: Overrides the value of the VUU082/ULRLDRC parmlib parameter. See [“Customization reference” on page 535](#) for details.
- ³³ **DISPLAY_PARMLIB NO/IF/YES[,ddname]**: Overrides the value of the VUU083/DISPPARM parmlib parameter. See [“Customization reference” on page 535](#) for details.
- ³⁴ **The CHECK_MEMORY** option corresponds to the VUU097/CHKMEM parmlib parameter.
- ³⁵ **SQL_LOCK_TIMEOUT integer/NULL**: overrides the value of the VUU102/SQLLKTO parmlib parameter. See [“Customization reference” on page 535](#) for details.
- ³⁶ **USE_RTS_FOR_ESTIMATION NO/YES[,EXTERNALIZE]**: Overrides the value of the VUX036/RTSESTIM parmlib parameter. See [“Customization reference” on page 535](#) for details.

Related reference

[UNLOAD block syntax and description](#) See this topic for descriptions of the keywords in the GLOBAL OPTIONS block syntax.

Examples: Using committed data that is being updated or deleted

These examples show how you can use the CONCURRENT_ACCESS keyword when you unload data that is being updated or deleted. The data must be committed.

The following example shows how to specify the CONCURRENT_ACCESS keyword so that Db2 HPU uses committed data that is being updated or deleted.

```
GLOBAL CONCURRENT_ACCESS USE ;
UNLOAD TABLESPACE
QUIESCE YES
DB2 FORCE
SELECT * FROM DSN81010.EMP
FORMAT DSNTIAUL
OUTDDN (OUTPUT)
```

The following example shows how to specify the CONCURRENT_ACCESS keyword so that Db2 HPU does not use committed data that is being updated or deleted.

```
GLOBAL CONCURRENT_ACCESS WAIT ;
UNLOAD TABLESPACE
QUIESCE YES
DB2 FORCE
SELECT * FROM DSN81010.EMP
FORMAT DSNTIAUL
OUTDDN (OUTPUT)
```


Examples: Invoking sort utilities

These examples show how you can use the SORTUTIL keyword to invoke your on-site sort program or the Db2 Sort utility.

In the following example, the table space has 50 partitions. Several sort operations are required because of partition processing parallelism. Partition processing parallelism was requested because one output file is allocated per partition, and partition parallel processing is allowed because PARALLELISM (5, ,) is specified. The sort operations are run outside of Db2 because DB2 NO was specified. The GLOBAL statement specifies that Db2 Sort will do the sort operation.

```
GLOBAL SORTUTIL DB2SORT ;

UNLOAD TABLESPACE
PARALLELISM (5 , ,)
DB2 NO
SELECT *
FROM MZLFLB.TBDZ8AFLB20101
ORDER BY 1 DESC,
        2 DESC
OUTDDN(SYSREC)
FORMAT DSNTIAUL
;
```

In the following example, several sort operations are required because several SELECT statements with ORDER BY clauses are in a single UNLOAD command. The sort operations are run outside of Db2 because DB2 NO was specified. The GLOBAL statement specifies that Db2 Sort will do the sort operations.

```
GLOBAL SORTUTIL DB2SORT
      OPTIONS  TEMPLATESET(NUM=:SELNUM)
      ;
TEMPLATE SYSREC DSN MZLFLB.&DB..S&NUM. UNIT WORK

UNLOAD TABLESPACE
DB2 NO
SELECT *
FROM MZLFLB.TBDZ8AFLB00101
ORDER BY 1 DESC,
        2 DESC
OUTDDN(SYSREC)
SELECT C1, C2
FROM MZLFLB.TBDZ8AFLB00101
ORDER BY 1 DESC,
        2 DESC
OUTDDN(SYSREC)
SELECT C1, C2, C3
FROM MZLFLB.TBDZ8AFLB00101
ORDER BY 2 DESC,
        1 DESC
OUTDDN(SYSREC)
FORMAT DSNTIAUL
;
```

In the following example, several sort operations are required because several SELECT statements with ORDER BY clauses are in a single UNLOAD command. The sort operations are run outside of Db2 because SORT (EXTERNAL) is specified. Row selection is done in SQL mode because DB2 FORCE is specified. Db2 Sort will do the sort operations.

```
GLOBAL SORT(EXTERNAL)
      SORTUTIL DB2SORT
      OPTIONS  TEMPLATESET(NUM=:SELNUM)
      ;
TEMPLATE SYSREC DSN MZLFLB.&DB..S&NUM. UNIT WORK
SPACE (100, 50) TRK
UNLOAD TABLESPACE
DB2 FORCE
SELECT *
FROM MZLFLB.TBDZ8AFLB00101
ORDER BY 1 DESC,
        2 DESC
OUTDDN(SYSREC)
SELECT C1, C2
FROM MZLFLB.TBDZ8AFLB00101
ORDER BY 1 DESC,
```

```

        2 DESC
OUTDDN(SYSREC)
SELECT C1, C2, C3
FROM MZLFLB.TBDZ8AFLB00101
ORDER BY 2 DESC,
        1 DESC
OUTDDN(SYSREC)
FORMAT DSNTIAUL
;

```

In the following example, the DB2SORT value that was specified in the Db2 HPU settings for the VUX037/SORTUTIL parameter is ignored. The on-site sort program is used instead of Db2 Sort.

```

GLOBAL SORTUTIL SORT
      OPTIONS  TEMPLATESET(NUM=:SELNUM)
;

TEMPLATE SYSREC DSN MZLFLB.&DB..S&NUM. UNIT WORK
UNLOAD TABLESPACE
DB2 NO
SELECT *
FROM MZLFLB.TBDZ8AFLB00101
ORDER BY 1 DESC,
        2 DESC
OUTDDN(SYSREC)
SELECT C1, C2
FROM MZLFLB.TBDZ8AFLB00101
ORDER BY 1 DESC,
        2 DESC
OUTDDN(SYSREC)
SELECT C1, C2, C3
FROM MZLFLB.TBDZ8AFLB00101
ORDER BY 2 DESC,
        1 DESC
OUTDDN(SYSREC)
FORMAT DSNTIAUL
;

```

Examples: Unloading partitioned tables with OPTIMIZE_PART_RANGE option

The examples below show how to request a logical unload with a WHERE clause run against a partitioned table in native mode to be optimized by only reading the partitions where the expected data is located. This is done by using the OPTIMIZE_PART_RANGE feature.

The following example requests the logical unload involving a partitioned table and specifying a WHERE clause to be optimized by using the OPTIMIZE_PART_RANGE feature so that only the relevant partitions are read by the utility.

The rows inserted into the PLAN tables by the EXPLAIN PLAN Db2 HPU requests when the OPTIMIZE_PART_RANGE feature is used are automatically deleted by Db2 HPU afterwards as the DELETE_EXPLAIN_TABLES_ROWS option is specified.

With the following unload statement:

```

GLOBAL OPTIMIZE_PART_RANGE YES, DELETE_EXPLAIN_TABLES_ROWS;
UNLOAD TABLESPACE
DB2 NO
PARALLELISM 5

SELECT * FROM MZLFD.TBUTSRG1
WHERE COL_VARCHAR >=' AAD' AND COL_VARCHAR <= 'GL' OR COL_VARCHAR = 'Q'
OUTDDN FOUT
FORMAT EXTERNAL

SELECT * FROM MZLFD.TBUTSRG1
WHERE COL_VARCHAR >=' AAD' AND COL_VARCHAR <= 'GL'
OUTDDN DOUT
FORMAT EXTERNAL

SELECT *
FROM DSN81010.EMP
WHERE EMPNO IS NOT NULL
OUTDDN GOUT FORMAT EXTERNAL

```

...

the SYSPRINT data set contains the following messages:

```
-----
INZU481I PART RANGE OPTIMIZATION ENABLE FOR DBTLS00.UTSDZAA
INZU281I - UNLOAD STARTING AT POS(4, 1)
INZU280I - SELECT 00001 STARTING AT POS(6, 1)
INZU485I NUMBER OF PARTITIONS SELECTED PASSED FROM 16 TO 9 PARTITIONS [5-14],31
INZU280I - SELECT 00002 STARTING AT POS(12, 1)
INZU485I NUMBER OF PARTITIONS SELECTED PASSED FROM 16 TO 8 PARTITIONS [5-14]

-----
INZU481I PART RANGE OPTIMIZATION ENABLE FOR DSN8D10A.DSN8S10E
INZU281I - UNLOAD STARTING AT POS(4, 1)
INZU280I - SELECT 00003 STARTING AT POS(18, 1)
INZU486I NO OPTIMIZATION FOUND. 5 PARTITIONS KEPT
```

The following example requests the logical unload involving a partitioned table and specifying a WHERE clause to be optimized by using the OPTIMIZE_PART_RANGE option so that only the relevant partitions are read by the utility.

The rows inserted into the PLAN tables by the EXPLAIN PLAN Db2 HPU requests when the OPTIMIZE_PART_RANGE feature is used are kept as the KEEP_EXPLAIN_TABLES_ROWS option is specified.

With the following unload statement:

```
GLOBAL
OPTIMIZE_PART_RANGE YES, KEEP_EXPLAIN_TABLES_ROWS
;
UNLOAD TABLESPACE
PARALLELISM 5
PART(ALL)
SELECT * FROM MZLFD.TBUTSRG1
WHERE COL_VARCHAR >=' AAD' AND COL_VARCHAR <= 'GL'
      OR COL_VARCHAR = 'Q'
OUTDDN FOUT
FORMAT EXTERNAL

SELECT * FROM MZLFD.TBUTSRG1
WHERE COL_VARCHAR >=' AAD' AND COL_VARCHAR <= 'GL'
OUTDDN GOUT
FORMAT EXTERNAL
...
```

The SYSPRINT data set contains the following messages:

```
INZU481I PART RANGE OPTIMIZATION ENABLE FOR DBTLS00.UTSDZAA
INZU281I - UNLOAD STARTING AT POS(4, 1)
INZU280I - SELECT 00001 STARTING AT POS(6, 1)
INZI197I EXPLAIN TABLE SUCCESSFULL:
        QUERYNO = 1794246139 ,EXPLAIN_TIME = 2016-11-29 14:22:48.510000
INZU485I NUMBER OF PARTITIONS SELECTED PASSED FROM 16 TO 9
INZU280I - SELECT 00002 STARTING AT POS(12, 1)
INZI197I EXPLAIN TABLE SUCCESSFULL:
        QUERYNO = 1794331636 ,EXPLAIN_TIME = 2016-11-29 14:22:48.680000
INZU485I NUMBER OF PARTITIONS SELECTED PASSED FROM 16 TO 8
```

Example: Unloading with a specific CURRENT APPLICATION COMPATIBILITY value.

Request the unload being done with the CURRENT APPLICATION COMPATIBILITY register set to V11R1 in order to allow the use of the CHAR9 scalar function only available.

```
GLOBAL
  APPLCOMPAT(V11R1)
;
UNLOAD TABLESPACE
DB2 NO
SELECT
```

```

CHAR (DECIMAL(-1.230)),
CHAR9(DECIMAL(-1.230))
FROM SYSIBM.SYSDUMMY1 ;
OUTDDN(SAMPLE1)
FORMAT DELIMITED SEP '/'

```

Example: Typical use of the PROBE_E15 option

A typical use of the PROBE_E15 option is implemented by the INZCHECK Tools Customizer customization job in a //DB2Pdb2id step. where db2id stands for either the subsystem ID of a single Db2 subsystem or the group attachment name of a data sharing group with the following SYSIN:

```

//SYSIN DD *
GLOBAL SORTUTIL PROBE_E15;
UNLOAD TABLESPACE
DB2 NO
LOCK NO
SELECT *
FROM SYSIBM.SYSDATABASE
WHERE DBID = 0
ORDER BY 1
OUTDDN SYSREC1
FORMAT DSNTIAUL
ASIS
//*

```

Review the output of this step at customization time to check if the setting for the VUX004/LOWMEM parmlib parameter should be adjusted.

Here are examples of the output of the INZCHECK job depending on the settings of VUX004/LOWMEM and VUX037/SORTUTIL:

- if VUX037/SORTUTIL= SORT and LOWMEM parameter = 270000 > value estimated by the PROBE_E15 feature the output is as follows:

```

09.56.25 JOB09867 INZX005 SYSTSDBA PARTITION NO. 1 IS BEING READ
09.56.25 JOB09867 INZX009 SYSTSDBA PARTITION NO. 1 READ, 10144 ROWS PROCESSED
09.56.25 JOB09867 INZX072 S100000001 PROBE_E15 REQUESTED FOR SORT. ESTIMATED VALUE FOR
LOWMEM IS 117760 BYTES
09.56.25 JOB09867 INZX062 S100000001 SORT ACTIVATED VIA
E15
09.56.25 JOB09867 INZX090 DDN SYSREC TS SYSTSDBA : 0 RECORDS WRITTEN IN 00:00:03, UNLOAD
DONE.
09.56.25 JOB09867 INZX090 DDN SYSREC TS SYSTSDBA : 0 RECORDS WRITTEN IN 00:00:03, UNLOAD
DONE.
09.56.25 JOB09867 INZU222I SYSREC , TOTAL NUMBER OF RECORDS WRITTEN 0

```

- VUX037/SORTUTIL = SORT and LOWMEM parameter = 55000 < value estimated by the PROBE_E15 feature the output is as follows.

```

10.02.59 JOB09905 INZX005 SYSTSDBA PARTITION NO. 1 IS BEING READ
10.02.59 JOB09905 INZX009 SYSTSDBA PARTITION NO. 1 READ, 10144 ROWS PROCESSED
10.02.59 JOB09905 INZX072 S100000001 PROBE_E15 REQUESTED FOR DB2SORT. ESTIMATED VALUE FOR
LOWMEM IS 117760 BYTES
10.02.59 JOB09905 INZX073 S100000001 LOWMEM VALUE (55000 BYTES) LOWER THAN VALUE FOR DB2SORT
ADVISED BY PROBE_E15
10.02.59 JOB09905 INZX062 S100000001 SORT ACTIVATED VIA
E15
10.02.59 JOB09905 INZX090 DDN SYSREC TS SYSTSDBA : 0 RECORDS WRITTEN IN 00:00:03, UNLOAD
DONE.
10.02.59 JOB09905 INZX090 DDN SYSREC TS SYSTSDBA : 0 RECORDS WRITTEN IN 00:00:03, UNLOAD
DONE.
10.02.59 JOB09905 INZU222I SYSREC , TOTAL NUMBER OF RECORDS WRITTEN 0

```

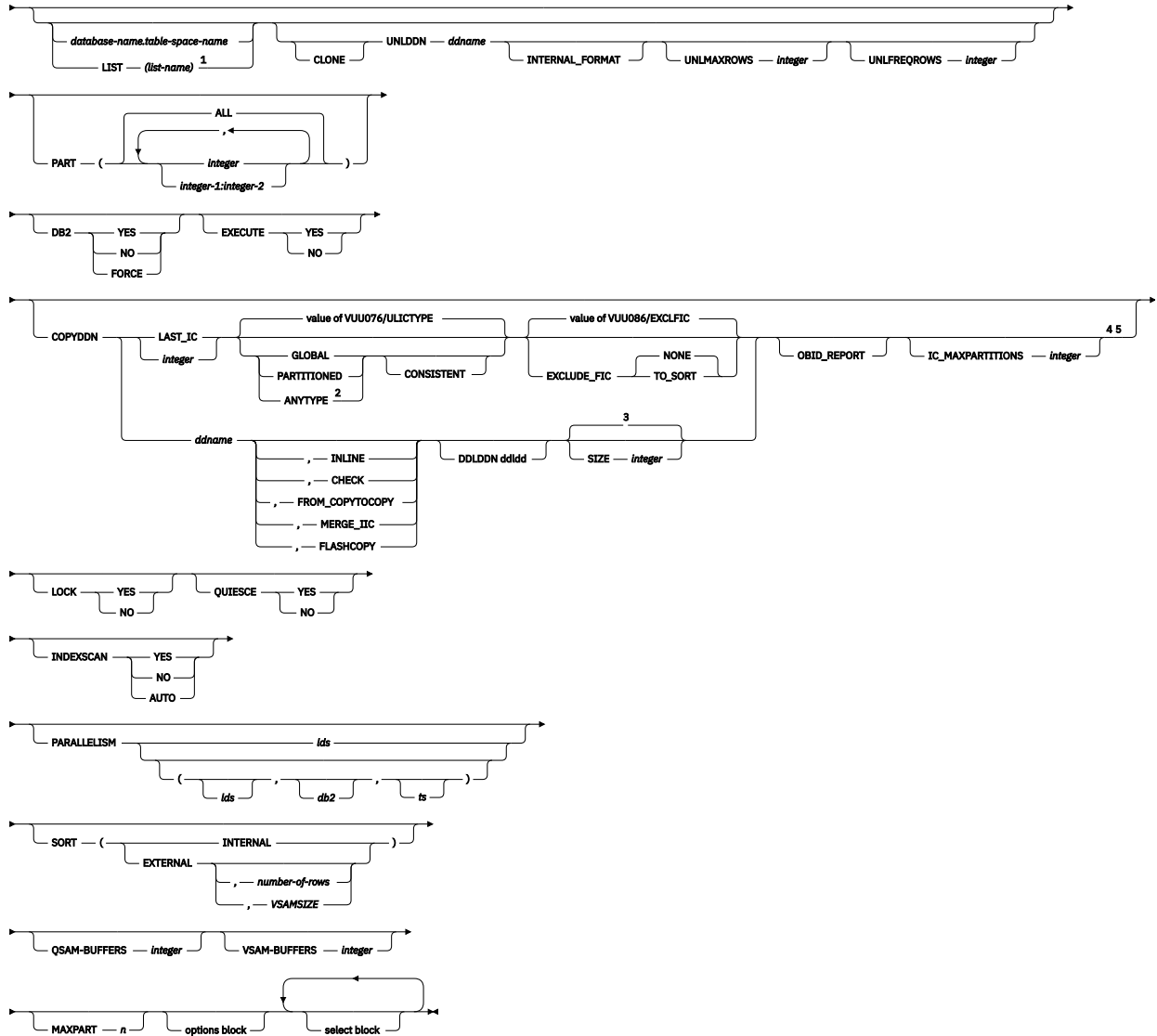
UNLOAD block syntax and description

See this topic for descriptions of the keywords in the GLOBAL OPTIONS block syntax.

The following diagram shows the syntax of the UNLOAD block:

UNLOAD block

→ UNLOAD TABLESPACE →



Notes:

¹ When you specify LIST (*list-name*) in the UNLOAD TABLESPACE command, you can do only a physical unload (using UNLDDN). You cannot specify a SELECT statement in the same UNLOAD TABLESPACE command. Additionally, you cannot do a physical unload with the same UNLOAD TABLESPACE command as a SELECT statement from a LIST (*list-name*) statement.

² You can specify the ANYTYPE keyword only with COPYDDN LAST_IC.

³ default value estimated from the online objects characteristics or the value of VUX003/SIZE

⁴ COPYDDN -n with n > 1 and COPYDDN ddname and ANYTYPE are not supported if LOB or XML data is to be unload.

⁵ As the COPYDDN option requires the native mode, this keyword cannot be specified if either DB2 YES (through the DB2 option or ULSEDB2 parmlib parameter) or DB2 FORCE is requested. This rule applies if COPYDDN_STRICT(YES) is specified for ULOPTNS. If COPYDDN_STRICT(NO) is specified, the COPYDDN option is ignored whenever either DB2 YES or DB2 FORCE is specified.

UNLOAD TABLESPACE

Identifies an UNLOAD statement. This UNLOAD statement is required.

database-bname.table-space-name

Specifies the complete name of the table space.

Restrictions:

- Db2 HPU does not support table spaces that are defined as work file.
- Do not use the following reserved words for the first word of *database-name.table-spacename* unless you delimit the first word with single or double quotation marks:
 - COPYDDN
 - DB2
 - LOCK
 - OPTIONS
 - PART
 - QUIESCE
 - SELECT
 - UNLDDN
 - CLONE
 - LIST
 - WITH

For example, the following command is incorrect:

```
UNLOAD TABLESPACE DB2.SELECT
```

The following forms of the command are correct:

```
UNLOAD TABLESPACE "DB2".SELECT
```

or

```
UNLOAD TABLESPACE 'DB2'.SELECT
```

LIST (*list-name*)

Identifies the name of a list of objects that are defined by a LISTDEF statement. The list can include table spaces, index spaces, databases, and partitions. The list cannot include LOB table spaces and directory objects. When you specify LIST (*list-name*), the referenced LISTDEF identifies the following objects:

- The table spaces from which the data is to be unloaded. You can use the LISTDEF pattern-matching feature.
- For partitioned table spaces, the partitions from which the data is to be unloaded. These partitions are defined by the INCLUDE, EXCLUDE, and PARTLEVEL keywords in the LISTDEF statement.

When you use the LIST keyword with a LISTDEF that represents multiple table spaces, you can define a data set TEMPLATE statement that corresponds to all the table spaces, and then specify the template name in the UNLDDN keyword. In this case, Db2 HPU associates a single table space with one output data set, except when partition parallelism is activated. To activate partition parallelism with a TEMPLATE statement, the data set name that is defined in the TEMPLATE statement must contain the &PART variable.

CLONE

Indicates that Db2 HPU is to do a physical unload of only the cloned tables from the specified table spaces when you unload a single table space by using the *database-name.table-space-name* variable or a list of tables spaces by using a LISTDEF. Base tables in the specified table spaces are not unloaded. If the list contains table spaces that do not have a clone, these table spaces are not unloaded.

You can use the CLONE keyword only when you do a physical unload and specify the UNLDDN keyword.

UNLDDN *ddname*

Specifies that a physical unload of the table space is to be done, and specifies the *ddname* of the output data set.

The format of this data set is the same as the format when a Db2 REORG UNLOAD ONLY is done.

The *ddname* variable is the base *ddname* of the output data set.

To process partitioned table spaces in parallel, specify one *unldddnn* statement for each partition (*unlddd01*, *unlddd02*,... *unldddnn*), where *nnn* is a 1- to 7-digit sequential number that identifies a partition to be unloaded. During the unload process, data from each partition is directed to the corresponding *ddname*. If the corresponding *ddname* is allocated, it is used for the given partition. Otherwise, the base *ddname* is used if it is allocated. The following example uses one *unldddnn* statement:

```
UNLOAD TABLESPACE DB1.TS1 PART(1,2,4,5) UNLDDN(MYDD)
```

If MYDD, MYDD01, and MYDD0004 are allocated, then MYDD contains the rows from partitions 2 and 5, MYDD01 contains the rows from partition 1, and MYDD0004 contains the rows from partition 4.

If you do not specify this keyword, specify OUTDDN on the SELECT statement.

Attention: When the UNLDDN keyword is used on a table space that contains a LOB column, the physical unload is performed only on the base table space, not on the LOB table space.

Important: When you do a physical unload, the UNLDDN keyword is valid only if a table space name or a list name is also specified in the UNLOAD TABLESPACE command. Although doing a physical unload with UNLDDN specified but without specifying the table space name was possible in previous releases of Db2 HPU, this deprecated syntax is no longer supported.

INTERNAL_FORMAT

Specifies that the physical unload will be made in Db2 INTERNAL format. This format is compatible with FORMAT INTERNAL in the Db2 LOAD utility.

Important: If the unloaded table space contains more than one table, the Db2 LOAD utility might not be able to reload the data into a table space with the same structure.

The following example shows how you can request a physical unload of data in the INTERNAL format. In this example, the entire DSN8D81A.DSN8S81E table space is unloaded.

```
UNLOAD TABLESPACE DSN8D81A.DSN8S81E
QUIESCE YES
DB2 NO
UNLDDN (OUTPUT)
INTERNAL_FORMAT
```

UNLMAXROWS *integer*

Specifies the maximum number of rows to unload for a physical unload. If you are unloading a partitioned table space, which is processed on a partition-by-partition basis, the limit applies to each partition.

UNLFREQROWS *integer*

Specifies sampling frequency for a physical unload. One row of every *n* rows is written to the UNLDDN data set.

PART

Specifies the partitions of the table space to be processed. Use the PART keyword only with partitioned table spaces. The PART keyword can be specified in the UNLOAD block and the SELECT block:

- If you do not specify the PART keyword in the UNLOAD block, ALL is the default value.
- If you do not specify the PART keyword in a SELECT block of this UNLOAD block, the PART specification in the UNLOAD block is used.
- If you specify the PART keyword in any SELECT statement, it overrides any values that are specified in the UNLOAD block.

- For each UNLOAD statement, the union of all the subsets of partitions that are selected in all SELECT blocks must be equal to the subset that is specified in the PART keyword unless you use UNLDDN.
- If a statement is processed by Db2, the PART keyword is ignored.

If you are unloading from partition-level full image copy, you must provide a unique name for the DD statement for each partition to be unloaded. For example, if you specify one SELECT statement to unload from partitions 1, 2, and 4 and one SELECT statement to unload from partitions 2 and 3, you must specify a DD statement with a unique name for each of the following image copy partitions: 1, 2, 3, and 4.

integer

Indicates which partitions are to be processed.

ALL

Specifies that the entire table space is to be processed.

integer-1:integer-2

Designates a range of partitions from *integer-1* to *integer-2*. *Integer-1* must be positive and less than the highest partition number in the table space. *Integer-2* must be greater than *integer-1* and less than or equal to the highest partition number.

Important: When you use a list that was generated from a LISTDEF statement, use the PARTLEVEL keyword in the LISTDEF statement to select partitions.

The default value is ALL.

COPYDDN

Indicates that the data from an image copy must be unloaded. When this option is specified, Db2 HPU takes the described image copy as the source of data except if COPYDDN_STRICT(NO) is specified for the ULOPTNS parmlib parameter and DB2 YES or DB2 FORCE is requested. In such a case, Db2 HPU ignores the COPYDDN option and unloads the data from the table. As this behavior is misleading, prefer setting COPYDDN_STRICT(YES) and/or clarifying the intention by specifying DB2 NO.

ddname

Specifies the ddname that points to the image copy.

When you specify a ddname, no control is provided by using the information from the Db2 catalog on the image copy. The ddname must allocate a full or incremental image copy data set or a set of a full image copy data set and one or several incremental image copy data sets (in such a case, the MERGE_IIC suboption must be specified) or a set of full image copy data set of partitions of a table space. See the [Chapter 4, “Input and output,” on page 63](#) section for more details about concatenation of image copy data sets. Db2 HPU can unload from an image copy of a compressed table space if the image copy was created with the SYSEMPAGES option. If the ddname points to an inline copy, such as a REORG share level change, you must specify the INLINE option. If you do not specify INLINE, duplicate or missing lines can occur in the output, or the job can fail during the unload process itself. If the copy is inline or is not known, you must specify the CHECK option.

When you specify a ddname, Db2 HPU prevents allocation of VSAM data sets within the table space, and Db2 HPU must access an image copy except when the SELECT statement is issued by Db2.

When you specify a ddname, Db2 HPU works on archives, avoids possible contention, and improves performance because QSAM is more efficient than VSAM.

Db2 HPU can unload an image copy that contains the data in a table space whose structure does not match the table space that is described in the Db2 catalog or the table space that is described by the DDLDDN data set. These mismatched table space structures concern only the definition of partitioning, not the data itself (the table structure). The following table shows whether the mismatched table space structure is supported:

Table 20. Db2 HPU support for table space structures

Type of table space in the image copy	Nonpartitioned table space in the Db2 catalog or DDLDDN	Partitioned table space in the Db2 catalog or DDLDDN	Range-partitioned table space in the Db2 catalog or DDLDDN	Partition-by-growth table space in the Db2 catalog or DDLDDN
Nonpartitioned table space (simple or segmented)	Supported	Supported	Supported	Supported
Partitioned table space with a different number of partitions	Not supported	Supported	Supported	Supported
Range-partitioned table space with a different number of partitions	Not supported	Supported	Supported	Supported
Partition-by-growth table space	Not supported	Not supported	Not supported	Supported

Notes:

1. If you request a file per partition, informational message INZU394I is issued, and all rows are unloaded in the file that corresponds to partition 1.
2. Support is limited by the following restrictions:
 - Unloading from an image copy when the number of partitions in the image copy exceeds the number of partitions in the Db2 catalog.
 - Unloading into an output file per partition when the number of partitions in the image copy is less than the number of partitions in the Db2 catalog. In this case, you can do only a global unload of all data into a single output file.
 - Unloading LOB and XML can only be done from FlashCopy image copies and only the LAST_IC option is supported.

Unless you use a DDL input file by specifying DDLDDN, the image copy must correspond precisely to the online table space, particularly to the level of the object IDs (OBID) of Db2 objects. If you have issued a DROP command or a CREATE statement, you must specify the ORIGINOBID keyword in the SELECT statement.

To work with a simple table space with multiple data sets, concatenate these data sets under the same ddname.

You can specify a generic value for COPYDDN, as shown in the following example:

```
COPYDDN FIC*
```

Values are concatenated in the order that they are encountered in the JCL.

Attention: The ddname that results from the asterisk (*) is not checked. For example, if you specify COPYDDN ST*, all data sets that are allocated to the STEPLIB ddname are considered, and the job stops.

When requesting to unload data from a set of images copies that were stacked on tape and might be located on common volumes, which Db2 HPU cannot systematically check, make sure to disable the LDS parallelism by specifying a PARALLELISM (1,...) option.

The only case where this is not mandatory is when the list of input image copies is retrieved from the Db2 catalog (i.e. the COPYDDN LAST_IC or COPYDDN -n is specified) and the information about the volume where the image copy is located, in other words when the image copy was not cataloged. In such a case, Db2 HPU disables the PARALLELISM if necessary. If you only work with not cataloged image copies, consider not disabling the parallelism with a PARALLELISM (1,...) option so to take benefit from the parallelism whenever applicable.

INLINE

Allows you to specify that an image copy is of type INLINE, which means that this image copy was taken when Db2 HPU is run. If COPYDDN LAST_IC is specified, you do not need to specify INLINE.

As the INLINE copy processing requires the image copy to be sorted, do not specify INLINE for an image copy which is certainly not an inline image copy to avoid a useless sort operation to be performed.

CHECK

Specifies that Db2 HPU determines the relevant way to process the image copy allocated under the ddname specified by the COPYDDN option by checking if either of the following is true :

- it is an inline image copy
- it was built by the COPYTOCOPY utility.

This option is not valid for generic ddnames and ddnames referring to a concatenation of image copies.

FROM_COPYTOCOPY

Allows you to specify that an image copy was created by the COPYTOCOPY utility so that Db2 HPU processes the data set accordingly.

MERGE_IIC

Specifies that the ddname is allocated to a concatenation of a Full Image Copy dataset and one or several Incremental Image copies datasets. Db2 HPU merges data pages from all these datasets before unloading the rows. The Full Image Copy can be a global image copy or a partitioned image copy.

Requirement: the image copies must contain SYSTEM PAGES. Otherwise the result is unpredictable. See [“Concatenation of image copies ” on page 67](#) section.

FLASHCOPY

Indicates that the allocated image copies are VSAM Flash Copy data sets. For a partitioned table space, one Flash Copy data set must be allocated per partition to unload.

Restriction: The Flash Copy files must either contain the entire tablespace (non-partitioned TS) or the entire partition. The case of table space or partition on several files, or multi-LDS, is not supported.

DDLDDN *ddldd*

Db2 HPU can use an image copy as input for an unload even when the structure of the unloaded objects does not match the table definition in the Db2 catalog. This unload includes tables and table spaces that have been dropped since the creation of the image copy file and eventually re-created with a different structure, and image copies that were generated on another Db2 subsystem.

When you specify DDLDDN *ddldd*, Db2 HPU reads the definition of the Db2 objects that are in the specified file instead of the Db2 catalog. If you specify DDLDDN *ddldd*, the corresponding ddname or TEMPLATE statement must correspond to a file that contains the CREATE statements that correspond to the structure of the data in the unloaded image copy file. You can code DDLDDN only when the input copy is allocated by using a ddname or a TEMPLATE statement. DDLDDN cannot be used with COPYDDN LAST_IC or COPYDDN *integer*.

If the input image copy is an inline copy, you must specify the INLINE option. The CHECK option of the COPYDDN keyword is not compatible with DDLDDN.

The DDLDDN file must contain the following CREATE statements in the following order:

1. CREATE DATABASE
2. CREATE TABLESPACE
3. CREATE TABLE
4. CREATE INDEX for the clustering index for an index partitioned table space

Any ALTER statement or CREATE VIEW statement in the DDLDDN file is ignored.

The DDL that is contained in the DDLDDN can specify an OBID in the CREATE TABLE statement. This OBID is the default for the ORIGINOBID option of the SELECT statement. If the DDL does not contain an OBID, the default value is 0 for the ORIGINOBID keyword on all SELECT statements for the UNLOAD command. For a multi-table table space, you must specify the OBID of each table by using ORIGINOBID either in the CREATE TABLE statements of the DDLDDN file or in the SELECT statements of the SYSIN.

SIZE integer

Specifies the size, expressed as a number of table rows, of the input image copy designated through the "COPYDDN ddname" option. Db2 HPU needs to know the size of the input image copies to determine the relevant sort parameters to use when sorting the input image copy is required. Whenever possible, Db2 HPU estimates the size of the input copy by itself taking the following information into account with the following order of precedence:

1. the value of the COPYPAGESF column of the SYSIBM.SYSCOPY catalog table if the image copy is referenced and the CHECK option was specified
2. the value specified by the SIZE option, if specified
3. the cardinality of the object to unload, if the DDLDDN option is not specified
4. the value specified by the VUX003/SIZE parmlib parameter

Specify a value through the SIZE option when the information #1 above is not available and the size of the input image copy is significantly different from the information #3 and #4 above. This avoids an under or overestimate of the resources for the sort process that could lead to a useless overconsumption of some system resources or a failure of the sort processing and the subsequent failure of the unload.

As sorting the image copy requires to determine the number of pages of the image copies, this number is calculated from the value given by the SIZE option or parameter by the following formula:

$$\text{Number of pages} = ((\text{SIZE} * \text{average length of rows}) / 4096) * (\text{PGDFIN} / 100)$$

where PGDFIN stands for the value set through the PGDFIN option or the VUX023/PGDFIN parmlib parameter. If you only know the number of pages of the image copy, use this formula to compute the value to specify for SIZE.

The value specified by the SIZE option is also systematically used to determine the sort parameters when a logical unload from the image copy specifies an ORDER clause.

Default value: the value of the VUX003/SIZE parameter

OBID_REPORT

Specifies that Db2 HPU generates in SYSPRINT a list of all OBIDs for rows of tables that are found in the input full image copy (FIC) when you unload from an image copy.



Attention: This option might have a negative impact on the overall performance of Db2 HPU when you unload from an image copy.

IC_MAXPARTITIONS

Specifies the maximum number of partitions contained in the image copy to unload. This parameter is useful to unload image copy from a tablespace partitioned by size when the image copy contains more partitions than expected related to the MAXPARTITIONS of the target tablespace. In such case, if IC_MAXPARTITIONS or its default value is not set to a value at least

equal to the number of partitions contained in the image copy, the process terminates in error code with the message:

```
INZU571E PAGE FROM PARTITION partition-number HIGHER THAN MAXPARTITIONS  
maxpartitions HAS BEEN READ
```

The default value is the value of the VUU093/ICMAXP parmlib parameter.

LAST_IC or integer

Indicates that the data to be unloaded must be retrieved from one image copy or a set of image copies determined by Db2 HPU by searching the Db2 catalog for image copies that fulfill the following conditions:

- The image copies are full image copies (FIC)
- The image copies are cataloged dataset, unless SEARCH_UNCATALOGED_IC(YES) option is set in the VUU030/ULOPTNS parameter, in which case uncatalogued image copies are considered as well.
- The image copies are one of the following types:
 - Regular or FlashCopy image copies if no LOB or XML data is to be unloaded
 - FlashCopy if LOB or XML data are to be unloaded. Only LAST_IC is allowed.
- The set of image copies includes all the following necessary objects:
 - The table space that includes the table to be unloaded, if this table space is partitioned, the image copies set must include all the data of the involved partitions (see the GLOBAL/PARTITIONED/ANYTYPE options for more details). The later rule also applies to partitioned-by-size table spaces.
 - If the unload request involves a LOB or XML column, the base table space (see above considerations on partitioned objects that also apply) and both the auxiliary table space and the nodeid index for the involved LOB or XML column.
- All the images copies have the same START_RBA (see SYSIBM.SYSCOPY table) if either of the following conditions applies:
 - The CONSISTENT option is specified.
 - A LOB or XML column is to be unloaded. Only LAST_IC is allowed.

When COPYDDN LAST_IC or COPYDDN -integer options is specified, Db2 HPU searches the Db2 catalog (i.e. the SYSIBM.SYSCOPY table) for images copies that satisfy the criteria mentioned above and the additional conditions given through the LAST_IC or -integer option and the GLOBAL, PARTITIONED and CONSISTENT sub-options. If such an image copy is found, Db2 HPU attempts to dynamically allocate the corresponding data set and unloads the data from this data set.

LAST_IC

Specify LAST_IC to get the data unloaded from the last eligible set of image copies. As all the above conditions must be satisfied by the set of image copies, be aware that the image copy selected for a single object might not be the latest copy made for this object.

-integer

Specify a negative integer (-n) to request Db2 HPU to retrieve the data from the nth last set of eligible image copies. Specifying n greater than 1 is forbidden if LOB or XML columns are to be unloaded.

COPYDDN LAST_IC is a synonym of COPYDDN -1.

Note:

If the last image copy of a partitioned table space consists of one image copy per partition, the LAST_IC option is not supported unless you also specify the PARTITIONED keyword or the ANYTYPE keyword.

You can specify the following keywords for COPYDDN LAST_IC or COPYDDN *integer*:

GLOBAL

This keyword is the default value when COPYDDN LAST_IC or COPYDDN *integer* is specified. If a nonpartitioned table space is processed, this value is ignored. However, for a partitioned table space, LAST_IC processing looks for a global FIC of the complete table space.

PARTITIONED

If the unloaded table space is not partitioned, the PARTITIONED keyword is ignored. However, for a partitioned table space, LAST_IC processing looks only for FICs that were created for each partition. When you specify COPYDDN *n*, only full image copies per partition are counted.

When you specify the PARTITIONED keyword, the most recent FIC for all unloaded partitions is selected. If some of the unloaded partitions do not have an FIC, Db2 HPU issues an error message.

ANYTYPE

Allows COPYDDN LAST_IC processing to look for the most recent global FIC or FIC per partition. The ANYTYPE keyword can be specified only with COPYDDN LAST_IC.

If the ANYTYPE keyword is coded without partitions, Db2 HPU looks for the latest FIC for each partition and for the latest global FIC. If all FICs for each partition are more recent than the global FIC, the more recent FICs are used. Otherwise, the global FIC is used.

ANYTYPE cannot be used if a LOB or an XML column is to be unloaded.

CONSISTENT

Checks whether the selected FIC has the same START_RBA for all unloaded partitions. This option ensures consistency in the unloaded data. You can specify the CONSISTENT keyword with only the PARTITIONED keyword or the ANYTYPE keyword.

The following conditions affect the CONSISTENT keyword:

- If the selected FIC is a global FIC that was created for all the partitions in the table space, the CONSISTENT keyword is always verified.
- If the selected FIC is a copy per partition, the CONSISTENT keyword checks whether the START_RBA is identical to the selected input FIC of all unloaded partitions:
 - If the START_RBA is identical, the unload is processed.
 - If the START_RBA is different, depending on the PART keyword or the ANYTYPE keyword, Db2 HPU looks for the preceding FIC.

If you did not specify the CONSISTENT keyword, the START_RBA is not checked. You can check whether the available copies meet the specifications of the COPYDDN option by completing the following steps:

1. From the Db2 catalog, extract a list of the image copies for *database-name.table-space-name* and partition numbers that match the list that is specified by the PART keyword. If you specified the ANYTYPE keyword, you must add 0 to the list. Order this list by descending START_RBA.
2. Split the list into groups that have the same START_RBA value.
3. Depending on the option that you specified in the COPYDDN keyword, select the relevant group. If the LAST_IC keyword is specified, select the last group. If you specified an *integer*, select an *n*th older group.
4. Check whether the list of image copies covers the list of partitions to be unloaded (0 match the whole set of partitions).

EXCLUDE_FIC

The EXCLUDE_FIC option allows to specify an exclusion criterion to apply when the eligible full image copies (FIC) are searched as requested by the COPYDDN LAST_IC or COPYDDN -integer options.

- NONE : no kind of FIC is excluded.

- TO_SORT : the images copies which processing by Db2 HPU requires a sort process are not eligible. This kind of image copies is created by the LOAD or REORG utilities (inline image copies) or by the COPYTOCOPY utility.

The eligible image copy(ies) is(are) selected according to the selection criteria expressed by LAST_IC or -integer and the GLOBAL, PARTITIONED, ANYTPE or CONSISTENT suboptions if any.

Db2 HPU determines a chronological ordered list of candidate FICs for unloading.

COPYDDN LAST_IC permits to select the most recent FIC from this list. COPYDDN integer (-n) permits to browse this list back n times and select the corresponding FIC (-1 stands for the most recent FIC).

EXCLUDE_FIC TO_SORT allows Db2 HPU to exclude from it's candidate list of FICs, the ones that require to be sorted. EXCLUDE_FIC NONE do not exclude any FIC. The default value is the value of the VUU086/EXCLFIC parmlib parameter.

Examples

The following examples are based on the assumption that the Db2 catalog references 5 Full Image Copies of the table space DBINFDM/TSSCA. These images copies are designated FIC1, FIC2, FIC3, FIC4 and FIC5, from the less to the most recent point in time (i.e. the STARTBA column of the SYSIBM/SYSCOPY table). Only FIC2; FIC3 and FIC5 require to be sorted.

```
FIC1 - no SORT required - the less recent FIC
FIC2 - SORT required
FIC3 - SORT required
FIC4 - no SORT required
FIC5 - SORT required - the most recent FIC
```

Example 1: Unloading data from last FIC with no FIC exclusion

The following unload requests the data from the latest FIC be unloaded without excluding any kind of FIC.

```
UNLOAD TABLESPACE DBINFDM.TSSCA
COPYDDN LAST_IC EXCLUDE_FIC NONE
SELECT *
FROM USER1.TBSCA
```

The image copy FIC5 is chosen and unloaded.

Example 2: Unloading data from last FIC not requiring to be sorted

The following unload requests the data from the latest FIC which process does not require a sort phase be unloaded.

```
UNLOAD TABLESPACE DBINFDM.TSSCA
COPYDDN LAST_IC EXCLUDE_FIC TO SORT
SELECT *
FROM USER1.TBSCA
```

The image copy FIC4 is chosen and unloaded.

Example 3: Unloading data from the before last FIC not requiring to be sorted

The following unload requests the data from the before last FIC which process does not require a sort phase be unloaded

```
UNLOAD TABLESPACE DBINFDM.TSSCA
COPYDDN -2 EXCLUDE_FIC TO SORT
SELECT *
FROM USER1.TBSCA
```

The image copy FIC1 is chosen and unloaded.

Restriction: When an image copy is used, the LOCK and QUIESCE keywords are not supported.

DB2

Specifies the processing to be performed for SELECT statements that are not supported by Db2 HPU.

YES

Indicates that if the SELECT statement is too complex to be handled directly by Db2 HPU, Db2 is called to extract the rows. A warning message is issued to report this occurrence. The overall return code is raised to 4.

NO

Indicates that the SELECT statements must be processed by Db2 HPU. If a SELECT statement is not supported by Db2 HPU, an error occurs and processing stops. The control is done when the SYSIN is read and before an unload is processed.

FORCE

Indicates that Db2 must be used to extract the requested rows. Specifying DB2 FORCE is useful when the SELECT statement uses a filtering predicate that is efficiently processed through SQL, and the filtering factor is high. An informational message is issued in the report.

Restriction: When you use COPYDDN to unload data from an image copy, DB2 YES or DB2 FORCE is accepted if you specify COPYDDN_STRICT(NO) in the VUU030/ULOPTNS PARMLIB parameter. If you specify COPYDDN_STRICT(YES), unloading an image copy forces the default value of the DB2 option to NO, and specification of DB2 YES or DB2 FORCE in SYSIN is not supported.

When a logical unload is processed, Db2 HPU can retrieve the data to be unloaded by native mode or SQL mode. In native mode, Db2 HPU retrieves the data by a direct reading of VSAM linear data sets (LDS) of the table space. In SQL mode, Db2 HPU retrieves the data by passing the SELECT statement to Db2. For some complex SQL statements, which are called unsupported SELECTs, native mode is unavailable. To determine which access method to use for other statements, consider performance, output, and data consistency.

Performance**Native mode**

Use native mode when you need to unload a large amount of table data or a partition of a table space.

SQL mode

Use SQL mode for SELECT statements for which Db2 access paths are efficient. For example, use SQL mode when you have a highly filtered WHERE clause with a predicate that is indexed, and access is index only.

Output

The output does not depend on the access mode. However, for the following cases, Db2 HPU does not create the same output in both modes. Consider these differences when you choose an access mode.

Table 21. Cases of different output in access modes

Output	Condition	Native mode	SQL mode
LOAD statement	The resulting table contains IDENTIFY columns.	The LOAD statement uses the IGNOREFIELDS option so that identity columns are correctly handled.	The LOAD statement describes the identity columns as standard, nonidentity columns.
Data format	FORMAT DSNTIAUL is specified where DSNTIAUL STRICT is not specified in the VUU030/ULOPTNS parameter.	String constants are unloaded as CHAR data.	String constants are unloaded as VARCHAR data.
	FORMAT USER is specified.	String constants are unloaded as CHAR data.	String constants are unloaded as VARCHAR data.

Table 21. Cases of different output in access modes (continued)

Output	Condition	Native mode	SQL mode
Output data	PART option is specified.	Data is unloaded normally.	The PART option is not supported. Use SQLPART instead.
	<ul style="list-style-type: none"> COPYDDN and DB2 YES are specified with an unsupported SELECT statement. COPYDDN and DB2 FORCE are specified, but COPYDDN_STRICT was not specified in the VUU030/ULOPTNS parameter. 	The unloaded data comes from the image copy.	The unloaded data comes from the table space.

Data consistency

Depending on the QUIESCE and LOCK keywords, which affect data consistency, the values of the unloaded data might not be the same in both access modes because data is not selected from the same sources, such as the table space LDS or data that is provided by Db2.

The access mode that Db2 HPU uses depends on whether the SQL is supported and on the DB2 option that you specify.

DB2 YES

Specify DB2 YES to ensure that Db2 HPU determines which access mode to use. Db2 HPU uses native mode when SQL statements are supported.

Consider performance when you specify DB2 YES because native mode is not always the fastest method.

When you apply maintenance and DB2 YES is specified, data might be processed in native mode instead of SQL mode because Db2 HPU might support SQL statements that were previously unsupported. Therefore, changes in the output might occur.

DB2 NO

Specify DB2 NO to ensure that Db2 HPU uses native mode.

DB2 FORCE

Specify DB2 FORCE to ensure that Db2 HPU uses SQL mode.

To select the best DB2 option in your environment, unload the data with DB2 NO specified, then unload the data with DB2 FORCE specified, and select the option that runs fastest. However, remember that when you specify DB2 FORCE, performance depends on the access paths that are chosen by Db2, the table, and the index statistics. Ensure that the output, such as the data format and the LOAD statement, from the selected mode meets your requirements. Consider specifying EXECUTE NO to check whether the SELECT statement is supported and the content of the related LOAD statement that was generated.

The default value is the value of the VUU011/ULSEDB2 PARMLIB parameter.

EXECUTE

Specifies whether the LOADDN file is generated without unloading the data.

YES

Db2 HPU processes all LISTDEF, LISTDEFTBV, TEMPLATE, and UNLOAD commands that are specified in SYSIN, allocates the output files that correspond to the TEMPLATE definition, and unloads the data that is specified in the UNLOAD and SELECT statements. If you specify LOADDN, Db2 HPU generates the LOAD SYSIN.

NO

Db2 HPU does not allocate the output files that correspond to the TEMPLATE definition except for the LOADDN files, and Db2 HPU does not unload the data that is specified in the UNLOAD and SELECT statements. However, Db2 HPU does process all LISTDEF, LISTDEFTBV, TEMPLATE,

and UNLOAD commands that are specified in SYSIN. If requested, Db2 HPU writes the LOAD commands in the LOADDDN.

Required FIC information that is used as input is displayed, and execution reports are generated, but DISPLAY and QUIESCE commands on the unloaded table spaces are not issued. If you specified LOCK YES in SYSIN, locks are not issued.

Important: When you use JCL-allocated output files instead of templates, the output files must be allocated because processing depends on the DD statements that are allocated in the JCL.

The default value is YES.

LOCK

Indicates whether Db2 HPU must lock the table during the unload.

YES

The data is accessed in read-only mode while Db2 HPU runs. The "Eligible processing mode(s) for locking data feature (VUU088/ULLOCKMO)" parmlib parameter allows to choose whether this feature applies to the SQL and/or the native processing modes. For a given Db2 HPU invocation, Db2 HPU chooses one of the following technique :

- a SQL LOCK statement is issued against the tables involved in the considered SELECT statement. When Db2 HPU can determine the access to only a subset of partitions of the object is necessary, the LOCK is restricted accordingly. This is the only technique applicable when a SELECT statement is processed in SQL mode.
- Db2 HPU starts the table space containing the data to be unload in UTRO restricted state. This is not applicable to the SELECT statements process in native mode.

The rules to choose the LOCK technique are shown in the table below:

VUU088/ ULLOCKMO	LOCK requested for a SELECT in native mode?	LOCK feature requested for a SELECT in SQL mode?	VUU074/ ULLOCKTE	chosen technique (comment)
any	no	no	any	none (no LOCK is requested)
NATIVE_ONLY	no	yes	any	none (the LOCK request is ignored in SQL mode)
NATIVE_ONLY	yes	no	LOCK	SQL LOCK
NATIVE_ONLY	yes	no	START_UTRO	START UTRO
NATIVE_ONLY	yes	yes	LOCK	SQL LOCK (it applies only to the native processing mode - the LOCK request is ignored in SQL mode)
NATIVE_ONLY	yes	yes	START_UTRO	START UTRO (it applies only to the native processing mode - the LOCI request is ignored in SQL mode)

Table 22. (continued)

VUU088/ ULLOCKMO	LOCK requested for a SELECT in native mode?	LOCK feature requested for a SELECT in SQL mode?	VUU074/ ULLOCKTE	chosen technique (comment)
ALL	no	yes	any	SQL LOCK
ALL	yes	no	LOCK	SQL LOCK
ALL	yes	no	START_UTRO	START UTRO
ALL	yes	yes	LOCK	SQL LOCK
ALL	yes	yes	START_UTRO	SQL LOCK (the SQL LOCK technique is required for the SELECT statement processed in SQL mode)

NO

Db2 HPU processes the table without changing its access mode. Specifying LOCK NO does not preclude Db2 from taking locks, if SQL Access is used to access the data.

QUIESCE

Specifies whether to issue a QUIESCE command against the table space before unloading it. If the unload is against an image copy and DB2 FORCE is specified, or if DB2 YES is specified and no SELECT statement is processed natively, the QUIESCE keyword is ignored.

YES

The QUIESCE command is processed if the table space is not in COPY-pending status; otherwise, the table space is stopped and restarted.

NO

The table space is processed without the QUIESCE command.

Attention: Db2 HPU operates on the physical VSAM data set level that is outside of Db2. If you run Db2 HPU on a table in which a new row was recently inserted, the unloaded data might not contain the new row. The unloaded data might not show the row because Db2 might not have externalized the data to DASD yet. This situation can occur when you use Db2 HPU without issuing a QUIESCE (or STOP) on the object. Be careful when you specify QUIESCE NO.

INDEXSCAN

Specifies to unload the rows of a table space according to the order of its index cluster. When you specify the INDEXSCAN keyword, it is a substitute for the SORT utilities (DFSORT).

When you specify INDEXSCAN, all SELECT statements that are relative to the same table space are sorted according to the index cluster. If the pages of the index cluster are too unorganized, the INDEXSCAN keyword is deactivated, and DFSORT is run. See the JESMSGGLG card of the job execution output reports for more information about the using the INDEXSCAN keyword.

The following conditions are required to use the INDEXSCAN keyword:

- The table space to be unloaded must have a valid index cluster.
- Only a table space can be unloaded.
- The table space to be unloaded must be single-table (partitioned or nonpartitioned).
- At least one SELECT statement of the unload must be native and must contain either an ORDER BY clause or an ORDER CLUSTER clause.

Restrictions: The INDEXSCAN keyword feature is disabled whenever in the following situations:

- Partition parallelism is activated, the table space is partitioned, and there is only one output file.
- The cluster index is nonpartitioned, and the table space is partitioned.
- The cluster index must not involve a DECFLOAT type column.

In such cases, the INDEXSCAN option may be specified but is ignored.

NO

The INDEXSCAN keyword is not activated.

AUTO

The following conditions are required to use the AUTO option:

- At least one native SELECT statement without a WHERE clause must be specified. However, depending on the order of the index cluster columns (complete or partial), it must have either an ORDER CLUSTER clause or an ORDER BY clause.
- There must be no SELECT statement with an ORDER BY clause that is not in the order of the index cluster columns (complete or partial).

YES

The conditions for YES are the same as the conditions for AUTO except YES supports the WHERE clause.

The default value is AUTO.

PARALLELISM *lds* or (*lds,db2,ts*)

Specifies the parallelism degree for an unload. You can define parallelism for the following objects:

- Table spaces
- SELECT statements that are processed by Db2
- Partitions for a partitioned table space

lds

Specifies the parallelism degree to use when a partitioned table space is unloaded, where *lds* indicates the maximum number of partitions that are processed in parallel.

When unloading a partitioned table space in a single output file, you can force partition parallelism by using the *lds* subparameter of the PARALLELISM keyword in the UNLOAD TABLESPACE command or by specifying YES for the VUU036/GBLPARAL PARMLIB parameter.

When a single output file is used as output and if GBLPARAL is set to NO and PARALLELISM *lds* or PARALLELISM(*lds,db2,ts*) is not specified in the UNLOAD command, Db2 HPU does not use partition parallelism. Valid values are greater than or equal to 1.

The default value is the value that is specified in the VUX025/PARALLEL PARMLIB parameter.

db2

Specifies the parallelism degree to use for SELECT statements that are processed by Db2 (using DB2 FORCE or DB2 YES with unsupported SELECT statements). This parallelism is defined in a single UNLOAD command. Parallelism is not possible for SELECT statements that are coded in separate UNLOAD commands. Valid values are greater than or equal to 1.

The default is the value that is specified in the VUX031/DB2PARAL PARMLIB parameter.

ts

Specifies the maximum parallelism degree value to use when data is unloaded from several table spaces in the same UNLOAD command. This value applies when more than one supported SELECT statement that corresponds to different table spaces are coded in the same UNLOAD command. In this case, Db2 HPU uses the parallelism degree that is specified by the *ts* value to unload table spaces in parallel.

Attention: When at least one SELECT statement that is coded in the same UNLOAD command is processed by using Db2, the *ts* value is decreased by 1. For example, if you specify

PARALLELISM(10,10,5), and if at least one unsupported SELECT statement is coded in the UNLOAD command, only four table spaces can be processed in parallel.

The default is the value that is specified in the VUX030/UTLPARAL PARMLIB parameter.

The variables *lds*, *db2*, and *ts* values are positional, and the commas are required even if you do not want to set the value for one subparameter. For example, to specify a parallelism degree of 10 for Db2-processed SELECT statements without changing other values, specify PARALLELISM(,10,).

For SELECT statements that are processed natively by Db2 HPU, the parallelism degrees that can be set by using the PARALLELISM keyword or by the corresponding PARMLIB parameters are limited by the value of the VUX005/MAXSORT PARMLIB parameter when the ORDER CLUSTER clause or the ORDER BY clause is used.

SORT

Specifies how to process the ORDER BY clause for a SELECT statement that is processed by Db2.

INTERNAL

Specifies that the ORDER BY clause is processed by Db2.

EXTERNAL

Specifies that the SELECT statement is processed by Db2 without the ORDER BY clause. Db2 HPU sorts the rows that are returned by Db2 to process the ORDER BY clause. Db2 HPU determines the estimated number of rows depending on which of the following options is specified:

number-of-lines

Specifies the estimated number of rows to be sorted.

VSAMSIZE

Specifies that Db2 HPU calculates the estimated number of rows to be sorted based on the size of the VSAM data sets.

If you specify EXTERNAL without specifying *number-of-lines* or *VSAMSIZE*, the value of the VUX003/SIZE PARMLIB parameter is equal to the number of sorted rows.

Restriction: The EXTERNAL keyword is supported only when the columns of the ORDER BY clause are part of the list of selected items. The *VSAMSIZE* option is accepted only for supported SELECT statements that are processed with DB2 FORCE.

The default value is INTERNAL.

QSAM-BUFFERS bufno_seq or (bufno_seq , bufno_sortin)

bufno_seq

Specifies the BUFNO parameter of the DCB for sequential QSAM access. The default value is the value that is specified in the VUM022/QSBUFNO parmlib parameter.

bufno_sortin

Specifies the BUFNO parameter of the DCB for sequential QSAM access exclusively for the temporary dataset SORTIN used during SORT process. This option allows to solve unexpected situations where using bufno_seq or VUM022/QSBUFNO value to access to the SORTIN dataset causes troubles. An example is fully described in the explanation of VUM038/QSSBUFNO parmlib parameter. The default value is the value of the VUM038/QSSBUFNO parmlib parameter.

The variables bufno_seq and bufno_sortin are positional,. The comma and parentheses are required to set bufno_sortin alone. Parentheses are not mandatory to set bufno_seq alone. At least one of those 2 variables must be set. If parentheses are specified, at least one of "bufno_seq" and ", bufno_sortin" must be specified. QSAM-BUFFERS () is not supported.

VSAM-BUFFERS

It specifies the number of data buffers for sequential VSAM (the BUFND parameter of the ACB for VSAM).

Note: Specifying a large value might increase the amount of memory that Db2 HPU requires.

Valid values are 0 - 65535.

The default value is the value that is specified in the VUM023/VSBUFND PARMLIB parameter.

MAXPART *n*

Specifies the maximum number of partitions that Db2 HPU can process in a single unload process. If the total number of partitions that need to be processed for a table space is larger than the value that is you specify in MAXPART *n*, Db2 HPU automatically splits the single unload into several unloads to respect the value of the MAXPART keyword. You can use this parameter to reduce the memory consumption of Db2 HPU. If the value of *n* is smaller than the value of the PARALLELISM keyword at the partition level, the effective partition parallelism is limited by the MAXPART keyword.

The MAXPART keyword affects only physical unloads and logical unloads that are processed natively by Db2 HPU.

The default value is the value of the VUU060/ULMAXPAR PARMLIB parameter. When you specify 0, no splitting is done. When you specify a nonzero value, ORDER BY and ORDER CLUSTER clauses can be used only when each partition is unloaded into a separate file. When you specify a nonzero value and a split is done, the OUTMAXROWS keyword or the UNLMAXROWS keyword applies to each partition.

Impact of the MAXPART parameter on the global parallelism

Setting the MAXPART keyword impacts the global parallelism that is used when you unload partitioned table spaces. When MAXPART applies, the parallelism between table spaces (the *ts* subparameter of the PARALLELISM keyword or the VUX030/UTLPARAL parmlib parameter) applies to the subsets of partitions that are internally processed as separate table spaces.

If the value specified by MAXPART is lower than the applicable partition parallelism, the maximum partition parallelism is the value specified by MAXPART (set through the *lds* subparameter of the PARALLELISM option or the VUX025/PARALLEL parmlib parameter).

The following example shows how different values for the MAXPART keyword can affect a particular table space when the PARALLELISM keyword is specified:

Example: A table space with 1000 partitions and PARALLELISM(20, 5, 5)

- When you do not specify the MAXPART keyword or when you specify MAXPART 0, the complete table space with 1000 partitions is processed in a single set of partitions, and 20 partitions are unloaded in parallel. Db2 HPU allocates memory to correspond to the 1000 partitions.
- When you specify MAXPART 40, the 1000 partitions are split into 25 sets of 40 partitions. Five sets of 40 partitions are processed concurrently because parallelism between table spaces is set to 5. In each set of partitions, a parallelism degree of 20 is used between partitions.

Memory usage corresponds to 200 (5 x 40) partitions, and the maximum global parallelism degree between partitions is 100 (5 x 20) partitions. If you specify MAXPART 40 and PARALLELISM(20, 5, 1), the memory usage corresponds to 40 partitions, and the global parallelism between partitions is 20.

Impact of the MAXPART keyword and the table space parallelism

Each set of partitions is processed as a separate table space so Db2 HPU starts to process a new set of partitions only when a previous set is completely processed. This type of processing can reduce the global partition parallelism under certain circumstances (for example, when sets that contain empty partitions are processed). To keep the global partition parallelism degree at its highest level, try specifying MAXPART 1, and change the parallelism between table spaces.

The following examples show how different settings for the MAXPART and PARALLELISM keywords can affect table space parallelism. These examples show that you can easily manage partition parallelism when you prioritize parallelism between table spaces rather than the MAXPART keyword.

Example: MAXPART 50, PARALLELISM(50, 5, 1)

These settings create sets of 50 partitions. One set of partitions is processed at a time. Db2 HPU starts to unload 50 partitions in parallel, but after one partition is unloaded, Db2 HPU does not start to unload a new partition because it must finish unloading the complete partition set before it starts to unload a new partition set.

Example: MAXPART 25, PARALLELISM(25, 5, 2)

These settings create of 25 partitions. Two sets of partitions are processed in parallel. Db2 HPU starts to unload 50 (2 x 25) partitions in parallel. When one partition is unloaded, Db2 HPU waits for the set of 25 partitions to unload before it starts to unload a new partition because it needs to finish unloading the complete partition set before it starts to unload a new partition set.

Example: MAXPART 1, PARALLELISM(1, 5, 50)

These settings create sets that contain only one partition. Db2 HPU processes 50 sets of partitions in parallel. When one partition is unloaded, Db2 HPU starts to unload a new set.

TAPEUNIT

Specifies the way allocations of data sets with a given tape unit or tape storage class are done. You can control the maximum number of devices associated with a tape unit or storage class that can be allocated to a single Db2 HPU step. You can also specify the default number of devices to use for a single data set allocation with a given tape unit or storage class.

A TEMPLATE statement allocates files on tape when the tape unit or tape storage class is defined by the TAPEUNIT parameter or when the template statement contains the tape option STACK or TRTCH. The VOLUMES parameter in the TEMPLATE statement is ignored, and scratch volumes are used.

When you unload to tape units, each physical unload or logical unload is serialized, and Db2 HPU reads the input files (table space or image copy files) once for each type of unload.

When OUTDDN or UNLDDN keywords specify several ddnames that allocate files on tape, each tape output file is generated by unloading the input data separately.

Using partition parallelism to unload a partitioned table space depends on the number of output files (one per partition or a single global unload file) and the number of available tape devices. When you request a global unload, a single tape device is used. Depending on the third value of the PARALLELISM keyword, parallelism can be used to read partitions. Each partition can be unloaded on a separate tape device. The parallelism degree is defined by the first value of the PARALLELISM keyword. The maximum parallelism degree is limited by the number of usable tape devices that are defined by the TAPEUNIT keyword. When you unload a partitioned table space into tape files, use either one global output file for all partitions, or use a separate file for each partition. You cannot unload some partitions in a global file and other partitions of the same table space into a file per partition.

When you use a TEMPLATE statement to allocate tape output files, the VOLUMES and UNCNT keywords in the TEMPLATE statement are ignored. In this case, scratch volumes are always used.

When you unload LOB or XML data, stacking output files on tape is not supported for CLOBF, DBCLOBF, or BLOBF.

tape-unit-name

Specifies the name of the tape unit.

tape-storage-class-name

Specifies the name of the tape storage class.

maximum_devices_number

Specifies the maximum number of devices associated with a tape unit or storage class that can be allocated to a single Db2 HPU step. Db2 HPU ensures that the maximum number of tape devices is not exceeded by automatically reducing the parallelism degree, if necessary.

Valid values are 1 - 4096.

The default value is 1 for tape units or storage classes that are specified in the TAPEUNIT keyword.

default_devices_number

Specifies the number of devices used for an allocation of an output dataset with a given tape unit or storage class, if no explicit unit-count or UNCNT is specified. *default_devices_number* can not be greater than *maximum_devices_number*. This subparameter is ignored for an allocation made according to a TEMPLATE statement that specifies a UNCNT option.

Valid values are 0-59.

The default value is 1.

The following examples show how you can use TAPEUNIT.

Example: Using five tape devices to unload a set of table spaces that are based on the LISTDEF that is specified in SYSIN

One output file is created for each table that is found in the unloaded table spaces, and the files are stacked on the five tapes that are allocated with the unit name TAPE.

The parallelism degree at the table space level is set to five and is equal to the number of tape drives that are used for output files.

As the output files are stacked sequentially on tapes, if a table space contains several tables, the table space is read once for each table. Partitioned table spaces are read sequentially without partition parallelism (PARALLELISM(1,x,x)), and one single output file is created for each partitioned table space.

```
LISTDEF LSTTB INCLUDE TABLESPACES TABLE MZLFD.*
TEMPLATE FOUT DSN MZLFD.&LIST..&DB..&TS..S&SEL.
UNIT TAPE
STACK YES

GLOBAL
TAPEUNIT ( TAPE(5) )
OPTIONS TEMPLATESET(SEL =: SELNUM)
;

UNLOAD TABLESPACE
QUIESCE NO
DB2 NO

PARALLELISM(1,1,5)

SELECT * FROM LIST(LSTTB)
OUTDDN(FOUT)
FORMAT DSNTIAUL
;
```

Example: Using 10 tape drives to unload 500 partitions of a partitioned table space

One output file is created for each partition, and the files are stacked on the 10 tapes that are allocated with unit name TAPE.

The MAXPART parameter is automatically forced to 1. The parallelism degree that is used to read the partitions is set by using the third subparameter of the PARALLELISM option (10). However, if a larger value were used for parallelism in this example, the parallelism degree that is used to read the partitions would be limited by the number of available tape devices.

```
TEMPLATE FOUT DSN MZLFD.EX3.&DB..&TS..P&PART.
UNIT TAPE
STACK YES

GLOBAL
TAPEUNIT ( TAPE(10) )
;

UNLOAD TABLESPACE
QUIESCE NO
DB2 NO

PARALLELISM(1,1,10)

SELECT * FROM MZLFD.TBPART16;
OUTDDN(FOUT)
FORMAT DSNTIAUL
```

The TAPEUNIT keyword does not have default values.

TAPEREPORT

Specifies whether to generate a report about the tape usage. For each volume that was used, the report displays the data set names (DSN) and their positions on the tape (FILESEQ).

YES

The tape usage report is generated.

NO

The tape usage report is not generated.

If you do not specify TAPEREPORT, the tape usage report is generated according to the setting of the VZM011/TAPERPT PARMLIB parameter.

The default value is YES.

SQLID sqlid

Specifies the sqlid used to change the CURRENT SQLID for SELECT processed in SQL mode. This option is only available if all SELECT statements are processed in SQL mode. If the mode is not specified, it is automatically forced to SQL mode (DB2 FORCE).

APPLCOMPAT

APPLCOMPAT is a character string used to set the CURRENT APPLICATION COMPATIBLY special register. The control of the validity of the value is deferred to Db2. Db2 HPU fails if the SET CURRENT APPLICATION COMPATIBILITY fails due to the specified value. If not specified, the value of the application compatibility set via Db2 applies.

PROGRESS_MSG_FREQ

Specifies the frequency of the informational message that displays the current number of unloaded rows for each output file.

Integer

A non-null integer value means that this message is issued for each n rows. A null integer means that only one message is issued at the end of processing which indicates the total number of rows for each output file.

The default value is the value of the configuration parameter VUU050/ULFRQMSG

An additional parameter specifies interval time since the previous message was issued or since the first record was unloaded. Specify one of the following value:

DELTA

Messages INZX089 and INZX090 are issued to indicate the elapsed time since the previously issued message.

TOTAL

Messages INZX089 and INZX090 are issued to indicate the total elapsed time since the beginning of the unload process.

TOTAL is the default when a non-null value is specified and neither DELTA nor TOTAL is specified. TOTAL and DELTA are mutually exclusive.

The default value is TOTAL.

DATE_DELIM

This option specifies whether the DELIM literal option of FORMAT DELIMITED also applies to DATE, TIME and TIMESTAMP data types.

Valid values are YES or NO.

The default value is the value specified by the VUU031/DTDELIM parmlib parameter.

NULL_DATE_DELIM

This option specifies whether the NULL DELIM option of FORMAT DELIMITED also applies to DATE, TIME and TIMESTAMP data types. It is only applicable when YES is specified for the VUU031/DTDELIM parmlib parameter or for the DATE_DELIM option in the unload command.

Valid values are YES or NO.

The default value is the value specified by the VUU043/DTNULDLM parmlib parameter.

ONE_GDS_TEMPLATE

This option applies when a TEMPLATE statement requests a new Generation Data Set (GDS) must be created by specifying a name-expression such as `gdg_name (+1)` where `gdg_name` is the expression defining the GDG name. It specifies whether only one GDS is created per distinct GDG name defined by the TEMPLATE statement regardless of the number of times the concerned GDG is involved by the use of the TEMPLATE name in the unload statement.

YES

A single GDS is created per distinct GDG defined by the TEMPLATE statement and used for each invocation of the TEMPLATE by the UNLOAD command involving the same GDG.

NO

A new GDS is created each time the TEMPLATE is used in the UNLOAD command.

CHECK_INTEGRITY

Specifies the level of data integrity control to be performed when reading the input data from the LDS of a Db2 object from an Image Copy. It only applies to the native mode:

BASIC

Basic controls of broken page indicator and PGCOMB and some other controls are performed.

LEVEL1

The same controls as for BASIC are performed and the additional controls described below are performed against LDS or Image Copies if the LEVEL1 suboptions or the default (LDS) requires it.

LDS

the following additional control is performed against the LDS, if applicable : check if the read page is the expected one. If the control detects an anomaly, the job terminates with ABENDU1021 and the following registers contains :

- R15=12
- R2 contains the expected page number
- R3 contains the number of the page that has been read

IC

the following additional control is performed against the input image copies, if applicable : check validity of each record prefix. If the control detects an anomaly the job terminates with ABENDU1021 and the following registers contains :

- R15=14
- R2 contains the page number which contains the invalid record
- R3 contains the idmap of the invalid record

Important: Before enabling a higher level of checking, consider the related impact on performance.

Caution: higher levels (non-basic) of checking imply a performance decrease.

The default value is the value of VUX038/CHECKINT parmlib variable.

options block

See [“OPTIONS block syntax and description” on page 157.](#)

select block

See [“SELECT block syntax and description” on page 201.](#)

Related concepts

[Db2 HPU-allocated ddnames: Parallel processing](#)

[Db2 HPU dynamically allocates some of the ddnames that are required to run unload jobs.](#)

Related reference

[User-allocated ddnames](#)

To run unload jobs, you must allocate certain ddnames in the Db2 HPU JCL.

[GLOBAL OPTIONS block syntax and description](#)

A Db2 HPU command may contain several UNLOAD blocks. Use the GLOBAL OPTIONS block to specify default values that apply to all UNLOAD blocks that you specify in your SYSIN. If you specify a keyword or value in both the GLOBAL OPTIONS block and the UNLOAD block, the value in the UNLOAD block is used.

Example: Unloading a table

In this example, you unload data from a table by using Db2 HPU.

The JCL in this example unloads data from the USER1.TBSCA table in the DBINFDM.TSSCA table space. Before the unload process begins, the table space is quiesced. All rows of the USER1.TBSCA table are unloaded in DSNTIAUL format into the USER1.UNLOAD01 file. A LOAD statement is generated in the SYSPUNCH data set.

```
//UNLOAD EXEC PGM=INZUTILB,PARM='DB81,DB2UNLOAD',
//          REGION=0M,TIME=1440
//STEPLIB DD DSN=DB2UNL.SINZLINK,DISP=SHR
//          DD DSN=DSNA10.SDSNLOAD,DISP=SHR
//          DD DSN=DSNA10.SDSNLOD2,DISP=SHR
//SYSREC00 DD DSN=USER1.UNLOAD01,
//            DISP=(NEW,CATLG,DELETE),
//            UNIT=SYSDA,
//            SPACE=(CYL,(100,50),RLSE)
//UTPRINT DD SYSOUT=*
//SYSPRINT DD SYSOUT=*
//SYSPUNCH DD SYSOUT=*
//SYSIN DD *
UNLOAD TABLESPACE DBINFDM.TSSCA
DB2 NO LOCK NO QUIESCE YES
SELECT *
FROM USER1.TBSCA
OUTDDN ( SYSREC00 )
FORMAT DSNTIAUL
LOADDDN SYSPUNCH
//
```

The JESMSGLG data set contains the following abbreviated information about the unloaded objects:

```
11.12.30 JOB01736 INZX006 TSSCA TABLESPACE UNLOAD PHASE STARTED
11.18.32 JOB01736 INZX090 SYSREC00 : 5002578 RECORDS WRITTEN
11.18.32 JOB01736 INZU222I SYSREC00 , TOTAL NUMBER OF RECORDS WRITTEN 5002578
```

The SYSPRINT data set contains the following information about the unloaded objects:

```
INZU224I IBM DB2 HIGH PERFORMANCE UNLOAD V4.1
INZI175I PROCESSING SYSIN AS EBCDIC.
-----1-----2-----3-----4-----5-----6-----7-----8
000001 UNLOAD TABLESPACE DBINFDM.TSSCA
000002 DB2 NO LOCK NO QUIESCE YES
000003 SELECT * FROM TBSCA
000004 OUTDDN (SYSREC00 )
000005 FORMAT DSNTIAUL
000006 LOADDDN SYSPUNCH

DSNU000I DSNUGUTC - OUTPUT START FOR UTILITY, UTILID = DB2UNLOAD
DSNU050I DSNUGUTC - QUIESCE TABLESPACE DBINFDM.TSSCA
DSNU477I -DZ7M DSNUQUA - QUIESCE SUCCESSFUL FOR TABLESPACE DBINFDM.TSSCA
DSNU474I -DZ7M DSNUQUA - QUIESCE AT RBA 0014C98DF148 AND AT LRSN 0014C98DF148
DSNU475I DSNUQUIB - QUIESCE UTILITY COMPLETE, ELAPSED TIME= 00:00:00
DSNU010I DSNUGBAC - UTILITY EXECUTION COMPLETE, HIGHEST RETURN CODE=0
INZU180I UTPRINT DD CARD IN JCL IS NOT USED WHEN VUX020/SORTCLAS IS SPECIFIED IN THE
PARMLIB OR WHEN SORTCLASS IS SPECIFIED IN SYSIN.

-----
INZU281I - UNLOAD STARTING AT POS(1, 1)

INZU277I - PROCESSING UNLOAD 00001 FROM TABLESPACE DBINFDM.TSSCA
INZU279I - SELECT STATEMENTS USING SINGLE TABLE SPECIFICATION
INZU280I - SELECT 00001 STARTING AT POS(3, 1)
INZU282I OUTPUT DDNAME=SYSREC00
INZX090 SYSREC00 : 5002578 RECORDS WRITTEN

- TABLESPACE DBINFDM.TSSCA - DB2 HIGH PERFORMANCE UNLOAD - STATISTICS - 10/20/06
* CREATOR.TABLE * OBID * ROWS READ * ROWS KEPT * TS PG READ *
*-----*-----*-----*-----*-----*-----*-----*
* IBMUSER.TBSCA * 345 * 5002578 * 5002578 * *
```

```

*-----*-----*-----*-----*
* TOTAL UNLOAD STATISTICS ....*          * 5002578 * 5002578 * 201103 *
* INVALID ROWS.....*                    0
* NUMBER OF PAGES IN ERROR....*          0
INZU222I SYSREC00, TOTAL NUMBER OF RECORDS WRITTEN 5002578
INZU260I GENERATING LOAD STATEMENT FOR SELECT STARTING AT POS(3, 1)

```

The SYSPUNCH data set contains the following SYSIN data that can later be used to reload the objects:

```

LOAD DATA
LOG NO NOTIFY YES ENFORCE NO
INTO TABLE USER1.TBSCA
(
COLDATE                                POSITION( 1 )
DATE EXTERNAL( 10) ,
COLTIME                                POSITION( 11 )
TIME EXTERNAL( 8) ,
COLTIMESTAMP                           POSITION( 19 )
TIMESTAMP EXTERNAL( 26) ,
COLCHAR                                 POSITION( 45 )
CHAR( 8) ,
COLVARCHAR                              POSITION( 53 )
VARCHAR
COLLONGVARCHAR                          POSITION( 130 )
VARCHAR
COLINTEGER                              POSITION( 4044 )
INTEGER
COLSMALLINT                             POSITION( 4048 )
SMALLINT
COLFLOAT                                 POSITION( 4050 )
FLOAT( 53) ,
COLDECIMAL                              POSITION( 4058: 4061 )
DECIMAL
COLINTEGERNULL                          POSITION( 4062 )
INTEGER
NULLIF( 4066) = '?' ,
COLCHARNULL                              POSITION( 4067 )
CHAR( 8)
NULLIF( 4075) = '?'
)

```

Example: Unloading a table by using the last image copy

In this example, you unload data from a table by using the last image copy.

The JCL in the following example unloads data from the USER1.TBSCA table in the DBINFDM.TSSCA table space by using the last image copy.

```

//UNLOAD EXEC PGM=INZUTILB,PARM='DB81,DB2UNLOAD',
// REGION=0M,TIME=1440
//STEPLIB DD DSN=DB2UNL.SINZLINK,DISP=SHR
// DD DSN=DSNA10.SDSNLOAD,DISP=SHR
// DD DSN=DSNA10.SDSNLOD2,DISP=SHR
//SYSREC00 DD DSN=USER1.UNLOAD01,
// DISP=(NEW,CATLG,DELETE),
// UNIT=SYSDA,
// SPACE=(CYL,(100,50),RLSE)
//UTPRINT DD SYSOUT=*
//SYSPRINT DD SYSOUT=*
//SYSPUNCH DD SYSOUT=*
//SYSIN DD *
UNLOAD TABLESPACE DBINFDM.TSSCA
COPYDDN LAST_IC
SELECT *
FROM USER1.TBSCA
OUTDDN ( SYSREC00 )
FORMAT DSNTIAUL
LOADDDN SYSPUNCH
//

```

The JESMSGLG data set contains the following abbreviated information about the unloaded objects:

```

13.28.14 JOB01349 INZX081 DSN8S10E IMAGE COPY IS BEING READ FROM DDNAME IC00
13.28.14 JOB01349 INZX062 W10001 SORT ACTIVATED VIA E15
13.28.15 JOB01349 INZX090 OUTPUT : 42 RECORDS WRITTEN IN 00:00:00, UNLOAD DONE

```

If the last image copy is a FlashCopy®, the JESMSGLG data set contains the following abbreviated information about the unloaded objects:

```
13.28.14 JOB01349 INZX081 DSN8S10E FLASHCOPY IS BEING READ
13.28.14 JOB01349 INZX062 W10001      SORT ACTIVATED VIA E15
13.28.15 JOB01349 INZX090 OUTPUT   : 42 RECORDS WRITTEN IN 00:00:00, UNLOAD DONE
```

The other parts of the report contain information like the information that is shown in [“Example: Unloading a table”](#) on page 154.

The following example shows how to unload a partitioned table space with five partitions that have copies per partition. Partitions 2 and 3 are standard copies, and partitions 1, 4, and 5 are FlashCopies.

```
UNLOAD TABLESPACE
PART (1,4:5)
QUIESCE YES
DB2 NO
COPYDDN LAST_IC
SELECT * FROM DSN81010.EMP
FORMAT DSNTIAUL
OUTDDN(OUTPUT) ;
UNLOAD TABLESPACE
PART (2:3)
QUIESCE YES
DB2 NO
COPYDDN LAST_IC
SELECT * FROM DSN81010.EMP
FORMAT DSNTIAUL
OUTDDN(OUTPUT)
```

Examples: Requesting progress messages via the UNLOAD command

Example 1: Request progression messages be issued every 1000 rows. The messages will indicate the elapse time since the beginning of the unload.

```
GLOBAL
PROGRESS_MSG_FREQ (1000) ;
UNLOAD TABLESPACE
DB2 NO
SELECT *
FROM DSN81010.EMP
FORMAT DSNTIAUL
OUTDDN (OUTPUT)
```

Example 2: Request progression messages be issued every 1000 rows and that indicate the elapse time spent to unload for the latest set of 1000 rows.

```
GLOBAL
PROGRESS_MSG_FREQ (1000 , DELTA)
OPTION NULLPAD YES ;
UNLOAD TABLESPACE
DB2 NO
SELECT *
FROM DSN81010.EMP
FORMAT DSNTIAUL
OUTDDN (OUTPUT)
```

Example 3: Request progression messages be issued every 1000 rows and that indicate the elapse time spent from the beginning of the unload. TOTAL is not mandatory since this is the default value.

```
GLOBAL
PROGRESS_MSG_FREQ (1000 , TOTAL) ;
UNLOAD TABLESPACE
DB2 NO
SELECT *
FROM DSN81010.EMP
FORMAT DSNTIAUL
OUTDDN (OUTPUT)
```

Example: Requesting the input data integrity to be checked with the LEVEL1 controls

Requesting the input data integrity to be checked with the LEVEL1 controls, i.e Db2 HPU checks if the read page is the expected one.

```
UNLOAD TABLESPACE
DB2 NO
CHECK_INTEGRITY LEVEL1
SELECT *
FROM DSN81010.EMP
FORMAT DSNTIAUL
OUTDDN (OUTPUT)
```

OPTIONS block syntax and description

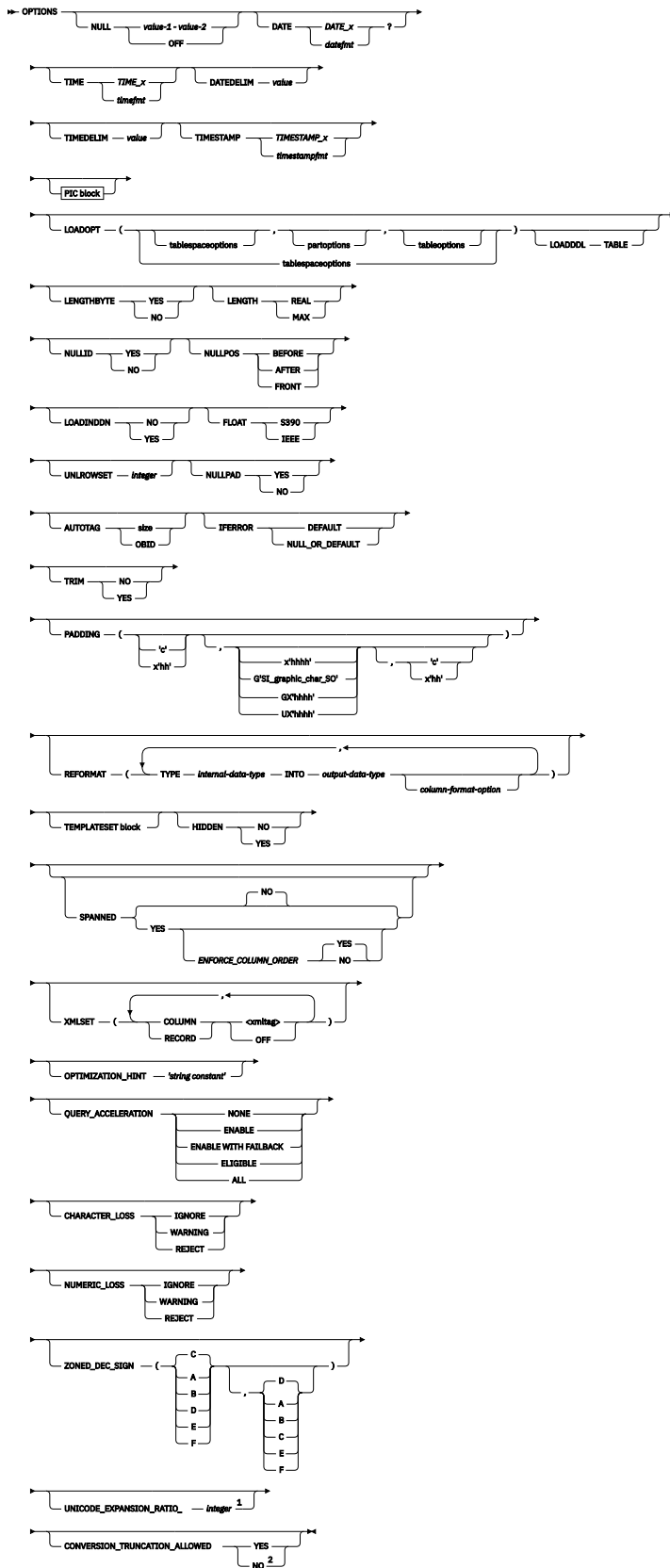
Use the OPTIONS block to specify the default conversions that are with the SELECT statements. This block can be used in the GLOBAL block, the UNLOAD block, and the SELECT block.

The effect of the options that are specified in the OPTIONS block at the GLOBAL level or at the UNLOAD level depends on the value that is specified for the VUU057/OPALLFMT PARMLIB parameter:

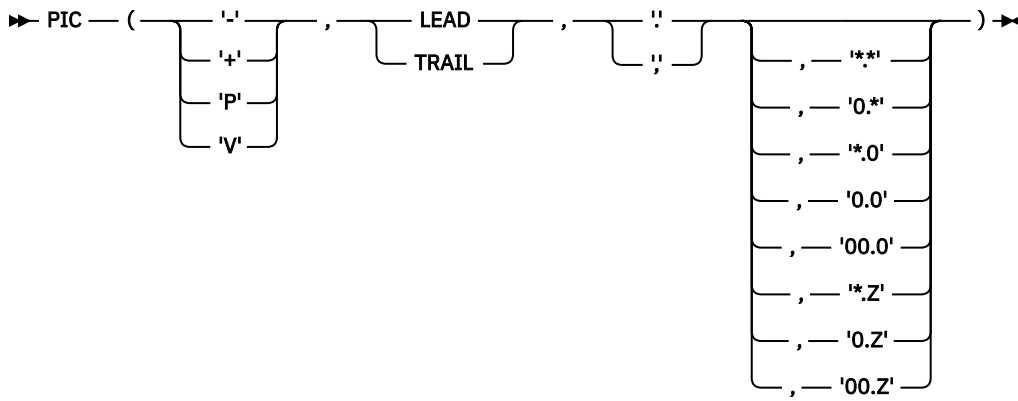
- If NO is specified for the VUU057/OPALLFMT parameter, all options that you specify in a GLOBAL block or an UNLOAD block apply only to the USER format except for the LOADOPT, FLOAT, UNLROWSET, LOADINDDN, AUTOTAG, and IFERROR options. The LOADOPT, UNLROWSET, LOADINDDN, AUTOTAG, and IFERROR options apply to all formats. The FLOAT option applies to DSNTIAUL, USER, and VARIABLE formats.
- If YES is specified for the VUU057/OPALLFMT parameter, all options that you specify in an OPTIONS block at the GLOBAL level or the UNLOAD level apply to all formats except for some specific options that have no meaning for some formats and for LENGTHBYTE and LENGTH options that are specific to the USER format.

The following diagram shows the syntax of the OPTIONS block:

OPTIONS block



PIC block



Notes:

- ¹ UNICODE_EXPANSION_RATIO is associated to VUU068/ULUNIEXP parmlib parameter.
- ² CONVERSION_TRUNCATION_ALLOWED is associated to the VUU067/ULCNVTRC parmlib parameter.

Default values for Db2 HPU genuine formats

The following table shows the default values for options that are specified in the OPTIONS block. Each option can have a different default value based on the output format.

Table 23. Default values per output format for options that are specified in the OPTIONS block

Option name	Applies only to FORMAT USER if OPALLFMT=NO (GLOBAL or UNLOAD levels)	Applies to all formats if OPALLFMT=YES	PARMLIB parameter	Default value for FORMAT DELIMITED ¹	Default value for FORMAT DSNTIAUL ¹	Default value for FORMAT EXTERNAL ¹	Default value for FORMAT USER ²	Default value for FORMAT VARIABLE ³
NULL	Yes	Except FORMAT DELIMITED	VUU014/ULNULL	OFF	X'6F X'00' or VUU014/ULNULL	X'6F X'00' or VUU014/ULNULL	VUU014/ULNULL	X'FF X'00' or VUU014/ULNULL
NULLID	Yes	Yes	None	NO	YES	YES	YES	YES
NULLPOS	Yes	Except FORMAT DELIMITED	VUU022/NULLPOS	N/A	AFTER or VUU022/NULLPOS	AFTER or VUU022/NULLPOS	VUU022/NULLPOS	BEFORE or VUU022/NULLPOS
DATE	Yes	Yes	VUU015/ULDATE	DATE_C or VUU015/ULDATE	DATE_DB2 or VUU015/ULDATE	DATE_DB2 or VUU015/ULDATE	VUU015/ULDATE	DATE_C or VUU015/ULDATE
DATEDELIM	Yes	Yes	VUU055/DATEDEL	'-' or VUU055/DATEDEL	Delimiter of the default Db2 format or VUU055/DATEDEL	Delimiter of the default Db2 format or VUU055/DATEDEL	VUU055/DATEDEL	'-' or VUU055/DATEDEL
TIME	Yes	Yes	VUU016/ULTIME	TIME_A or VUU016/ULTIME	TIME_DB2 or VUU016/ULTIME	TIME_DB2 or VUU016/ULTIME	VUU016/ULTIME	TIME_A or VUU016/ULTIME
TIMEDELIM	Yes	Yes	VUU056/TIMEDEL	'.' or VUU056/TIMEDEL	Delimiter of the default Db2 format or VUU056/TIMEDEL	Delimiter of the default Db2 format or VUU056/TIMEDEL	VUU056/TIMEDEL	'.' or VUU056/TIMEDEL
TIMESTAMP	Yes	Yes	VUU017/ULTMSTP	TIMESTAMP_B or VUU017/ULTMSTP	TIMESTAMP_B or VUU017/ULTMSTP	TIMESTAMP_B or VUU017/ULTMSTP	VUU017/ULTMSTP	TIMESTAMP_B or VUU017/ULTMSTP
PIC	Yes	Yes	VUU018/ULPIC	-LEAD. or VUU018/ULPIC	-LEAD. or VUU018/ULPIC	-LEAD. or VUU018/ULPIC	VUU018/ULPIC	-LEAD. or VUU018/ULPIC
Mask part of the PIC option	Yes	Yes	VUU032/ULMASK	0.0 or VUU032/ULMASK	0.0 or VUU032/ULMASK ²	0.Z or VUU032/ULMASK	VUU032/ULMASK	00.0 or VUU032/ULMASK ³
LOADOPT	No	N/A	N/A	VUU019/ULOPTLDT and VUU020/UOPTLDP	VUU019/ULOPTLDT and VUU020/UOPTLDP	VUU019/ULOPTLDT and VUU020/UOPTLDP	VUU019/ULOPTLDT and VUU020/UOPTLDP	VUU019/ULOPTLDT and VUU020/UOPTLDP
LENGTHBYTE	Yes	No	None	NO	YES	YES	YES	YES
LENGTH	Yes	No	None	REAL	MAX	MAX	Depends on LENGTHBYTE	REAL
LOADINDDN	No	N/A	N/A	NO or contents of VUU030/UOPTNS	NO or contents of VUU030/UOPTNS	NO or contents of VUU030/UOPTNS	NO or contents of VUU030/UOPTNS	NO or contents of VUU030/UOPTNS
FLOAT	No	N/A	None	S390	S390	S390	S390	S390
UNLROWSET	No	N/A	N/A	VUU035/ULROWSET	VUU035/ULROWSET	VUU035/ULROWSET	VUU035/ULROWSET	VUU035/ULROWSET
NULLPAD	Yes	Yes	None	YES	NO	YES	YES	YES

Table 23. Default values per output format for options that are specified in the OPTIONS block (continued)

Option name	Applies only to FORMAT USER if OPALLFMT=NO (GLOBAL or UNLOAD levels)	Applies to all formats if OPALLFMT=YES	PARMLIB parameter	Default value for FORMAT DELIMITED ¹	Default value for FORMAT DSNTIAUL ¹	Default value for FORMAT EXTERNAL ¹	Default value for FORMAT USER ²	Default value for FORMAT VARIABLE ³
PADDING	Yes	Yes	None	Space	Space for characters or graphic strings or 'x'00' for other data types	'x'00'	Space	Space
AUTOTAG	No	N/A	N/A	VUU046/ ULAUTAG	VUU046/ ULAUTAG	VUU046/ ULAUTAG	VUU046/ ULAUTAG	VUU046/ ULAUTAG
IFERROR	No	N/A	None	None	None	None	None	None
TRIM	Yes	Yes	VUU059/ULTRIM	NO or VUU059/ ULTRIM	NO or VUU059/ ULTRIM	NO or VUU059/ ULTRIM	VUU059/ULTRIM	NO or VUU059/ULTRIM
SPANNED	NO	N/A	N/A	NO	NO	NO	NO	NO
ENFORCE_COLUMN_ORDER	NO	N/A	N/A	YES	YES	YES	YES	YES

Notes:

1. When a value or a parameter name is specified in the table, you can define a default value for each format in the corresponding PARMLIB parameter. If the default value is not defined in the PARMLIB for the format, the hard-coded default value applies.
2. When a variable is specified for the USER format, the default value is the content of the corresponding PARMLIB parameter unless a hard-coded default value is specified in the table.
3. The default value applies to the DSNTIAUL and VARIABLE formats when a LIKE keyword that forces conversion to a CHAR data type is used or when an INTO clause or REFORMAT clause is used.

Default values for UNLOAD PLUS compatibility formats

Table 24. Default values per output format for options that are specified in the OPTIONS block

HPU option name	Applies only to FORMAT USER if OPALLFMT=NO (GLOBAL or UNLOAD levels)	Applies to all formats if OPALLFMT=YES	PARMLIB parameter	Default value for FORMAT UPLUS-STANDARD (1)	Default value for FORMAT UPLUS-EXTERNAL (1)	Default value for FORMAT UPLUS-INTERNAL (1)	Default value for FORMAT UPLUS-CSV (1)
NULL	Yes	Yes	VUU014/ULNULL	? 'X'00'	? 'X'00'	? 'X'00'	OFF
NULLID	Yes	Yes except FORMAT DELIMITED	N/A	YES	YES	YES	NO
NULLPOS	Yes	Yes	VUU022/NULLPOS	AFTER	AFTER	AFTER	N/A
DATE	Yes	Yes	VUU015/ULDATE	DATE_DB2	DATE_DB2	DATE_DB2	DATE_DB2
DATEDELIM	Yes	Yes	VUU055/DATEDEL	Delimiter of the default Db2 format or '-'	Delimiter of the default Db2 format or '-'	Delimiter of the default Db2 format or '-'	Delimiter of the default Db2 format or '-'
TIME	Yes	Yes	VUU016/ULTIME	TIME_DB2	TIME_DB2	TIME_DB2	TIME_DB2
TIMDELIM	Yes	Yes	VUU056/TIMEDEL	Delimiter of the default Db2 format or ':'	Delimiter of the default Db2 format or ':'	Delimiter of the default Db2 format or '-'	Delimiter of the default Db2 format or '-'
TIMESTAMP	Yes	Yes	VUU017/ULTMSTP	TIMESTAMP_B	TIMESTAMP_B	TIMESTAMP_B	TIMESTAMP_B
PIC	Yes	Yes	VUU018/ULPIC	Custom handling for competitor formats. Not reproducible with a PIC value.	Custom handling for competitor formats. Not reproducible with a PIC value.	Custom handling for competitor formats. Not reproducible with a PIC value.	Custom handling for competitor formats. Not reproducible with a PIC value.
PIC option Mask part	Yes	Yes	VUU032/ULMASK	Custom handling for competitor formats. Not reproducible with a PIC value.	Custom handling for competitor formats. Not reproducible with a PIC value.	Custom handling for competitor formats. Not reproducible with a PIC value.	Custom handling for competitor formats. Not reproducible with a PIC value.
LOADOPT	No	N/A	VUU019/ ULOPTLDT and VUU020/ ULOPTLDP	N/A	N/A	N/A	N/A
LENGTHBYTE	Yes	No	N/A	YES	YES	YES	YES
LENGTH	Yes	No	N/A	REAL	REAL	REAL	REAL
LOADINDDN	No	N/A	contents of VUU030/ ULOPTNS	NO	NO	NO	NO
FLOAT	No	N/A	N/A	S390	S390	S390	S390
UNLROWSET	No	N/A	VUU035/ ULROWSET	100	100	100	100
NULLPAD	Yes	Yes	N/A	NO	NO	NO	YES
PADDING	Yes	Yes	N/A	Space	Space	Space	Space
AUTOTAG	No	N/A	VUU046/ ULAUTAG	0	0	0	0
IFERROR	No	N/A	N/A	N/A	N/A	N/A	N/A

Table 24. Default values per output format for options that are specified in the OPTIONS block (continued)

HPU option name	Applies only to FORMAT USER if OPALLFMT=NO (GLOBAL or UNLOAD levels)	Applies to all formats if OPALLFMT=YES	PARMLIB parameter	Default value for FORMAT UPLUS-STANDARD (1)	Default value for FORMAT UPLUS-EXTERNAL (1)	Default value for FORMAT UPLUS-INTERNAL (1)	Default value for FORMAT UPLUS-CSV (1)
TRIM	Yes	Yes	VUU059/ULTRIM	NO	NO	NO	NO
SPANNED	No	N/A	N/A	NO	NO	NO	NO
ENFORCE_COLUMN_ORDER	No	N/A	N/A	YES	YES	YES	YES

Note: When a value or a parameter name is specified in the table, you can define a default value for each format in the corresponding PARMLIB parameter. If the default value is not defined in the PARMLIB for the format, the hard-coded default value applies.

Default values for Fast Unload compatibility formats

Table 25. Default values per output format for options that are specified in the OPTIONS block

HPU option name	Applies only to FORMAT USER if OPALLFMT=NO (GLOBAL or UNLOAD levels)	Applies to all formats if OPALLFMT=YES	PARMLIB parameter	Default for FASTU-FIXED (1)	Default for FORMAT FASTU-DELIMITED (1)	Default for FORMAT FASTU-VARIABLE (1)	Default for FORMAT FASTU-EXTERNAL (1)
NULL	Yes	Yes	VUU014/ULNULL	X'FFFF' X'0000'	OFF	? X'00'	OFF
NULLID	Yes	Yes except FORMAT DELIMITED	N/A	YES	NO	YES	NO
NULLPOS	Yes	Yes	VUU022/NULLPOS	BEFORE	N/A	AFTER	N/A
DATE	Yes	Yes	VUU015/ULDATE	DATE_DB2	DATE_DB2	DATE_DB2	DATE_DB2
DATEDELIM	Yes	Yes	VUU055/DATEDEL	Delimiter of the default Db2 format or '-'	Delimiter of the default Db2 format or '-'	Delimiter of the default Db2 format or '-'	Delimiter of the default Db2 format or '-'
TIME	Yes	Yes	VUU016/ULTIME	TIME_DB2	TIME_DB2	TIME_DB2	TIME_DB2
TIMEDELIM	Yes	Yes	VUU056/TIMEDEL	Delimiter of the default Db2 format or ':'	Delimiter of the default Db2 format or ':'	Delimiter of the default Db2 format or '-'	Delimiter of the default Db2 format or '-'
TIMESTAMP	Yes	Yes	VUU017/ULTMSTP	TIMESTAMP_B	TIMESTAMP_B	TIMESTAMP_B	TIMESTAMP_B
PIC	Yes	Yes	VUU018/ULPIC	Custom handling for competitor formats. Not reproducible with a PIC value.	Custom handling for competitor formats. Not reproducible with a PIC value.	Custom handling for competitor formats. Not reproducible with a PIC value.	Custom handling for competitor formats. Not reproducible with a PIC value.
PIC option Mask part	Yes	Yes	VUU032/ULMASK	Custom handling for competitor formats. Not reproducible with a PIC value.	Custom handling for competitor formats. Not reproducible with a PIC value.	Custom handling for competitor formats. Not reproducible with a PIC value.	Custom handling for competitor formats. Not reproducible with a PIC value.
LOADOPT	No	N/A	VUU019/ ULOPTLDT and VUU020/ ULOPTLDP	N/A	N/A	N/A	N/A
LENGTHBYTE	Yes	No	N/A	YES	YES	YES	YES
LENGTH	Yes	No	N/A	MAX	REAL	REAL	REAL
LOADINDDN	No	N/A	contents of VUU030/ ULOPTNS	NO	NO	NO	NO
FLOAT	No	N/A	N/A	S390	S390	S390	S390
UNLROWSET	No	N/A	VUU035/ ULROWSET	100	100	100	100
NULLPAD	Yes	Yes	N/A	NO	YES	NO	NO
PADDING	Yes	Yes	N/A	Space	Space	X'00'	X'00'
AUTOTAG	No	N/A	VUU046/ ULAUTAG	0	0	0	0
IFERROR	No	N/A	N/A	N/A	N/A	N/A	N/A
TRIM	Yes	Yes	VUU059/ULTRIM	NO	NO	NO	NO
SPANNED	No	N/A	N/A	NO	NO	NO	NO
ENFORCE_COLUMN_ORDER	No	N/A	N/A	YES	YES	YES	YES

Note: When a value or a parameter name is specified in the table, you can define a default value for each format in the corresponding PARMLIB parameter. If the default value is not defined in the PARMLIB for the format, the hard-coded default value applies.

Default values for Db2 Unload compatibility formats

Table 26. Default values per Db2 Unload compatibility output format for options that are specified in the OPTIONS block

HPU option name	Applies only to FORMAT USER if OPALLFMT=NO (GLOBAL or UNLOAD levels)	Applies to all formats if OPALLFMT=YES	PARMLIB parameter	Default for FORMAT DB2U-DEFAULT (1)	Default for FORMAT DB2U-DELIMITED (1)
NULL	Yes	Yes	VUU014/ULNULL	X'FFFF'	X'00'
NULLID	Yes	Yes except FORMAT DELIMITED	N/A	YES	NO
NULLPOS	Yes	Yes	VUU022/NULLPOS	BEFORE	N/A
DATE	Yes	Yes	VUU015/ULDATE	DATE_DB2	DATE_DB2
DATEDELIM	Yes	Yes	VUU055/DATEDEL	Delimiter of the default Db2 format or '-'	Delimiter of the default Db2 format or '-'
TIME	Yes	Yes	VUU016/ULTIME	TIME_DB2	TIME_DB2
TIMDELIM	Yes	Yes	VUU056/TIMDEL	Delimiter of the default Db2 format or ':'	Delimiter of the default Db2 format or ':'
TIMESTAMP	Yes	Yes	VUU017/ULTMSTP	TIMESTAMP_B	TIMESTAMP_B
PIC	Yes	Yes	VUU018/ULPIC	Custom handling for competitor formats. Not reproducible with a PIC value.	Custom handling for competitor formats. Not reproducible with a PIC value.
PIC option Mask part	Yes	Yes	VUU032/ULMASK	Custom handling for competitor formats. Not reproducible with a PIC value.	Custom handling for competitor formats. Not reproducible with a PIC value.
LOADOPT	No	N/A	VUU019/ ULOPLD and VUU020/ ULOPLDP	N/A	N/A
LENGTHBYTE	Yes	No	N/A	YES	NO
LENGTH	Yes	No	N/A	MAX	REAL
LOADINDDN	No	N/A	contents of VUU030/ ULOPTNS	NO	NO
FLOAT	No	N/A	N/A	S390	S390
UNLROWSET	No	N/A	VUU035/ ULROWSET	100	100
NULLPAD	Yes	Yes	N/A	YES	NO
PADDING	Yes	Yes	N/A	Space	Space
AUTOTAG	No	N/A	VUU046/ ULAUTAG	OBID	0
IFERROR	No	N/A	N/A	N/A	N/A
TRIM	Yes	Yes	VUU059/ULTRIM	NO	NO
SPANNED	No	N/A	N/A	NO	NO
ENFORCE_COLUMN_ORDER	No	N/A	N/A	YES	YES

Note: When a value or a parameter name is specified in the table, you can define a default value for each format in the corresponding PARMLIB parameter. If the default value is not defined in the PARMLIB for the format, the hard-coded default value applies.

NULL

Indicates whether the null indicator is generated in the output data set. You can specify NULL in the SELECT statement in the FORMAT USER syntax also.

The following values can be specified for NULL. Although *value-1* and *value-2* can be specified as 1 - 4 bytes or characters, you must specify both *value-1* and *value-2* as the same number of bytes or characters. You can specify *value-1* and *value-2* in character ('c') or hexadecimal (X'hh') formats.

value-1

The value of the null indicator when the column value is NULL.

value-2

The value of the null indicator when the column value is NOT NULL.

OFF

A null indicator is not generated.

When FORMAT DELIMITED is specified, the default value is OFF. You cannot change this value in the OPTIONS block even when it is specified at the SELECT level.

The default values for formats are shown in [Default values per output format for options that are specified in the OPTIONS block](#).

You can override the DATE option at the column level with the TYPE keyword in a SELECT statement for the USER format, an INTO clause, or a REFORMAT clause.

DATE DATE_x

Specifies the default output format for the DATE columns, where *x* is any uppercase alphabetic character A - R or an integer 0 - 7 or DB2.

When a date column is converted into the CHAR format by specifying FORMAT USER or by using either a REFORMAT clause or an INTO clause, the DATE format that is specified in the OPTIONS block is not used. Instead, the default date format of your environment is used.

The default values for formats are shown in [Default values per output format for options that are specified in the OPTIONS block](#).

You can override the DATE option at the column level with the TYPE keyword in a SELECT statement for the USER format, an INTO clause, or a REFORMAT clause.

DATE datefmt

datefmt is a string that describes how a date value must be formatted. It must be specified according to the rules indicated in section [Syntax rules for the user-defined date, time or timestamp formats](#).

DATEDELIM value

Specifies the default delimiter that is used in external date representations, where *value* must be one character and must be 1 byte long, regardless of the literal CCSID.

The default delimiter that is used when DATE columns are unloaded depends on the output format that is used, as shown in [Default values per output format for options that are specified in the OPTIONS block](#).

TIME TIME_x

Specifies the default conversion for time representations, where *x* is any uppercase alphabetic character A - E or the integer 0 or DB2.

When a time column is converted into a CHAR data type by specifying FORMAT USER or by using either a REFORMAT clause or an INTO clause, the time format that is specified in the OPTIONS block is not used. Instead, the default time format of your environment is used.

The default values for formats are shown in [Default values per output format for options that are specified in the OPTIONS block](#).

You can override the TIME option at the column level by specifying the TYPE keyword in a SELECT statement for the USER format, an INTO clause, or a REFORMAT clause.

TIME timefmt

timeformat is a string that describes how a time value must be formatted. It must be specified according to the rules indicated in section [Syntax rules for the user-defined date, time or timestamp formats](#).

TIMEDELIM value

Indicates the default delimiter that is used in external time representations, where *value* must be one character and must be 1 byte long, regardless of the literal CCSID.

The default values for other formats are described in [Default values per output format for options that are specified in the OPTIONS block](#).

TIMESTAMP TIMESTAMP_x

Specifies the default conversion for the TIMESTAMP columns, where *x* is an uppercase alphabetic character A - G or the integer 0.

When a timestamp column is converted into a CHAR data type by specifying FORMAT USER or by using either a REFORMAT clause or an INTO clause, the timestamp format that is specified in the OPTIONS block is not used. Instead, the Db2 standard timestamp external format is used.

The default values for formats are shown in [Default values per output format for options that are specified in the OPTIONS block](#).

TIMESTAMP *timestampfmt*

timestampfmt is a string that describes how a timestamp value must be formatted. It must be specified according to the rules indicated in section [Syntax rules for the user-defined date, time or timestamp formats](#).

Syntax rules for the user-defined date, time or timestamp formats

A user-defined date format (*datefmt*), time format (*timefmt*) or timestamp format (*timestampfmt*) must be specified according to the following rules.

1. The format string must begin with one of the allowed format elements listed in the table below
2. The format string can contain only elements allowed for the related format
3. The format string can contain only a subset of the elements allowed for the related format
4. Each format element can be specified only once
5. Separators can be any character or character string but must not contain any character string used as format elements as well as the ambiguous MM string, regardless of the related format.

The data is formatted by replacing the format elements as indicated in the table below and by keeping the other characters from the string format, i.e. the separators, as specified. If necessary the whole output field, including separators, is converted into the output CCSID.

Table: Format elements for a format string

format element	the element is replaced by	allowed in datefmt (1)	allowed in timefmt (1)	allowed in timestampfmt (1)
DD	two digits corresponding to the day part (2)	Y	N	Y
MO	two digits corresponding to the month part (2)	Y	N	Y
YY(3)	the least significant two digits of the year part (2)	Y	N	Y
YYYY(3)	four digits corresponding to the year part (2)	Y	N	Y
HH	two digits corresponding to the hours part (2) with a time coded over 24 hours. N	N	Y	Y
MI	two digits corresponding to the minutes part (2)	N	Y	Y
SS	two digits corresponding to the seconds part (2)	N	Y	Y

format element	the element is replaced by	allowed in datefmt (1)	allowed in timefmt (1)	allowed in timestampfmt (1)
NN(4)	two digits corresponding to the fractional seconds part (5)	N	N	Y
NNNN(4)	four digits corresponding to the fractional seconds part (5)	N	N	Y
NNNNNN(4)	six digits corresponding to the fractional seconds part (5)	N	N	Y

- (1) any element indicated as not allowed (N) is forbidden for the related for the related format, even as a separator.
- (2) leading zeroes are added if necessary.
- (3) only one element among YY and YYYY can be specified.
- (4) only one element among NN and NNNN and NNNNNN can be specified.
- (5) trailing zeroes are added if necessary.

PIC

Defines the numeric data display format that is used when numeric values are converted for external representation. The PIC keyword has four parameters. You must specify the first three parameters. The fourth parameter is optional.

- The first parameter specifies the rules for printing the sign:
 - Indicates that the minus character (-) is present if the number is negative. Otherwise, the sign character is a blank.
 - + Indicates that the sign is always present. Positive values have a plus character (+), and negative values have a minus character (-).

P

Indicates that the padding character is used for positive values and the minus character (-) is used for negative values.

V

The sign byte used depends on the data type as follows:

- for non-float numeric data:
 - no sign byte is written for values greater than or equal to zero.
 - the minus sign (-) is written for values less than zero.
 - for float data:
 - the plus sign (+) is written for values greater than or equal to zero.
 - the minus sign (-) is written for values less than zero.
- The second parameter specifies the position the sign relative to the column.

LEAD

The sign is placed in front of the numeric value. LEAD is ignored for floating point numbers.

TRAIL

The sign is placed after the numeric value. TRAIL is ignored for floating point numbers.

- The third parameter specifies the decimal separator.
 - Use a period as the decimal separator.
 - Use a comma as the decimal separator.
- The optional fourth parameter indicates the formatting rules that are used to display non-significant zeros for DECIMAL, SMALLINT, and INTEGER values.

The following table lists the valid values and explains their impact:

- The Left padding column indicates whether the number is padded on the left with non-significant zeros to fill the output field. The sign character is added to the left of these zeros.
- The Left zero column indicates whether a zero is displayed on the left of the decimal separator when the integer part of the number is 0.
- The Decimal separator column indicates whether the decimal separator is displayed.
- The Right padding column indicates whether the number is padded on the right with zeros up to the number of digits of the decimal scale.

Notes:

- The Decimal separator column applies only to decimal data. The decimal separator is never displayed for SMALLINT or INTEGER values.
- The ULMASK variable has no impact on the formatting of values for FLOAT.

Table 28. Nonsignificant zero values for DECIMAL and SMALLINT/INTEGER

ULMASK value	Left padding	Left zero	Decimal separator	Right padding
**	No	Only when the value is 0	Only if the decimal value is not 0	No
0.*	No	Always	Only if the decimal value is not 0	No
*.0	No	Only when the decimal scale is 0	Only if the decimal scale is not 0	Yes
0.0	No	Always	Only if the decimal scale is not 0	Yes
00.0	Yes	Always	Only if the decimal scale is not 0	Yes
*.Z	No	Only when the decimal scale is 0	Always	Yes
0.Z	No	Always	Always	Yes
00.Z	Yes	Always	Always	Yes

The following table contains examples of the effect of the mask parameter when the following decimal values are converted:

```
DEC(5.2) converted to a CHAR(8)
```

Table 29. Mask parameter effects when the decimal values 5,2 are converted

Mask/value	001.40	000.40	123.00	-123.45	000.00
**	1.4	.4	123	-123.45	0
0.*	1.4	0.4	123	-123.45	0
*.0	1.40	.40	123.00	-123.45	.00
0.0	1.40	0.40	123.00	-123.45	0.00
00.0	0001.40	0000.40	0123.00	-0123.45	0000.00
*.Z	1.40	.40	123.00	-123.45	.00
0.Z	1.40	0.40	123.00	-123.45	0.00
00.Z	0001.40	0000.40	0123.00	-0123.45	0000.00

The following table contains examples of the effect of the mask parameter when decimal values are converted:

DEC(5,0) converted to a CHAR(8)

Table 30. Mask parameter effects when the decimal values 5,0 are converted

Mask/value	12345.	00001.	-12345.	00000.
**	12345	1	-12345	0
0.*	12345	1	-12345	0
*.0	12345	1	-12345	0
0.0	12345	1	-12345	0
00.0	0012345	0000001	-0012345	0000000
*.Z	12345.	1.	-12345.	0.
0.Z	12345.	1.	-12345.	0.
00.Z	012345.	000001.	-012345.	000000.

The following table contains examples of the effect on the mask parameter when decimal values are converted:

DEC(5,5) converted to a CHAR(9)

Table 31. Mask parameter effects when the decimal values 5,5 are converted

Mask/value	.12345	.10000	-.12345	.00000
**	.12345	.1	-.12345	0
0.*	0.12345	0.1	-0.12345	0
*.0	.12345	.10000	-.12345	.00000
0.0	0.12345	0.10000	-0.12345	0.00000
00.0	00.12345	00.10000	-00.12345	00.00000
*.Z	.12345	.10000	-.12345	.00000
0.Z	0.12345	0.10000	-0.12345	0.00000

Table 31. Mask parameter effects when the decimal values 5,5 are converted (continued)

Mask/value	.12345	.10000	-.12345	.00000
00.Z	00.12345	00.10000	-00.12345	00.00000

The default value of the PIC keyword that is used depends on the output format that is used, as shown in [Default values per output format for options that are specified in the OPTIONS block](#).

LOADOPT

Modifies the options of the Db2 LOAD command. Specify the options that you want Db2 HPU to place in the LOAD SYSIN that is created during the unload process.

The value of the LOADOPT keyword is created by merging values that are specified in the PARMLIB, the GLOBAL block, the UNLOAD block, and the SELECT block. However, if LOADOPT is also specified in the FORMAT specification, the LOADOPT keyword is used as is. It is not merged with previous levels.

tableoptions

Options to specify at the table level

partoptions

Options to specify at the partition level

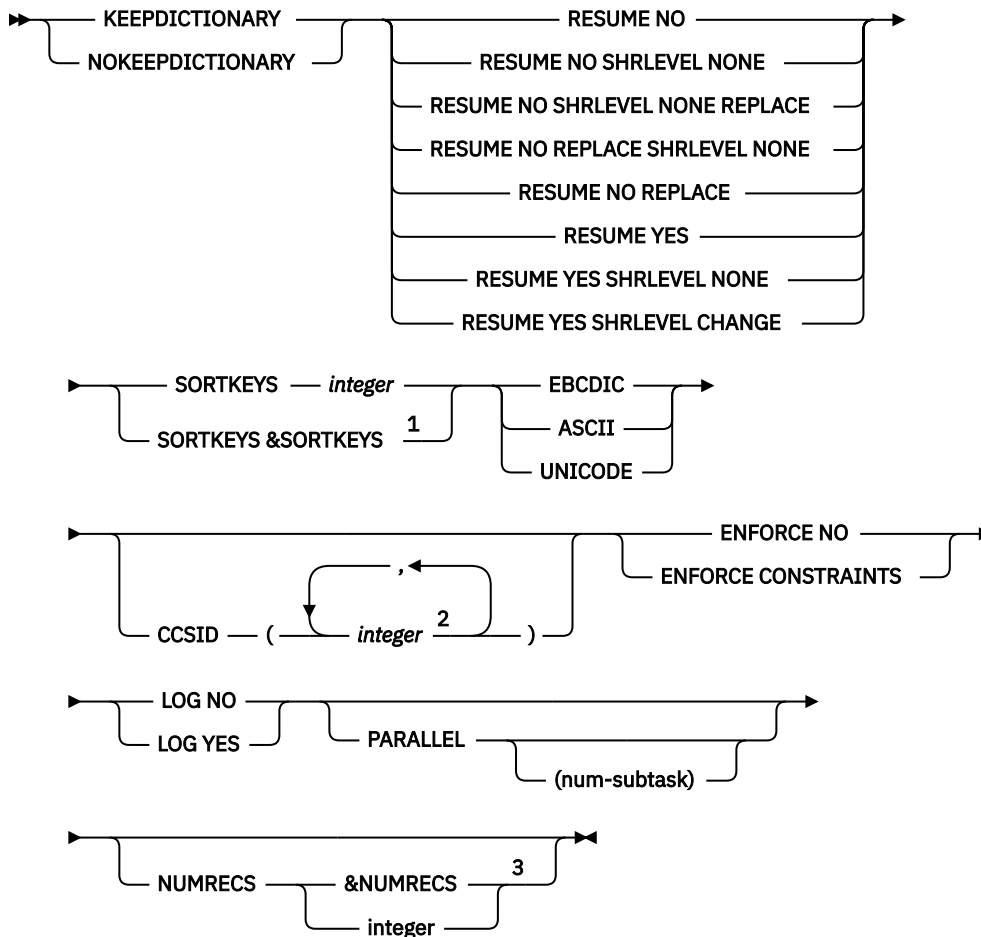
tablespaceoptions

Options to specify at the table space level

The variables *tablespaceoptions*, *partoptions* and *tableoptions* values are positional, and the commas are required even if you do not want to set the value for one subparameter. For example, to specify the value NUMRECS for tableoptions, specify LOADOPT (,NUMRECS).

The following syntax diagram shows the LOADOPT keywords that are recognized by Db2 HPU:

loadopt keywords



Notes:

- ¹ &SORTKEYS is replaced with the actual value after data is unloaded except when EXECUTE NO is specified. When EXECUTE NO is specified, &SORTKEYS is replaced with 0.
- ² Repeat up to three times.
- ³ only recognized as part of a tableoptions block.

Important: Make sure to specify these keywords at the intended and applicable level (tablespaceoptions, partoptions or tableoptions). Refer to the Db2 publication for details on applicability and meaning of these keywords.

The load options in the PARMLIB and any OPTIONS blocks that you specify in the GLOBAL block or the UNLOAD block are merged. If you specify the same option in two or more places, they are merged with the following priority:

1. UNLOAD block
2. GLOBAL block
3. PARMLIB

Any keywords that you specify that are not shown in the LOADOPT syntax diagram are added to the total option sequence. They are not merged with other options.

Important: If a LOADOPT keyword is specified in the FORMAT block, it is used as is, and it is not merged.

Note: If the Db2 HPU spanned YES option is specified, do not specify the FORMAT keyword in the LOADOPT option as this can lead to a wrong LOAD statement notified at LOAD time by either a syntax error message or by an error during the load processing.

LOADDDL TABLE

Requests the CREATE TABLE statement of the unloaded tables be written into the data set specified by the LOADDDN option. Use this option to get the CREATE TABLE statement of all the tables involved in a given load command, inserted before its related load command. The CREATE TABLE statement describes all the columns of the unloaded tables whether they are involved in the SELECT statement or not. If the LOAD command contains several tables, the content of the LOADDDN data set looks as follows:

```
CREATE TABLE me.mytable_1_in_LOAD_COMMAND_1
...
CREATE TABLE me.mytable_2_in_LOAD_COMMAND_1
...
LOAD DATA
...
INTO TABLE me.mytable_1_in_LOAD_COMMAND_1
...
INTO TABLE me.mytable_2_in_LOAD_COMMAND_1
...
CREATE TABLE me.mytable_3_in_LOAD_COMMAND_2
...
CREATE TABLE me.mytable_4_in_LOAD_COMMAND_2
...
LOAD DATA
...
INTO TABLE me.mytable_3_in_LOAD_COMMAND_2
...
INTO TABLE me.mytable_4_in_LOAD_COMMAND_2
...
CREATE TABLE me.mytable_n_in_LOAD_COMMAND_N
...
CREATE TABLE me.mytable_m_in_LOAD_COMMAND_N
...
LOAD DATA
...
INTO TABLE me.mytable_n_in_LOAD_COMMAND_N
...
INTO TABLE me.mytable_m_in_LOAD_COMMAND_N
```

where me.mytable_n_in_LOAD_COMMAND_N is one of the tables involved in the Nth load command.

Note: In SQL mode, the CREATE TABLE statement is only generated when the table can be identified from the SELECT statement. For example, for a SELECT statement which contains a table JOIN, no CREATE TABLE statement is generated.

Note: The CREATE TABLE DDL is only generated when the unload refers to a table, not a view, a Materialized Query Table or any other object. The column TYPE from the CATALOG table SYSTABLES must be equal to 'T'.

Note: The generated CREATE TABLE contains fieldproc, editproc and partitioned clause for tablespace partitioned by the table.

Note: The default value for graphical column is not generated in the DDL.

LENGTHBYTE

Specifies whether the two length bytes for variable-length columns are written to the output data set. LENGTHBYTE applies only when FORMAT USER is specified. It is ignored when other output formats are specified.

YES

Writes the two length bytes.

NO

Does not write the two length bytes.

The default value is YES when FORMAT USER is specified. You can change the default value by specifying an OPTIONS block at the GLOBAL or SELECT level or by changing LENGTHBYTE for a specific column in the FORMAT USER definition.

The following rules apply when you specify FORMAT USER:

- When LENGTHBYTE YES is specified, the default value for the LENGTH keyword is REAL.
- When LENGTHBYTE NO is specified, the default value for the LENGTH keyword is MAX.
- When LENGTHBYTE NO and LENGTH REAL are specified, Db2 HPU cannot generate a LOADDDN and issues the INZU203E error message if a LOADDDN file was requested.

When you specify FORMAT DELIMITED, the default value is NO. You cannot change this value by specifying an OPTIONS block, even when it is specified at the SELECT level.

When you specify FORMAT DSNTIAUL, FORMAT EXTERNAL, or FORMAT VARIABLE, the default value is YES. You cannot change this value by specifying an OPTIONS block, even when it is specified at the SELECT level.

LENGTH

Specifies whether to use the real or maximum length for variable-length fields. This keyword applies only for variable-length fields and for the USER and DSNTIAUL output formats. It is ignored when other output formats are specified.

REAL

The length of the field does not change (value of the two length bytes).

MAX

The output field is padded to its maximum length by adding binary zeros.

When you specify FORMAT USER, the default value for the LENGTH keyword depends on the setting of the LENGTHBYTE keyword. You can change the default value for the USER format by specifying an OPTIONS block at the GLOBAL or SELECT level or by changing the LENGTH keyword for a specific column in the FORMAT USER definition.

When you specify FORMAT DSNTIAUL, the default value is MAX. You can change the default value for the DSNTIAUL format by specifying an OPTIONS block at the SELECT level.

When you specify FORMAT VARIABLE or FORMAT DELIMITED, the default value is REAL. You cannot change this value by specifying an OPTIONS block, even when it is specified at the SELECT level.

When you specify FORMAT EXTERNAL, the default value is MAX. You cannot change this value by specifying an OPTIONS block, even when it is specified at the SELECT level.

NULLID

Specifies whether a null indicator byte is to be added at the beginning of an output field. You can also specify NULLID in the SELECT statement in the FORMAT USER syntax.

YES

The null indicator is created. If the column is null, the indicator is X'FF'. Otherwise, the indicator is X'00'. The Db2 LOAD command uses the indicator to load null values into a table. You can change the values of the null indicator by specifying the NULL keyword.

NO

The null indicator is not created.

The default values for formats are shown in [Default values per output format for options that are specified in the OPTIONS block](#).

NULLPOS

Specifies the position of the NULL indicator. You can also specify NULLPOS in the SELECT statement in the FORMAT USER syntax. This parameter does not apply to a LOB column unloaded in a spanned format (SPANNED YES option) in which case the NULL indicator is written before the output field (containing the data) whatever the value of NULLPOS.

BEFORE

The null indicator is placed before the field containing the related data.

AFTER

The null indicator is placed after the field containing the related data.

FRONT

The null indicators are gathered at the front of each unloaded record. The sequence of the NULL indicators is the same as the sequence of the related columns.

The default value of the NULLPOS option that is used depends on the requested output format, as shown in [Default values per output format for options that are specified in the OPTIONS block](#).

LOADINDDN

Specifies whether INDDN ddname cards are automatically inserted into the Db2 LOAD command according to the ddnames specified by the UNLOAD command for the data sets containing the unloaded data.

YES

INDDN ddname cards are automatically generated. If a TEMPLATE is used to allocate the output file, Db2 HPU also generates a TEMPLATE statement to allocate the ddname used by the INDDN cards generated by the LOADINDDN(YES) feature. To avoid any invalid duplicate specification of INDDN cards, any INDDN option specified via the tableoptions of a LOADOPT option from the OPTIONS block or via the “Options for global LOAD statement (VUU019/ULOPTLDT)” parmlib parameter is ignored.

NO

No INDDN card is automatically generated. This allows to disable a LOADINDDN(YES) setting made at the parmlib level and, subsequently, to ensure INDDN option specified via the tableoptions of a LOADOPT option from the OPTIONS block or via the “Options for global LOAD statement (VUU019/ULOPTLDT)” parmlib parameter are taken into account.

As the generated LOAD command does not contain any INDDN option, the single SYSREC ddname is assumed as input ddname regardless of the unload being requested at the global or partition level. Accordingly, only the load options specified for the table space level (i.e., the tablespaceoptions suboption of the LOADOPT option) are taken into account and any load options specified at the partition or table option (i.e., the partoptions or tablesolution suboption of the LOADOPT option) are ignored.

The default value is either NO or the value that is specified in the VUU030/ULOPTNS parameter, with parameter LOADINDDN.

FLOAT

Specifies the output format of the numeric floating point data. The FLOAT keyword applies only to the binary output format.

S390

Indicates that the binary floating point data is written to the output records in the S/390® internal format (hexadecimal floating point or HFP).

IEEE

Indicates that the binary floating point data is written to the output records in the IEEE format (binary floating point or BFP).

The default value is S390.

Restriction: The same output format is used for all FLOAT columns in one SELECT statement. You cannot specify the FLOAT keyword at the column level in the USER format.

UNLROWSET

Specifies the number of rows that a single SQL FETCH statement retrieves. Specifying the number of rows to retrieve improves the performance of SELECT statements that are processed by Db2 when you specify DB2 FORCE or DB2 YES with SELECT statements that are not supported by Db2 HPU. Valid values are 1 - 32767. When you specify 1, a single-row FETCH statement is used instead of a multiple-row FETCH statement. The multiple-row FETCH statement is available only in Db2 Version 8 NFM or later. The UNLROWSET keyword is ignored for earlier Db2 versions.

The default value is the value of the VUU035/UNLROWSET parameter.

NULLPAD

Specifies whether the padding character is used to fill the output field when a null value is unloaded.

NO

When a null value is unloaded, the output field is filled with binary zeros (x'00').

YES

When a null value is unloaded, the output field is filled with the padding character.

The default values for formats are shown in [Default values per output format for options that are specified in the OPTIONS block](#).

When you specify FORMAT DELIMITED, the value of the NULLPAD keyword is always YES, and you cannot change it.

AUTOTAG size| OBID

Allows you to add a tag, i.e. an extra field (header) added to each record of the unloaded data. The tag can be either sequence number generated by Db2 HPU or be the OBID of the table involved in the unload.

If you specify AUTOTAG and LOADDDN is requested, the generated LOAD control cards associate the INTO TABLE clauses with the relevant records by using WHEN clauses that refer to the appropriate tag.

If you specify AUTOTAG at the GLOBAL level or at the UNLOAD level, the AUTOTAG keyword applies to all SELECT statements if they are written in a common file.

If you specify AUTOTAG at the SELECT level, Db2 HPU requires all SELECT statements that write in a common output file to use the same number of digits. File records with an autotag cannot be mixed with file records without an autotag.

The AUTOTAG option applies only to logical unloads, which use SELECT statements to unload Db2 data. It does not apply to physical unloads.

size

Specifies the number of digits in the tag. Valid values are 0 - 8. If you specify 0, no tag is generated for the corresponding SELECT statements. If you specify a value from 1 to 7, the generated tag starts at 1 and is automatically incremented for each SELECT statement (either explicitly coded or generated by a LISTDEF or LISDEF TBV) of the same SYSIN for which AUTOTAG is specified.

Important: If the number of significant digits (i.e., non zero digits) of a tag computed for a SELECT statement exceeds the value specified by the AUTOTAG option, Db2 HPU stops.

OBID

Specifies that the OBID of the unloaded table must be added as a tag. The OBID value is added in hexadecimal on two digits. This value is supported only for unloads involving a single table that can be determined by Db2 HPU. It cannot be used if DB2 FORCE is specified as, in such a case, Db2 HPU does not parse the SELECT statement and subsequently does not determine the table involved in the unload.

Important: If you specify AUTOTAG OBID, be aware that if you specify several SELECT statements against the same table, the output records are tagged with the same value. In such a case, the tag cannot be used to determine which SELECT statement a record is associated to and the LOAD control cards requested by the LOADDDN option, if any, is not usable.

The default value is the value of the VUU046/ULAUTAG parmlib parameter.

IFERROR

Defines the value that is assigned to an output field if a conversion error occurs while the output field is formatted or if an error occurs while an expression that is natively processed by Db2 HPU is evaluated. The IFERROR keyword applies only to conversion or formatting that was made during the unload process. The IFERROR keyword does not apply to conversion errors when constants are specified in the SELECT statement and these constants are converted into a different data type by using an INTO clause, a REFORMAT clause, or by specifying FORMAT USER. These constants are converted during the initialization process. If an error occurs during this process, a syntax error is issued, and processing stops.

The value that you specify applies to all output fields for the corresponding SELECT statements.

If an expression error for a SELECT statement that is processed by Db2 occurs, Db2 issues an SQL error message, and the default value does not apply.

DEFAULT

The default value is assigned. This value depends on the data type.

NULL_OR_DEFAULT

If the output field allows a null value, the NULL value is assigned to the field. Otherwise, the default value is used.

TRIM

Allows you to suppress the trailing blank characters when data is unloaded into VARCHAR, VARGRAPHIC, CLOB, and DBCLOB output fields except if SPANNED YES is used. The length of the output field is adjusted to match the effective number of characters that are written.

If you specify FORMAT DELIMITED, the TRIM keyword applies to output fields with CHAR and GRAPHIC data types.

If you specify the TRIM keyword at the GLOBAL level, it applies only to the USER format unless YES is specified for the VUU057/OPALLFMT PARMLIB parameter. If you specified YES for the VUU057/OPALLFMT PARMLIB parameter or if you specify the TRIM keyword at the SELECT level, the TRIM keyword applies to any output format.

The TRIM keyword does not apply when numeric data is converted to numeric external.

NO

Trailing blank characters are not suppressed.

YES

Trailing blank characters are suppressed.

The default value is the value of the VUU059/ULTRIM PARMLIB parameter.

PADDING

Specifies the padding character that Db2 HPU uses at the column level or the record level.

Column

The padding character is used to pad the null values when you specify NULLPAD YES to pad the output field when the specified value is shorter than the field or to pad numeric data that is converted to character data.

Record

The padding character is used to pad the end of the output record up to the length of the physical record when the format of the DCB (RECFM) is fixed and when the output record is shorter than the LRECL.

The following syntaxes are supported:

PADDING (SBCS padding [, DBCS padding [, record padding]])

Specifies the padding characters for SBCS and DBCS characters when a character string is converted to a longer character string and when the generated record is padded to its specified length.

SBCS padding

The default value is ' ' (an EBCDIC SBCS blank character). You can specify the value in the following ways:

'c'

Specifies an EBCDIC SBCS character. This character can be converted to match the output CCSID.

X'hh'

Specifies an SBCS character in hexadecimal format. This character is used as-is, regardless of the output CCSID.

DBCS padding

The default value is the DBCS space character in the output CCSID. To obtain this DBCS space character, the UTF16 character UX'3000' is converted into the output CCSID. You can specify the value in the following ways:

X'hhhh'

Specifies a DBCS character in a 2-byte hexadecimal format. This character is used as-is, regardless of the output CCSID.

G'SI_graphic_char_SO'

Specifies a graphic character as a graphic constant that is expressed in EBCDIC. Shift-out/shift-in bytes are included. This character can be converted to match the output CCSID.

GX'hhhh'

Specifies a graphic character as a hexadecimal EBCDIC DBCS constant. This character can be converted to match the output CCSID.

UX'hhhh'

Specifies a graphic character as a hexadecimal UTF16 Unicode constant. This character can be converted to match the output CCSID.

Record padding

Depending on the output format that is used to unload the data, the default value can be either of the following values:

- X'00' for the DSNTIAUL format and the EXTERNAL format,
- The SBCS blank character that was converted in the output CCSID for all other formats.

You can specify the value in the following ways:

'c'

Specifies an EBCDIC SBCS character. This character can be converted to match the output CCSID.

X'hh'

Specifies an SBCS character in hexadecimal format. This character is used as-is, regardless of the output CCSID.

If you do not specify the PADDING keyword, the following values are default values for padding at the character level and the record level:

SBCS characters

- X'00' for variable-length columns in the DSNTIAUL format and the EXTERNAL format,
- The SBCS blank character that was converted to match the output CCSID for all other formats and, if padding at the column level is not specified, for columns that use an INTO clause or a REFORMAT keyword.

DBCS characters

UTF16 value UX'3000' that was converted to match the output CCSID

Record padding character

- X'00' for the DSNTIAUL format and the EXTERNAL format,
- The SBCS blank character that was converted to match the output CCSID for all other formats.

Important: When you specify FORMAT DSNTIAUL or FORMAT EXTERNAL, PADDING () does not give the same result as omitting the PADDING keyword because the SBCS padding is x'00' when the PADDING keyword is omitted, and it is the SBCS blank character when the PADDING keyword is specified.

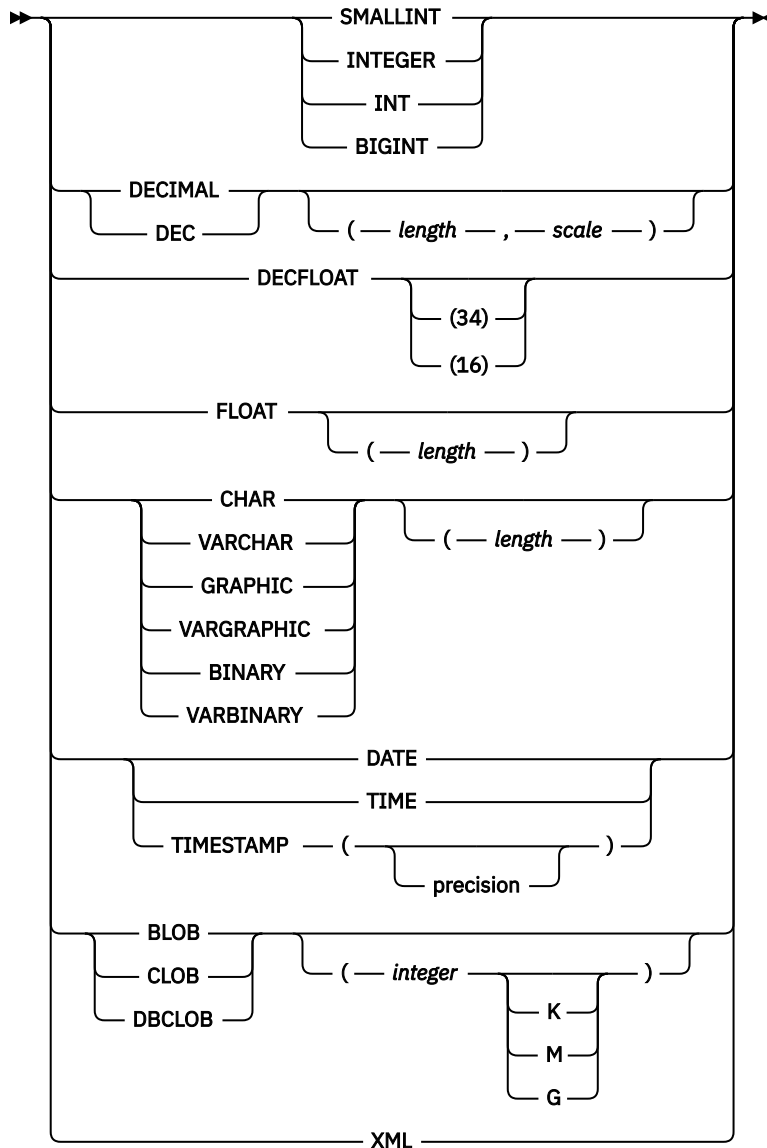
REFORMAT

Defines the default reformatting for all columns that correspond to a specific Db2 definition.

internal-data-type

Specifies a Db2 data type as it is specified in the CREATE TABLE statement. For columns that allow a length or length and scale specification, such as CHAR or DECIMAL columns, you can specify the data type with or without the length. Specifying the data type without the length defines a default conversion for all columns with this data type. If you specify a data type plus a length, such as CHAR(8), the default conversion applies only to columns that are defined with this precise data type. The following diagram shows the syntax of the internal data type:

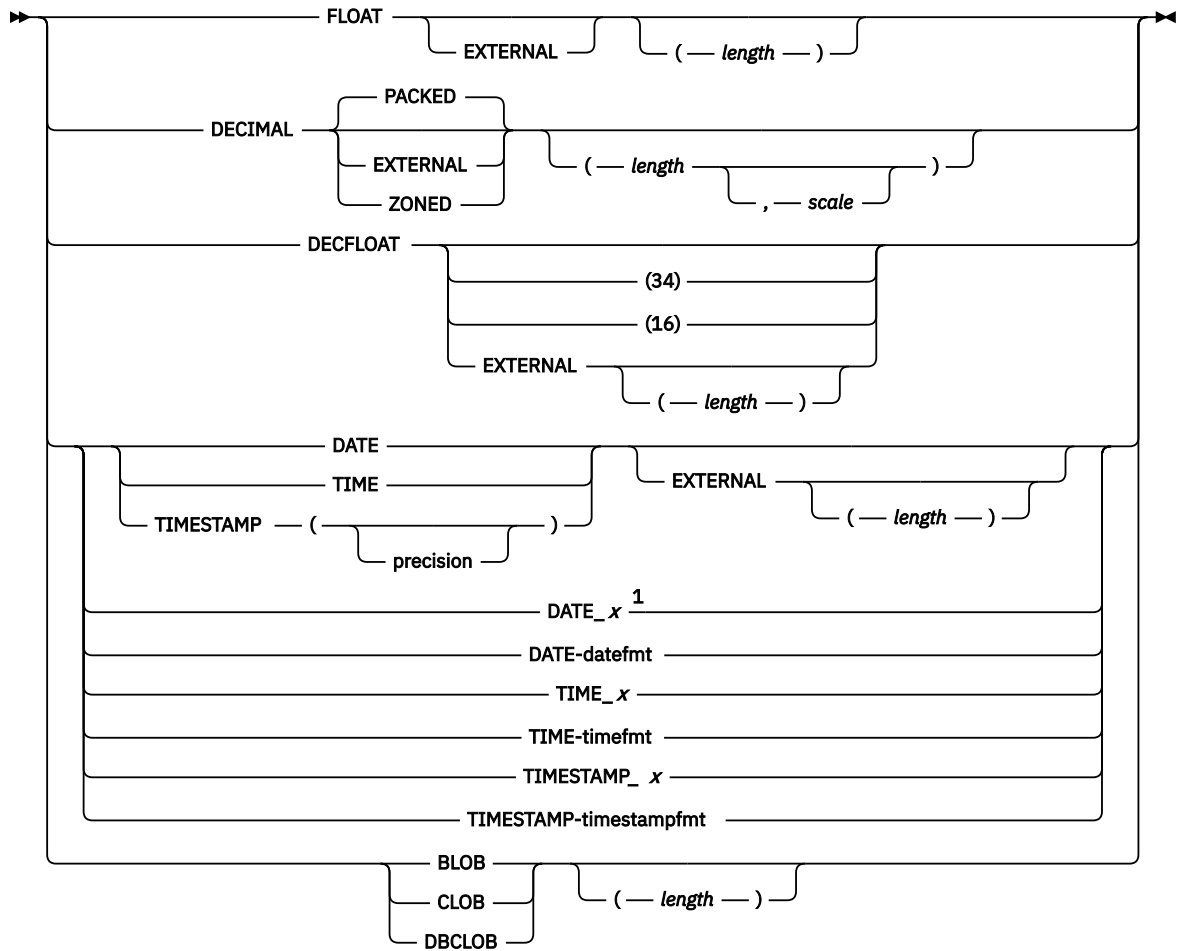
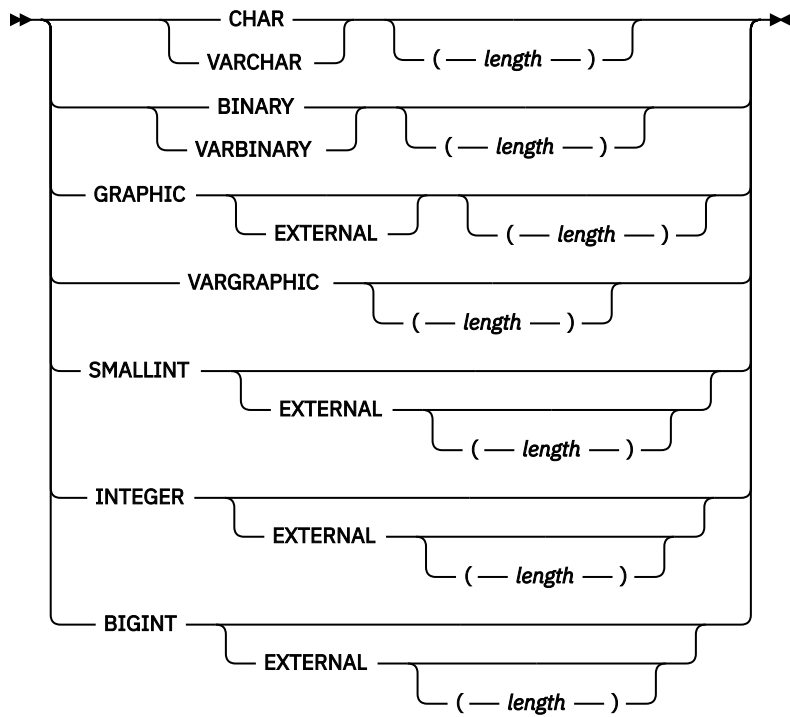
internal-data-type



output-data-type

The following syntax diagram shows the output data type:

output-data-type



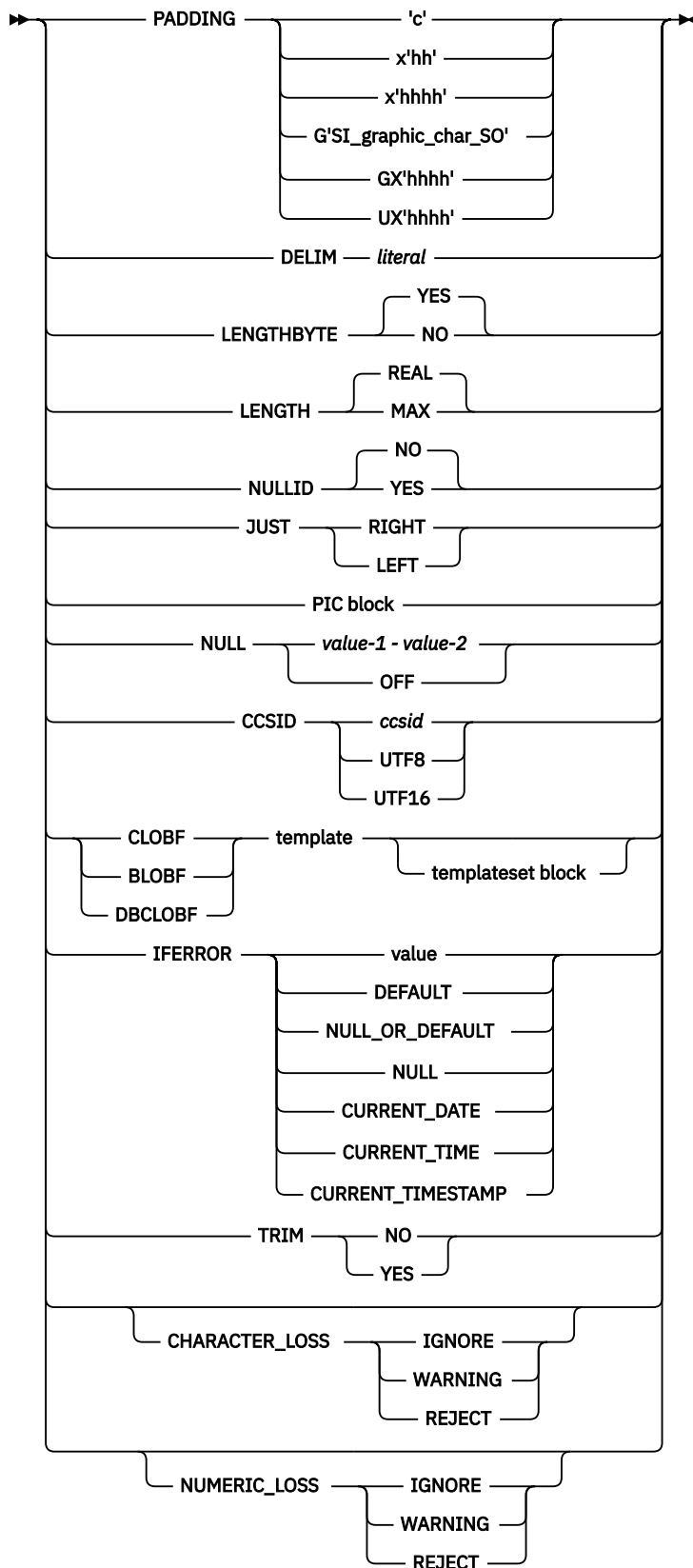
Notes:

¹ The DATE, TIME, and TIMESTAMP data types without the EXTERNAL keyword correspond to the internal DATE/TIME/TIMESTAMP format, and DATE_x, TIME_x, and TIMESTAMP_x correspond to the formats that are defined in the OPTIONS description.

column-format-option

Use the column format option block in the REFORMAT clause of the OPTIONS block, in the FORMAT USER statement, or in the INTO clause of the SELECT statement. The following diagram shows the syntax of the column format option:

column-format-option



For example, you can use the REFORMAT keyword to specify that you want all CLOB columns that are processed are changed into CLOBF columns by using a specific TEMPLATE statement without having to define it in an INTO clause or in a FORMAT USER statement. You can also use the REFORMAT keyword to convert all DECIMAL(10,0) columns in INTEGER format.

The REFORMAT keyword is especially useful to make format conversions when you use LISTDEF or LISTDEFTBV because the INTO clause is not supported in such a case and using the USER format is either not possible.

The formatting options that are specified in the REFORMAT keyword are overridden by the options that are defined in the INTO clause of the fast select block by the LIKE keyword that is used in the DSNTIAUL format or the VARIABLE format and by the conversion option that is defined in the USER format.

PADDING *padding-character*

Specifies the padding character, where *padding-character* is the padding character to be used when padding is required for a column.

Padding is used to convert characters to a longer string. Padding is typically applied to the end of character strings. If you specify JUST RIGHT, padding is added at the beginning of the string.

For SBCS data, you can specify the padding character in the following ways:

'c'

Specifies an EBCDIC SBCS character. This character can be converted to match the output CCSID.

X'hh'

Specifies an SBCS character in hexadecimal format. This character is used as-is, regardless of the output CCSID.

For DBCS data, you can specify the padding character in the following ways:

X'hhhh'

Specifies a DBCS character in a 2-byte hexadecimal format. This character is used as-is, regardless of the output CCSID.

G'SI_graphic_char_SO'

Specifies a graphic character as a graphic constant that is expressed in EBCDIC. Shift-out/shift-in bytes are included. This character can be converted to match the output CCSID.

GX'hhhh'

Specifies a graphic character as a hexadecimal EBCDIC DBCS constant. This character can be converted to match the output CCSID.

UX'hhhh'

Specifies a graphic character as a hexadecimal UTF16 Unicode constant. This character can be converted to match the output CCSID.

You must specify a single-byte character ('c' or X'hh') for SBCS data and a double-byte character (G'SI_graphic_char_SO' or GX'hhhh' or UX'hhhh') for DBCS data. Any other combination is rejected.

The following examples show how you can specify padding:

- PADDING '*'
- PADDING X'00' (binary zero)

For SBCS data, the default padding character is an SBCS blank character that is converted in the output CCSID, if needed.

For DBCS data, the default padding character is the UTF16 character UX'3000' that is converted in the output CCSID, if needed.

DELIM *literal*

When this keyword specified in a USER block, it indicates the delimiter to be used in external DATE or TIME fields. The literal must be a single character and must be one byte long, regardless of the literal CCSID.

For DATE fields, a hyphen (-) is the default value.

For TIME fields, a period (.) is the default value.

For the `TIMESTAMP` column, both delimiters are used.

LENGTHBYTE

Specifies whether to write the two length bytes for variable-length columns to the output data set.

YES

The two length bytes are written.

NO

The two length bytes are not written.

The default value is YES.

LENGTH

Specifies whether the real or maximum length is to be used for variable-length fields.

REAL

The length of the field does not change (value of the two length bytes).

MAX

The output field is padded to its maximum length with binary zeros.

The `LENGTH` keyword is useful only for variable-length fields.

The default value is REAL.

NULLID

Specifies whether a null indicator byte is added to the beginning of an output field. You can specify `NULLID` in the `OPTIONS` block also.

YES

The null indicator is created. If the column is null, this indicator is set to the `X'FF'` value. Otherwise, the indicator is set to `X'00'`. The indicator can be used by the Db2 `LOAD` command to load null values into a table. You can change values of the null indicator by using the `NULL` keyword.

NO

The null indicator is not created.

The default value is YES.

JUST

Specifies whether to align the output character string. The `JUST` keyword specifies right or left justification for extended numeric values or for character strings when strings are converted to a greater length.

RIGHT

Justify the output character string to the right.

LEFT

Justify the output character string to the left.

The default value depends on the type of string. For conversion between character strings, the default value is LEFT. For numeric conversions in strings, the default value is RIGHT.

PIC block

For a description of the PIC block, see [the PIC keyword](#).

NULL

Indicates whether the null indicator is generated in the output data set. You can specify `NULL` in the `OPTIONS` block also.

value-1

Indicates the value of the null indicator when the column value is NULL. It can be specified in character ('C') or hexadecimal (X'hh') format.

value-2

Indicates the value of the null indicator when the column value is NOT NULL. It can be specified in character ('c') or hexadecimal (X'hh') format.

OFF

No null indicator is generated.

The default is the value that is specified for the VUU014/ULNULL PARMLIB parameter.

CCSID

Specifies that a CCSID conversion will be done on the output field. The CCSID conversion between the CCSID of the unloaded data and the CCSID that was specified in this parameter must be defined. When a LOB file reference is specified, the specific CCSID conversion is applied on the LOB data. The LOBFILE DSNAMES that is generated in the output record is kept in the default CCSID of the output file.

ccsid

Specify a valid CCSID value for the CCSID of the output field.

UTF8

Unicode Transformation Format, 8-bit encoding form is used. UTF8 is equivalent to 1208.

UTF16

Unicode Transformation Format, 16-bit encoding form is used. UTF16 is equivalent to 1200.

BLOBF

Specifies that the output field will contain the name of the file in which the BLOB is to be unloaded without CCSID conversion.

CLOBF

Specifies that the output field will contain the name of the file in which the CLOB will be unloaded with any required CCSID conversion.

DBCLOBF

Specifies that the output field will contain the name of the file in which the DBLOB will be unloaded with any required CCSID conversion.

template-statement-name

Specifies the name of a TEMPLATE statement that is used to allocate the file that will contain the LOB data. The DSN of the TEMPLATE statement that is used must contain either the &UNIQ variable that is explicitly coded or automatically generated for a PDS or PDS/E, or a user-defined variable that is associated with a TEMPLATESET to the :RECNUM predefined variable.

BLOBF, CLOBF, and DBCLOBF output types can be used only when converting BLOB, CLOB and DBCLOB columns. The output type that is defined with the TYPE keyword must be either CHAR or VARCHAR, and the corresponding column must be large enough to contain the generated data set name.

To use LOB file reference with a table that comes from a LISTDEF or a LISTDEFTBV, use BLOBF, CLOBF, or DBCLOBF in the REFORMAT keyword of the OPTIONS block. This option specifies that all LOB data will be unloaded by using LOB file reference. The associated TEMPLATE statement must distinguish the generated files to prevent duplicates. When you unload data from a LISTDEF or a LISTDEFTBV with tables that contain potentially more than one LOB column, the TEMPLATE statement that is used in the REFORMAT keyword can contain a user-defined variable that is associated with the :COLNUM or :COLNAME predefined variables. When you specify the &TS or &SN variables in a TEMPLATE statement that is used with BLOBF, CLOBF, or DBCLOBF, Db2 HPU substitutes the name of the table space that stores the LOB column value, not the base table space name. By substituting the name of the table space, Db2 HPU can generate unique data set names for each LOB column.

IFERROR

Defines the value that must be assigned to the output field if a conversion error occurs when the output field is formatted or if an error occurs when an expression is evaluated by Db2 HPU. IFERROR applies only to conversion or formatting that was made during the unload process. IFERROR does not apply to conversion errors when constants are specified in the SELECT statement and these constants are converted into a different data type by using an INTO clause, a REFORMAT keyword, or a FORMAT USER specification. These constants are converted during the initialization process. If an error occurs during this process, a syntax error is issued, and processing stops.

If an expression error for a SELECT statement that was processed by Db2 occurs, Db2 issues an SQL error message, and a default value does not apply.

value

Specifies a value to assign to the output field in a conversion error or an error that occurs when an expression is evaluated. The following constant values are valid:

Character or hexadecimal constants

Character constants or hexadecimal constants are accepted for any type of output field. In CCSID conversion, character constants are converted from EBCDIC into the output CCSID, but hexadecimal constants are not converted into the output CCSID.

When you use the following output data types, Db2 HPU uses CCSID conversion for character constants:

- CHAR
- VARCHAR
- CLOB
- GRAPHIC
- GRAPHIC EXTERNAL
- VARGRAPHIC
- DBCLOB
- SMALLINT EXTERNAL
- INTEGER EXTERNAL
- BIGINT EXTERNAL
- FLOAT EXTERNAL
- DECIMAL EXTERNAL
- DECFLOAT EXTERNAL
- DATE_EXTERNAL
- DATE_A to DATE_P
- DATE_DB2
- TIME EXTERNAL
- TIME_A to TIME_E
- TIME_DB2
- TIMESTAMP EXTERNAL
- TIMESTAMP_A to TIMESTAMP_G

When you use the following output data types, Db2 HPU does not use CCSID conversion for character constants:

- BINARY
- VARBINARY
- BLOB
- SMALLINT
- INTEGER
- BIGINT
- FLOAT
- DECIMAL PACKED
- DECIMAL ZONED
- DECFLOAT
- DATE

- DATE_Q - DATE_R
- DATE_0 - DATE_7
- TIME
- TIME_0
- TIMESTAMP
- TIMESTAMP_0.

Numeric constants

Use numeric constants only if the output field corresponds to numeric data in internal format. Otherwise, use a character constant.

The following table shows the conversions that are accepted:

Table 32. Accepted conversion types

Output data type	Type of numeric constant accepted
SMALLINT	Integer constant
INTEGER	Integer constant
BIGINT	Integer or BIGINT constant
DECIMAL	Integer constant that fits in the DECIMAL output field or a decimal constant with scale and precision that is smaller or equal to the scale and precision of the output field
FLOAT	Integer, BIGINT, decimal, or float constants
DECFLOAT	Any numeric type

DEFAULT

The default value is assigned to the field. The default value depends on the data type.

NULL_OR_DEFAULT

If the output field allows a null value, the NULL value is assigned to the field. Otherwise, the default value is assigned.

NULL

The NULL value is assigned to the field. The output field must include a null indicator.

CURRENT_DATE, CURRENT_TIME, CURRENT_TIMESTAMP

The assigned date, time, or timestamp is identical for each row, and its value is obtained at the beginning of the process. In internal or external format, CURRENT_DATE is allowed only for the DATE field; CURRENT_TIME is allowed only for the TIME field; and CURRENT_TIMESTAMP is allowed only for the TIMESTAMP field.

TRIM

Allows you to suppress the trailing blank characters when you unload data into VARCHAR, VARGRAPHIC, CLOB, and DBCLOB output fields. If you specify FORMAT DELIMITED, the TRIM keyword applies to output fields with CHAR and GRAPHIC data types. The length of the output field is adjusted to match the effective number of characters that are written.

The TRIM option does not apply when numeric data is converted to numeric external.

NO

Trailing blank characters are not suppressed.

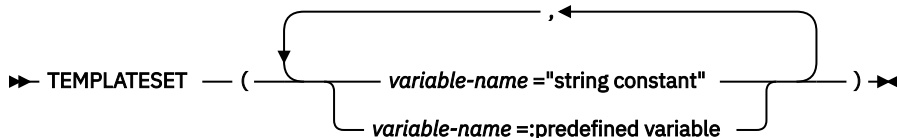
YES

Trailing blank characters are suppressed.

The default value is the value of the VUU059/ULTRIM PARMLIB parameter.

TEMPLATESET

Use the TEMPLATESET block to assign values to any user-defined variable that is used in a TEMPLATE definition. Assign values by using string constants or predefined variables that are set by Db2 HPU at run time. A colon (:) must precede predefined variable names. The following diagram shows the syntax of the TEMPLATESET block:



A predefined variable can be one of the following variables:

:COLNUM

Specifies the position of the column in the SELECT statement. This variable is a 5-digit numeric value and is generally used when LOB columns are unloaded by using a LOB file reference (CLOBF, BLOBF, or DBLOBF data types).

:SELNUM

Specifies a unique number for the SELECT statement regarding:

- the set of SELECT statements from a given UNLOAD statement for explicit SELECT statements
- the set of all the tables involved in a LISTDEF statement for a SELECT FROM LIST statement [HPU 5.1 if the VUU030/ULOPTNS parmlib parameter specifies SELNUM_PER_TS_IF_LISTDEF(NO)]
- the set of tables of a table space involved in a LISTDEF statement for a SELECT FROM LIST statement [in HPU 5.1 only if the VUU030/ULOPTNS parmlib parameter specifies SELNUM_PER_TS_IF_LISTDEF(YES)].

This variable, is a 5-digit numeric value that facilitates creating distinct dataset names when large or unpredictable number of implicit or explicit SELECT statements are specified in a single UNLOAD statement. This is especially useful for an UNLOAD statement that involves a lot of SELECT statements against the same table space as the tablespace name, through the &TS variable, is not enough to get a unique data set name.

Important: Do not use this variable if you need to generate a predictable name for a given SELECT statement as its computation only ensures the uniqueness but neither its absolute value especially regarding its relationship with any of the other variables for TEMPLATE dataset names. As a consequence, use this feature only if your post-processing can determine the data set names generated by Db2 HPU at run time or if you use the Db2 HPU LOADDDN feature with the LOADINDDN YES option so that the generated LOAD control cards take the data set names of the unload data into account.

:UNLNUM

Designates the sequential number of the UNLOAD statement. This variable is a 5-digit numeric value determined as follows:

- it takes the reading sequence into account: numbers are incremented along with the reading sequence.
- if the UNLOAD statement does not contain any SELECT statement with a FROM LIST clause, its number is the number of the previous UNLOAD statement (regarding the reading sequence in the SYSIN data set) plus one.
- if the UNLOAD statement contains a SELECT statement with a FROM LIST clause, the single UNLOAD statement is expanded into a sequence of one UNLOAD statement per table space described by the LISTDEF statement. Each table space is associated with a :UNLNUM value, starting with 1 and incremented by one for each table space. Be aware that, as the UNLNUM value assigned to a given table space is not predictable, only use the UNLNUM variable to distinguish the output datasets related to a given table space) and to associate the output datasets (e.g. OUTDDN and LOADDDN) related to the same tablespace but do not use this variable as a part

of an input dataset name (e.g. DDLDDN or COPYDDN) as this could lead Db2 HPU to process the unload of some table spaces with wrong input datasets.

:RECNUM

The record number is a 15-digit numeric value and is internally processed. By default, the variable that is associated with :RECNUM is replaced by the last seven digits of the record number. A substring can be applied to this variable to obtain another part of the record number, or to retrieve fewer digits. This variable is generally used when LOB columns are unloaded by using a LOB file reference (CLOBF, BLOBF, or DBLOBF data types).

:COLNAME

This predefined variable contains the first characters of the column name. When the associated variable is replaced by its value, it is truncated to make it a valid qualifier in the generated DSNAME. Valid values are 1 - 8 characters. This variable is generally used when LOB columns are unloaded by using a LOB file reference (CLOBF, BLOBF, or DBLOBF data types).

When these variables cannot be evaluated, :COLNUM and :SELNUM are set to 00000; :RECNUM is set to 0000000; and :COLNAME is set to COL*n*, where *n* is a sequential number. This sequential number ensures unicity, but it does not have a specific meaning regarding the actual database or the table space that it represents.

:SELNUM, does not apply when the TEMPLATE statement is used with UNLDDN.

:COLNUM, :COLNAME, and :RECNUM, do not apply when the TEMPLATE statement is used outside of a LOB file reference.

You can code the TEMPLATESET block in the OPTIONS or GLOBAL OPTIONS block. When the TEMPLATESET block is used with LOB columns that use a LOB file reference, the TEMPLATESET block can be used in the column format option block. The COLUMN FORMAT OPTIONS block can be used in the REFORMAT keyword, in the INTO clause, or in the FORMAT USER definition.

All TEMPLATESET definitions that are coded in high-level syntax are available at a lower level. For example, if TEMPLATESET is coded to define a user variable in the GLOBAL OPTIONS block, this variable will be available to build data set names in the templates that are used in all UNLOAD commands and for all SELECT statements in these UNLOAD commands. However, if TEMPLATESET is defined only in an OPTIONS statement that is coded in a SELECT statement, the variable definition will be available only for the TEMPLATE statements that are used in this specific SELECT statement. The definition of a user variable with a TEMPLATESET that is made at a lower level overrides the definition of the same user-defined variable that was made at a higher level but only at this lower level. For example, if a user variable is set to :SELNUM in the GLOBAL OPTIONS block and set to ABC in the OPTIONS statement that is coded in one of the SELECT statements, the replaced value will be :SELNUM for all other SELECT statements, and ABC for the SELECT statement that overrides the variable definition.

HIDDEN

Specifies whether hidden columns are unloaded when a SELECT * statement is used. You can also specify this keyword as the third parameter after the UTILID in the PARM field in the EXEC statement. When the HIDDEN parameter is specified and this keyword is specified in SYSIN, the value that is specified in SYSIN is used.

NO

Specifies that hidden columns are not unloaded when a SELECT * statement is used.

YES

Specifies that hidden columns are unloaded when a SELECT * statement is used. For SELECT statements that are processed by Db2, the HIDDEN keyword is ignored.

If the HIDDEN keyword is not specified in the SYSIN, the value for HIDDEN that is specified on the EXEC card is the default value. If the HIDDEN keyword is not specified on the EXEC card, the default value is the value of the VUU042/ULHIDDEN PARMLIB parameter.

SPANNED

For logical unload statement (using a SELECT clause) which result table has LOB columns and one of the CLOB, BLOB or DBCLOB format is applied to these columns. This option specifies whether the

output data must be unloaded into a VBS data set in spanned record format compliant with the Db2 LOAD utility used with the FORMAT SPANNED YES option.

NO

The records of the output data set do not have the spanned format.

YES

The records of the output data set have the spanned format. The content of the LOB data is unloaded along with the data from the other columns.

Note:

- SPANNED YES only applies to LOB data being unloaded as LOB but not if a conversion to any other type is requested.
- SPANNED YES can only be used when the FORMAT option specifies one of the following:
 - VARIABLE
 - USER provided the related LOAD statement can be generated
- SPANNED YES cannot be used with DELIMITED, INTERNAL and EXTERNAL format.
- when SPANNED YES is specified, the parameter TRIM YES does not apply for LOB columns.
- SPANNED YES cannot be used if XML data is to be unloaded.

ENFORCE_COLUMN_ORDER

If SPANNED YES option is requested, the LOB data will be placed at the end of the result table (defined by the column list of the SELECT clause and by the optional INTO clause). This condition might not be fulfilled because of the sequence of the explicit expressions that define the result table or because of the underlying table definition when a SELECT * is specified. Db2 HPU can rearrange the columns of the result table to ensure the LOB columns are gathered at the end of the record. The ENFORCE_COLUMN_ORDER specifies if the reordering feature is disabled, i.e. if the native column sequence of the result table is kept.

YES

The order of the column in the select statement is kept. If the LOB columns are not the last (rightmost) columns of the result table, the processing stops and an error message is issued.

NO

If necessary, Db2 HPU rearranges the columns of the specified result table to ensure the LOB columns are gathered at the end of the record.

XMLSET

XMLSET specifies the tags to be used for the XML output. Both columns and records can be tagged. You can specify the way columns (by specifying the COLUMN keyword) and/or records (by specifying the RECORD keyword) are tagged.

Specify either an xmltag if you want a tag to be generated or OFF if you want no tag to be generated.

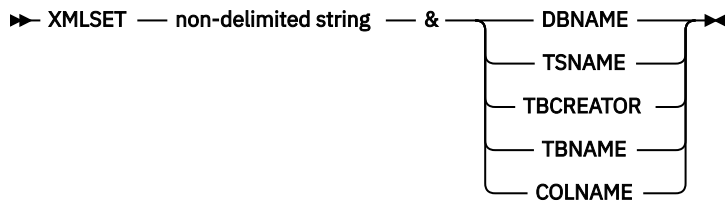
- COLUMN: specifies that the next keywords apply to columns
- RECORD: specifies that the next keywords apply to records

If XMLSET is not specified, the default value XMLSET (COLUMN = < &COLNAME. > , RECORD = OFF) applies.

The XMLSET options specified at different level are not merged. Only the more local XMLSET specification is taken into account.

For example, if XMLSET (RECORD = <&TSNAME.>) is specified at the UNLOAD level and XMLSET (COLNAME=<&COLNAME.>) is specified at the SELECT level, the output data set is generated as if the XMLSET specified at the unload level did not exist. Therefore, the default for records (RECORD=OFF) applies (i.e. no tag for records are generated).

The following diagram shows the syntax of the XMLSET block:



A non-delimited-string can be one of the following variables:

DBNAME

Name of the data base the unloaded table belongs to. If the data base name cannot be determined (unsupported select statements), the data base name is substituted with "DBnnn" where *nnn* is a unique number.

TSNAME

Name of the table space the unloaded table belongs to. If the data base name cannot be determined (unsupported select statements), the data base name is substituted with "TSnnn" where *nnn* is a unique number.

TBCREATOR

This variable is substituted with the following value according to the precedence order of the list below:

- the table creator specified via the INTO clause ;
- the name of the creator of the table to be unloaded ;
- "CRnnn" where *nnn* is a unique number of none of the above can be determined.

TBNAME

This variable is substituted with the following value according to the precedence order of the list below:

- the table name specified via the INTO clause ;
- the name of the table to be unloaded ;
- "TBnnn" where *nnn* is a unique number of non of the above can be determined.

COLNAME

This variable is substituted with the following value according to the precedence order of the list below:

- "UNDEFINED" if not applicable (i.e. used to specify the RECORD xmltag) ;
- the column name specified via the INTO clause ;
- the name of the column to be unloaded ;
- "COLnnn" where *nnn* is a unique number of none of the above can be determined.

Table 33. Variables usable in xml-templates

Variable	Alias	Description	Scope	Default
UNLNUM	UNLN	Number of the UNLOAD command as affected by Db2 HPU	RECORD & COLUMN	No default
DBNAME	DB	Name of the data base to which the unloaded table belongs	RECORD & COLUMN	DBnn(*)
TSNAME	TS	Name of the table space to which the unloaded table belongs	RECORD & COLUMN	TSnn(*)
SELNUM	SELN	Number of the SELECT statement as affected by Db2 HPU	RECORD & COLUMN	No default

Table 33. Variables usable in xml-templates (continued)

Variable	Alias	Description	Scope	Default
TBCREATOR	TBC	Name of the creator of the unloaded table	RECORD & COLUMN	CRnn(*)
TBNAME	TBN	Name of the unloaded table	RECORD & COLUMN	TBnn(*)
COLNAME	CNAM	Name of the unload column	COLUMN	COLnnn where nnn is the rank of the column in the SELECT statement
COLNUM	CNUM	Rank of the column in the SELECT statement	COLUMN	-1
COLTYPE	CTYP	Db2 data type of the unloaded column	COLUMN	UNDEF
COLLENGTH	CLEN	Length of the unloaded column	COLUMN	-1
COLPREC	CPRE	Precision of the column. Applies only to a decimal column	COLUMN, type decimal	-1
COLSCALE	CSCA	Scale of the column. Applies only to a decimal column	COLUMN, type decimal	-1
COLNULL	CNUL	Nullability attribute of the column (the value is either NULL, NOT NULL or UNDEF if Db2 HPU cannot determine the attribute.	COLUMN	UNDEF

OPTIMIZATION_HINT

Allows to process an SQL statement: SET CURRENT OPTIMIZATION HINT 'string constant' when processing the unload in SQL mode. This option is only available if DB2 parameter is set to FORCE. For example, in Db2 HPU syntax, OPTIMIZATION_HINT 'NOHYB' generates the SQL statement: SET CURRENT OPTIMIZATION HINT = 'NOHYB'

You can clear the CURRENT OPTIMIZATION HINT special register by specifying an empty string. For example, in Db2 HPU syntax: OPTIMIZATION_HINT generates the SQL statement: SET CURRENT OPTIMIZATION HINT = ''

QUERY_ACCELERATION value

Allows to have the following SQL statement run when a logical unload is processed in SQL mode:

```
SET CURRENT SQL ACCELERATION = 'value'
```

The value can be one of the following values: NONE, ENABLE, ENABLE WITH FAILBACK, ELIGIBLE and ALL. It refers to the relevant Db2 publication for a description of the effect of the QUERY_ACCELERATION special register.

Important: This option is only available if DB2 parameter is set to FORCE.

See the *Db2 Universal Database for z/OS SQL Reference* for syntax and definitions for Db2 full select.

Note: If QUERY_ACCELERATION parameter is specified (except for NONE value) and if the parameter UNLROWSET or its default VUU0035/ULROWSET is set to 1, the multi row fetch mode is forced to 100 rows.

CHARACTER_LOSS

It specifies the behavior of the product when significant data from character column is lost during unload formatting because of an INTO or REFORMAT clause and an ssss syntax is specified.

Db2 HPU considers a data loss has occurred for a character column if the data truncation removes any character that does not belong to the padded part of the character string, i.e. a sequence of padding characters that ends at the right end of the character string.

The data loss is checked for the following data types:

- CHAR
- VARCHAR
- GRAPHIC
- VARGRAPHIC
- BINARY
- VARBINARY

Specify one of the following values:

IGNORE

No control is done.

The return code of the job is 0 unless another issue occurs.

WARNING

A warning message is issued for any column affected by a data loss.

The return code is 4 unless another issue occurs.

REJECT

An error message is issued for any column affected by a data loss.

The return code of the job is 8 unless another issue occurs.

The default value is the value of the **VUU071/LOSSCHAR** PARMLIB parameter.

NUMERIC_LOSS

It specifies the behavior of the product when significant data from numeric column is lost during unload formatting (via INTO or REFORMAT clause) and an ssss syntax is specified.

Db2 HPU considers a data loss has occurred for a numeric column if the numeric value has changed.

The data loss is checked for the following data types:

- SMALLINT
- INTEGER
- BIGINT
- DECIMAL

Specify one of the following values:

IGNORE

No control is done.

The return code of the job is 0 unless another issue occurs.

WARNING

A warning message is issued for any column affected by a data loss.

The return code is 4 unless another issue occurs.

REJECT

An error message is issued for any column affected by a data loss.

The return code of the job is 8 unless another issue occurs.

The default value is the value of the **VUU072/LOSSNUM** PARMLIB parameter.

ZONED_DEC_SIGN

Specifies the value of the sign bytes used for zoned-decimal numeric values. The first character represents the positive sign, the second one the negative sign.

The default value is ZONED_DEC_SIGN (C,D).

UNICODE_EXPANSION_RATIO

Specifies what expansion ratio (i.e. target data length divided by source data length) to apply to char/varchar data when a conversion from a non-UTF8 CCSID to a UTF8 CCSID is done.

The allowed values are integer from 1 to 4.

The default value is the value of the VUU068/ULUNIEXP parameter.

CONVERSION_TRUNCATION_ALLOWED

Specifies what policy to apply when data truncation is needed because of a CCSID conversion.

YES

Truncation of the output field after a CCSID conversion is allowed.

NO

Truncation of the output field after a CCSID conversion is forbidden. Records requiring truncation are discarded and the return code is set to 4.

The default value is the value of the VUU067/ULCNVTRC parameter.

HANDLE_RECORD_ID

Allows to get more detailed information when formatting errors occur so that identifying accurately the record involved in the error is possible.

When such an error occurs, if HANDLE_RECORD_ID is not specified, the error is reported by a message formatted as follows:

```
* error_code * error_type * output_ddname * output_area * content
```

where:

- error_code is the code for the error type
- error_type is the type of error that was encountered
- output_ddname is the output ddname into which the record causing the error is to be written
- output_area designates the area of the output record causing the error
- content is the hexadecimal representation of the output area to be formatted

The information displayed by this standard/default error message is sometimes insufficient for trouble shooting as it does not allow to accurately determine which record is involved.

If HANDLE_RECORD_ID is specified and if the unload is processed in native mode, the messages are formatted as follows:

```
* error_code * error_type * output_ddname * output_area * PART partition_number PGNUM  
page_number ID id_map * DB : database TS : tablespace
```

where the additional following information is displayed:

- partition_number: the partition number if the table space is partitioned
- page_number: the page number - in hexadecimal representation - in the LDS
- id_map: the ID map - in hexadecimal representation - in the page
- database,tablespace: the identifier of the table space that contains the record that caused the error

The same additional information is also displayed if a \$HRECID dd statement is specified for the Db2 HPU exec statement which makes this feature available even if the Db2 HPU native syntax is not used.

Note: requesting the more detailed message to be issued decreases the performance of the unload job run in native mode as Db2 HPU handles longer records when it is specified. As the amount of extra information in the record does not depend on the data to unload, the shorter the output record the bigger the impact on performance.

Examples of formatting error messages:

The message below gives an example of detailed error message issue if either HANDLE_RECORD_ID or \$HRECID dd statement is specified:

```
* 234 * DATA LOST * OUT * C1 * C4E2D5C4C2F0F440
* 234 * DATA LOST * OUT * PART 0001 PGNUM 00000002 ID 01 * DB : DSND06 TS :
SYSTSDBA
```

and the corresponding message issued otherwise:

```
* 234 * DATA LOST * OUT * C1 * C4E2D5C4C2F0F440
```

INTO_RULES

This option allows to change the behavior of the INTO clause that applies when the field-name is explicitly specified but its output-data-type is not specified.

COLTYPE

The output-data-type is taken from the column type of the resulting table and the column-format-options specified through the INTO clause apply. Any REFORMAT clause is ignored.

REFORMAT

If a REFORMAT clause is applicable to the column type of the resulting table, the output-data-type specified through the REFORMAT clause applies as well as the associated column-format-options except for the items that are also specified in the INTO clause that take precedence. If no REFORMAT clause is applicable to the resulting column, the output-data-type is that of the column and the related column-format-options applies.

The default value is the value of the VUU089/INTORUL1 parameter.

Related concepts

Output encoding scheme

For the DSNTIAUL, DELIMITED, VARIABLE, USER, and EXTERNAL output formats, the translations from EBCDIC to ASCII and from ASCII to EBCDIC are supported only for single-byte character set (SBCS) character strings. Data is translated by using the translation tables in the SYSIBM.SYSSTRINGS table.

Related reference

FORMAT block syntax and description

Use the FORMAT block to specify the format of the data that is unloaded. The FORMAT block is a part of the SELECT block.

TIMESTAMP format types

Use the TIMESTAMP format type to specify the output data format.

TIME format types

Use the TIME format type to specify the output data format.

DATE format types

Use the DATE format type to specify the output data format.

Related information

TIME Data conversion table

Example: Unloading in XML format from table columns only with the additional AUTOTAG field

In this example, you can unload in XML format from table column with the additional AUTOTAG field.

Unload with records tagged with 'HEADER' and columns tagged with their name. An extra field is requested via the AUTOTAG options. As no column name is available for this extra field, the COL000 tag is used for this field. The NULLL values are replaced by 'NULL'.

UNLOAD statement:

```
UNLOAD TABLESPACE
OPTIONS AUTOTAG 2
SELECT DEPTNO, MGRNO, ADMRDEPT FROM DSN81010.DEPT
FORMAT XML DELIM ''' NULLVAL 'NULL'
OUTDDN (FOUT)
```



```

OPTIONS
XMLSET ( COLUMN = < &COLNAME. > , RECORD = < HEADER > )

```

Output:

```

<HEADER><COL000>01</COL000><DEPTNO>"D01"</DEPTNO>
<MGRNO>NULL</MGRNO><ADMRDEPT>"A00"</ADMRDEPT></HEADER>
<HEADER><COL000>01</COL000><DEPTNO>"D11"</DEPTNO>
<MGRNO>"000060"</MGRNO><ADMRDEPT>"D01"</ADMRDEPT></HEADER>

```

Example: Unloading in XML format with an SQL statement involving SQL expressions from an identified table

In this example, you unload data in XML format with an SQL statement involving SQL expressions from an identified table.

Unload with records tagged with 'HEADER' and columns tagged with their name. An extra field is requested via the AUTOTAG options and an SQL expression is involved by the SELECT. As no column name is available for both the AUTOTAG field and the SQL expression, the COL000 and COL001 tags are used for these fields. The NULLL values are replaced by 'NULL'.

UNLOAD statement:

```

UNLOAD TABLESPACE
OPTIONS AUTOTAG 2
SELECT DEPTNO, CONCAT (MGRNO,MGRNO) FROM DSN81010.DEPT
FORMAT XML DELIM ''' NULLVAL 'NULL'
OUTDDN (FOUT)
OPTIONS
XMLSET ( COLUMN = < &COLNAME. > , RECORD = < &TBNAME > )

```

Output:

```

<DEPT><COL000>01</COL000><DEPTNO>"A00"</DEPTNO><COL002>"000010000010"</COL002></DEPT>
<DEPT><COL000>01</COL000><DEPTNO>"B01"</DEPTNO><COL002>"000020000020"</COL002></DEPT>
<DEPT><COL000>01</COL000><DEPTNO>"C01"</DEPTNO><COL002>"000030000030"</COL002></DEPT>
<DEPT><COL000>01</COL000><DEPTNO>"D01"</DEPTNO><COL002>NULL</COL002></DEPT>

```

Example: Unloading in XML with an SQL statement involving SQL expressions and an INTO clause

In this example, you unload data in XML format with an SQL statement involving SQL expressions and an INTO clause

Unload with records tagged with 'HEADER' and columns tagged with their name. An extra field is requested via the AUTOTAG options and an SQL expression is involved by the SELECT. An INTO clause requests the field name to be changed. As no column name is available for both the AUTOTAG, the COL000 is used for this field. The NULLL values are not materialized.

UNLOAD statement:

```

UNLOAD TABLESPACE
OPTIONS AUTOTAG 2
SELECT DEPTNO, CONCAT (MGRNO,MGRNO) INTO TABLE USER.NEWDEPT C1, C2 FROM DSN81010.DEPT
FORMAT XML DELIM '''
OUTDDN (FOUT)
OPTIONS
XMLSET ( COLUMN = < &COLNAME. > , RECORD = < &TBNAME > )

```

Output:

```

<NEWDEPT><COL000>01</COL000><C1>"A00"</C1><C2>"000010000010"</C2></NEWDEPT>
<NEWDEPT><COL000>01</COL000><C1>"B01"</C1><C2>"000020000020"</C2></NEWDEPT>

```

```
<NEWDEPT><COL000>01</COL000><C1>"C01"</C1><C2>"000030000030"</C2></NEWDEPT>
<NEWDEPT><COL000>01</COL000><C1>"D01"</C1><C2></C2></NEWDEPT>
```

Example: Unloading in XML format using variables

UNLOAD statement:

```
UNLOAD TABLESPACE
OPTIONS
XMLSET ( RECORD = < &TS. CREATOR = &CREATOR., TABLE = &TBNAME. > ,
        COLUMN = <COLUMN NAME = &COLNAME. , TYPE = &COLTYPE. > ,
SELECT ACTNO, ACTKWD FROM DSN81010.ACT
FORMAT XML
```

The output record is as follows:

```
<DSN8S71P CREATOR = "DSN81010" TABLE = "ACT"><COLUMN NAME = "ACTNO" TYPE =
"SMALLINT">10<.COLUMN><COLUMN NAME = "ACTKWD" TYPE = "CHAR">'TEST'</COLUMN></DSN8S71P>
```

Example: Unloading with records tagged with 'HEADER' and columns tagged with their name

Unload with records tagged with 'HEADER' and columns tagged with their name. An extra field is requested via the AUTOTAG options. As no column name is available for both the AUTOTAG, the COL000 is used for this field. The NULL values are replaced by 'NULL'.

UNLOAD statement:

```
UNLOAD TABLESPACE
OPTIONS AUTOTAG 2
SELECT DEPTNO, MGRNO, ADMRDEPT FROM DSN81010.DEPT
FORMAT XML DELIM '"' NULLVAL 'NULL'
OUTDDN (FOUT)
OPTIONS
XMLSET ( COLUMN = < &COLNAME. > , RECORD = < HEADER > )
```

Output:

```
<HEADER><COL000>01</COL000><DEPTNO>"D01"</DEPTNO><MGRNO>NULL</MGRNO><ADMRDEPT>"A00"</ADPRDEPT></HEADER>
<HEADER><COL000>01</COL000><DEPTNO>"D11"</DEPTNO><MGRNO>"000060"</MGRNO><ADMRDEPT>"D01"</ADPRDEPT></HEADER>
```

Unload with records tagged with 'HEADER' and columns tagged with their name. An extra field is requested via the AUTOTAG options. As no column name is available for both the AUTOTAG field and the SQL expression, the COL000 and COL001 tags are used for these fields. The NULL values are replaced by 'NULL'.

UNLOAD statement:

```
UNLOAD TABLESPACE
OPTIONS AUTOTAG 2
SELECT DEPTNO, CONCAT (MGRNO,MGRNO) FROM DSN81010.DEPT
FORMAT XML DELIM '"' NULLVAL 'NULL'
OUTDDN (FOUT)
OPTIONS
XMLSET ( COLUMN = < &COLNAME. > , RECORD = < &TBNAME. > )
```

Output:

```
<DEPT><COL000>01</COL000><DEPTNO>"A00"</DEPTNO><COL002>"000010000010"</COL002></DEPT>
<DEPT><COL000>01</COL000><DEPTNO>"B01"</DEPTNO><COL002>"000020000020"</COL002></DEPT>
```

```
<DEPT><COL000>01</COL000><DEPTNO>"C01"</DEPTNO><COL002>"000030000030"</COL002></DEPT>
<DEPT><COL000>01</COL000><DEPTNO>"D01"</DEPTNO><COL002>NULL</COL002></DEPT>
```

Unload with records tagged with 'HEADER' and columns tagged with their name. An extra field is requested via the AUTOTAG options and an SQL expression is involved by the SELECT. An INTO clause request the field name be changed. As no column name is available for the AUTOTAG, the COL000 is used for this field. The other fields are tagged according to the name given via the INTO clause. The NULL values are not materialized.

UNLOAD statement:

```
UNLOAD TABLESPACE
OPTIONS AUTOTAG 2

SELECT DEPTNO, CONCAT (MGRNO,MGRNO) INTO TABLE USER.NEWDEPT C1, C2
FROM DSN81010.DEPT
FORMAT XML DELIM ''' NULLVAL 'NULL'
OUTDDN (FOUT)
OPTIONS
XMLSET ( COLUMN = < &COLNAME. > , RECORD = < &TBNAME. > )
```

Output:

```
<NEWDEPT><COL000>01</COL000><C1>"A00"</C1><C2>"000010000010"</C2></NEWDEPT>
<NEWDEPT><COL000>01</COL000><C1>"B01"</C1><C2>"000020000020"</C2></NEWDEPT>
<NEWDEPT><COL000>01</COL000><C1>"C01"</C1><C2>"000030000030"</C2></NEWDEPT>
<NEWDEPT><COL000>01</COL000><C1>"D01"</C1><C2>NULL</C2></NEWDEPT>
```

Example: Unloading LOB data into spanned format

```
UNLOAD TABLESPACE
SELECT *
FROM me.mytable
OUTDDN (SYSREC01)
FORMAT VARIABLE ALL
OPTIONS SPANNED YES
LOADDN LOAD
```

Examples: Setting and requesting CURRENT_QUERY_ACCELERATION

Example 1: Request the CURRENT QUERY ACCELERATION special register to be set to ENABLE for every unload performed in SQL mode by specifying the QUERY_ACCELERATION option in an option block at the TABLESPACE level.

The DB2 FORCE option ensures every unload will be performed in SQL mode.

```
UNLOAD TABLESPACE
DB2 FORCE
OPTIONS QUERY_ACCELERATION ENABLE
SELECT *
FROM SYSIBM.SYSDATABASE
OUTDDN (SYSREC)
FORMAT DSNTIAUL
```

Example 2: Request the QUERY_ACCELERATION special register to be set to ENABLE only for a specific logical unload by specifying the QUERY_ACCELERATION option in an option block at the SELECT level.

The DB2 FORCE option ensures every unload will be performed in SQL mode.

```
UNLOAD TABLESPACE
DB2 FORCE
SELECT *
FROM SYSIBM.SYSDATABASE
OUTDDN (SYSREC)
```

```
FORMAT DSNTIAUL
OPTIONS QUERY_ACCELERATION ENABLE
```

Example 3: Request the QUERY_ACCELERATION special register to be set to different values according to the related logical unload by specifying the QUERY_ACCELERATION option in an option block at the SELECT level.

The DB2 FORCE option ensures every unload will be performed in SQL mode.

```
UNLOAD TABLESPACE
DB2 FORCE
-- SELECT #1
SELECT *
FROM SYSIBM.SYSDATABASE
OUTDDN (SYSREC)
FORMAT DSNTIAUL
OPTIONS QUERY_ACCELERATION ENABLE WITH FAILBACK
-- SELECT #2
SELECT *
FROM SYSIBM.SYSTABLESPACE
OUTDDN (SYSREC)
FORMAT DSNTIAUL
OPTIONS QUERY_ACCELERATION NONE
```

Example 4: Specify a general QUERY_ACCELERATION value applicable to all logical unloads except for those having a QUERY_ACCELERATION option specified at the SELECT level.

ALL applies to the first and the third SELECT statements, ELIGIBLE for the second one and NONE for the fourth one.

```
UNLOAD TABLESPACE
OPTIONS QUERY_ACCELERATION ALL
DB2 FORCE
-- SELECT #1
SELECT *
FROM SYSIBM.SYSDATABASE
OUTDDN (SYSREC)
FORMAT DSNTIAUL
-- SELECT #2
SELECT *
FROM SYSIBM.SYSTABLESPACE
OUTDDN (SYSREC)
FORMAT DSNTIAUL
OPTIONS QUERY_ACCELERATION ELIGIBLE
-- SELECT #3
SELECT *
FROM SYSIBM.SYSUSERAUTH
OUTDDN (SYSREC)
FORMAT DSNTIAUL
-- SELECT #4
SELECT *
FROM SYSIBM.SYSDBAUTH
OUTDDN (SYSREC)
FORMAT DSNTIAUL
OPTIONS QUERY_ACCELERATION NONE
```

Example: Unloading a table space containing 3 tables and requesting the NUMRECS option to be specified in the generated LOAD statement using the actual number of unloaded rows

UNLOAD statement:

```
GLOBAL OPTIONS AUTOTAG 3
LOADOPT (, , NUMRECS &NUMRECS);
UNLOAD TABLESPACE
QUIESCE YES
--SELECT FIRST TABLE WITH 2365 ROWS
SELECT * FROM
ID6631.ID6631S1T1
OUTDDN SYSREC
```

```

LOADDDN SYSPUNCH
--SELECT SECOND TABLE WITH 15423 ROWS
SELECT * FROM
ID6631.ID6631S1T2
OUTDDN SYSREC
LOADDDN SYSPUNCH
--SELECT THIRD TABLE WITH 15 ROWS
SELECT * FROM
ID6631.ID6631S1T3
OUTDDN SYSREC
LOADDDN SYSPUNCH

```

It generates a LOAD statement where the NUMRECS option specifies a different value for each table, according to the number of rows unloaded for the related table, as follows:

```

LOAD DATA LOG NO REPLACE
EBCDIC CCSID (0037)
INTO TABLE ID6631.ID6631S1T1 NUMRECS 2365
WHEN (1:3) = '001'
(
COLINT
    POSITION (    4  )          INTEGER
    NULLIF (    8  ) = '?'
)
INTO TABLE ID6631.ID6631S1T2 NUMRECS 15423
WHEN (1:3) = '002'
(
COLCHAR
    POSITION (    4  )          CHAR (    10 )
    NULLIF (   14  ) = '?'
)
INTO TABLE ID6631.ID6631S1T3 NUMRECS 15
WHEN (1:3) = '003'
(
COLDATE
    POSITION (    4  )          DATE EXTERNAL (    10 )
    NULLIF (   14  ) = '?'
)

```

Example: Generating the access path during the data extraction using CURRENT OPTIMIZATION HINT

The unload below, run in SQL mode (ensured via the DB2 FORCE option), requests the CURRENT_OPTIMIZATION_HINT special register to be set to the value NOHYB, an optimization hint defined in the owner's PLAN_TABLE, so that Db2 uses this optimization hint to generate the access path during the data extraction needed for this unload.

```

UNLOAD TABLESPACE
DB2 FORCE
SELECT *
FROM DSN81010.EMP
FORMAT DSNTIAUL
OPTIONS OPTIMIZATION_HINT 'NOHYB'
OUTDDN (OUTPUT)

```

Example:

Example 1: Unloading time, date and timestamp with usual and simple format and delimiters

The following unload formats the current date, time and timestamp Db2 special registers with a set of basic delimiters (sometimes no delimiter is specified) by specifying the output format via the REFORMAT clause.

With the unload below:

```
UNLOAD TABLESPACE
DB2 FORCE
SELECT CURRENT_DATE, CURRENT_TIME, CURRENT_TIMESTAMP
FROM SYSIBM.SYSDUMMY1 ;
FORMAT DELIMITED SEP ' '
OPTIONS REFORMAT (
TYPE DATE INTO DATE 'YY;MO;DD',
TYPE TIME INTO TIME 'HH:MI:SS',
TYPE TIMESTAMP INTO TIMESTAMP 'YYYYMODD-HHMISS-NNNNNN')
OUTDDN(SAMPLE1)
```

the unloaded data is as follows:

```
17;07;28 14:56:20 20170728-145620-577257
```

Example 2: controlling the number of fractional seconds digits written for timestamps

The following unload formats the current timestamp Db2 special register with a various number of fractional seconds digits by specifying the output format via the INTO clause.

With the unload below:

```
UNLOAD TABLESPACE
DB2 FORCE
SELECT CURRENT_TIMESTAMP,
CURRENT_TIMESTAMP,
CURRENT_TIMESTAMP
INTO TMSTPNANO0N2 TIMESTAMP 'YYYYMODDHHMISSNN' ,
TMSTPNANO0N4 TIMESTAMP 'YYYYMODDHHMISSNNNN',
TMSTPNANO0N6 TIMESTAMP 'YYYYMODDHHMISSNNNNNN'
FROM SYSIBM.SYSDUMMY1 ;
FORMAT DELIMITED SEP ' '
OUTDDN(SAMPLE2)
```

the unloaded data is as follows:

```
2017072814571612 201707281457161215 20170728145716121522
```

Example 3: unloading time, date and timestamp with complex format and delimiters

The following unload formats the current date, time and timestamp Db2 special registers with a various complex delimiters by specifying the output format via the REFORMAT clause. The format for TMSTP2 specifies a delimiter that is also the string delimiter (i.e. the quotation mark) by specifying it twice in sequence (in MI"SS", the first " is a set of two single quotation marks while the second " is a double quotation mark).

The following unload:

```
UNLOAD TABLESPACE
DB2 FORCE
SELECT
CURRENT_TIMESTAMP,
CURRENT_TIMESTAMP,
CURRENT_TIMESTAMP
INTO
TMSTP1 TIMESTAMP 'YYYY/MO/DD HH:MI:SS.NN' ,
TMSTP2 TIMESTAMP 'HH h MI'SS" & NN th of second',
TMSTP3 TIMESTAMP 'YYYY MO DD HH MI SS'
FROM SYSIBM.SYSDUMMY1 ;
FORMAT DELIMITED SEP ' '
OUTDDN(SAMPLE3)
EBCDIC
```

produces an output record as follows:

```
2017/07/31 18:48:36.66 18 h 48'36" & 66 th of second 2017 07 31 18 48 36 2017 07 31 18 48 36
```

Example 4: coding a timestamp format over two lines

The following unload formats the current timestamp Db2 special register with a format string written over two lines. The new lines starts in column #1 so that no undesired extra blank is added.

The following unload:

```
UNLOAD TABLESPACE
DB2 FORCE
SELECT 'Today is ',
      CURRENT_TIMESTAMP
INTO HEADER CHAR ,
      TMSTP TIMESTAMP 'YYYY MO, DD and the exact time is HH hours MI min
utes SS seconds and NNNNNN microseconds'
FROM SYSIBM.SYSDUMMY1 ;
FORMAT DELIMITED SEP ' '
OUTDDN(SAMPLE4)
```

produces an output record as follows:

```
Today is 2017 07, 31 and the exact time is 18 hours 38 minutes 45 seconds and 257235
microseconds
```

Example 5: specifying a user-defined date format within a REFORMAT clause

The following unload formats expression based on the current date Db2 special register by using a REFORMAT clause that apply to all SELECT belonging to the UNLOAD statement and INTO clauses that apply at the column level.

The following unload:

```
UNLOAD TABLESPACE
OPTIONS REFORMAT (
TYPE DATE INTO DATE 'YYYY MO DD DEFAULT FOR ALL SELECTS'
)
DB2 FORCE
SELECT CURRENT_DATE,
      CURRENT_DATE + 1 MONTH,
      CURRENT_DATE + 1 YEAR
INTO DATE1 DATE 'DD/MO/YY FOR COL_1 IN SEL_1',
      DATE2 DATE
FROM SYSIBM.SYSDUMMY1 ;
FORMAT DELIMITED SEP '/'
OUTDDN(SAMPLE7)
SELECT CURRENT_DATE,
      CURRENT_DATE + 1 MONTH,
      CURRENT_DATE + 1 YEAR
INTO DATE1 DATE 'DD/MO/YY FOR COL_1 IN SEL_2'

FROM SYSIBM.SYSDUMMY1 ;
FORMAT DELIMITED SEP '/'
OUTDDN(SAMPLE5)
```

produces output records as follows:

```
01/08/17 FOR COL_1 IN SEL_1/2017-09-01/2018 08 01 DEFAULT FOR ALL SELECTS
01/08/17 FOR COL_1 IN SEL_2/2017 09 01 DEFAULT FOR ALL SELECTS/2018 08 01 DEFAULT FOR ALL SELECTS
```

Note that the DATE2 specification in the first INTO clause sets the output data type to DATE and its related output format overrides the formatting specification given by the REFORMAT CLAUSE.

Merging the output of several unloads into new GDS using TEMPLATES.

The following unload excerpts data from two sample tables selected through several SELECT statements into new GDS allocated by TEMPLATE statements. It also generates a single LOAD command to load the data back into two different target tables (i.e. MYOWN.EMP and MYOWN.EMPPROJECT).

```
GLOBAL ONE_GDS_TEMPLATE YES
      OPTIONS
      LOADINDDN YES
;
```

```

UNLOAD TABLESPACE

TEMPLATE FOUT      DSN MYOWN.DATA.&TS.(+1)
TEMPLATE SYSPUNCH DSN MYOWN.LOAD.ALL(+1)

UNLOAD TABLESPACE

-- Excerpt from EMP
-- First part
SELECT *
INTO TABLE MYOWN.EMP
FROM P390.EMP
WHERE LASTNAME LIKE 'H%'
OUTDDN FOUT
LOADDDN SYSPUNCH
-- Second part
SELECT *
INTO TABLE MYOWN.EMP
FROM P390.EMP
WHERE LASTNAME LIKE 'K%'
OUTDDN FOUT
LOADDDN SYSPUNCH
-- Third part
SELECT *
INTO TABLE MYOWN.EMP
FROM P390.EMP
WHERE LASTNAME LIKE 'W%'
OUTDDN FOUT
LOADDDN SYSPUNCH

-- Excerpt from EMPPROJECT
-- First part
SELECT *
INTO TABLE MYOWN.EMPPROJECT
FROM P390.EMPPROJECT
WHERE ACTNO = 10
OUTDDN FOUT
LOADDDN SYSPUNCH
-- Second part
SELECT *
INTO TABLE MYOWN.EMPPROJECT
FROM P390.EMPPROJECT
WHERE ACTNO = 60
OUTDDN FOUT
LOADDDN SYSPUNCH

```

As specified by ONE_GDS_TEMPLATE YES, Db2 HPU merges the data from each involved table space into a dedicated dataset as reported by the following messages:

```

INZI328I - DATASET ALLOCATED. TEMPLATE=FOUT
          DDNAME=SYS00002
          DSN=MYOWN.DATA.DSN8S11E.G0001V00
...
INZI328I - DATASET ALLOCATED. TEMPLATE=FOUT
          DDNAME=SYS00008
          DSN=MYOWN.DATA.DSN8S11P.G0001V00
...
INZI328I - DATASET ALLOCATED. TEMPLATE=SYSPUNCH
          DDNAME=SYS00010
          DSN=MYOWN.LOAD.ALL.G0001V00
...
INZU222I SYS00002, TOTAL NUMBER OF RECORDS WRITTEN 6
INZU376I UNLOAD 1 SELECT 1  NUMBER OF RECORDS WRITTEN 3
INZU376I UNLOAD 1 SELECT 2  NUMBER OF RECORDS WRITTEN 1
INZU376I UNLOAD 1 SELECT 3  NUMBER OF RECORDS WRITTEN 2
INZU222I SYS00008, TOTAL NUMBER OF RECORDS WRITTEN 23
INZU376I UNLOAD 1 SELECT 4  NUMBER OF RECORDS WRITTEN 10
INZU376I UNLOAD 1 SELECT 5  NUMBER OF RECORDS WRITTEN 13

```

If no GDS existed before the run of the unload, it creates the following dataset:

- MYOWN.DATA.DSN8S11E.G0001V00
- MYOWN.DATA.DSN8S11P.G0001V00
- MYOWN.LOAD.ALL.G0001V00

SELECT block syntax and description

The SELECT statement specifies that a logical unload is to be done and indicates the parameters that are associated with the unload job. The SELECT block is a part of the UNLOAD block.

Db2 HPU can process a SQL SELECT statement in native mode if it fulfills all the following conditions:

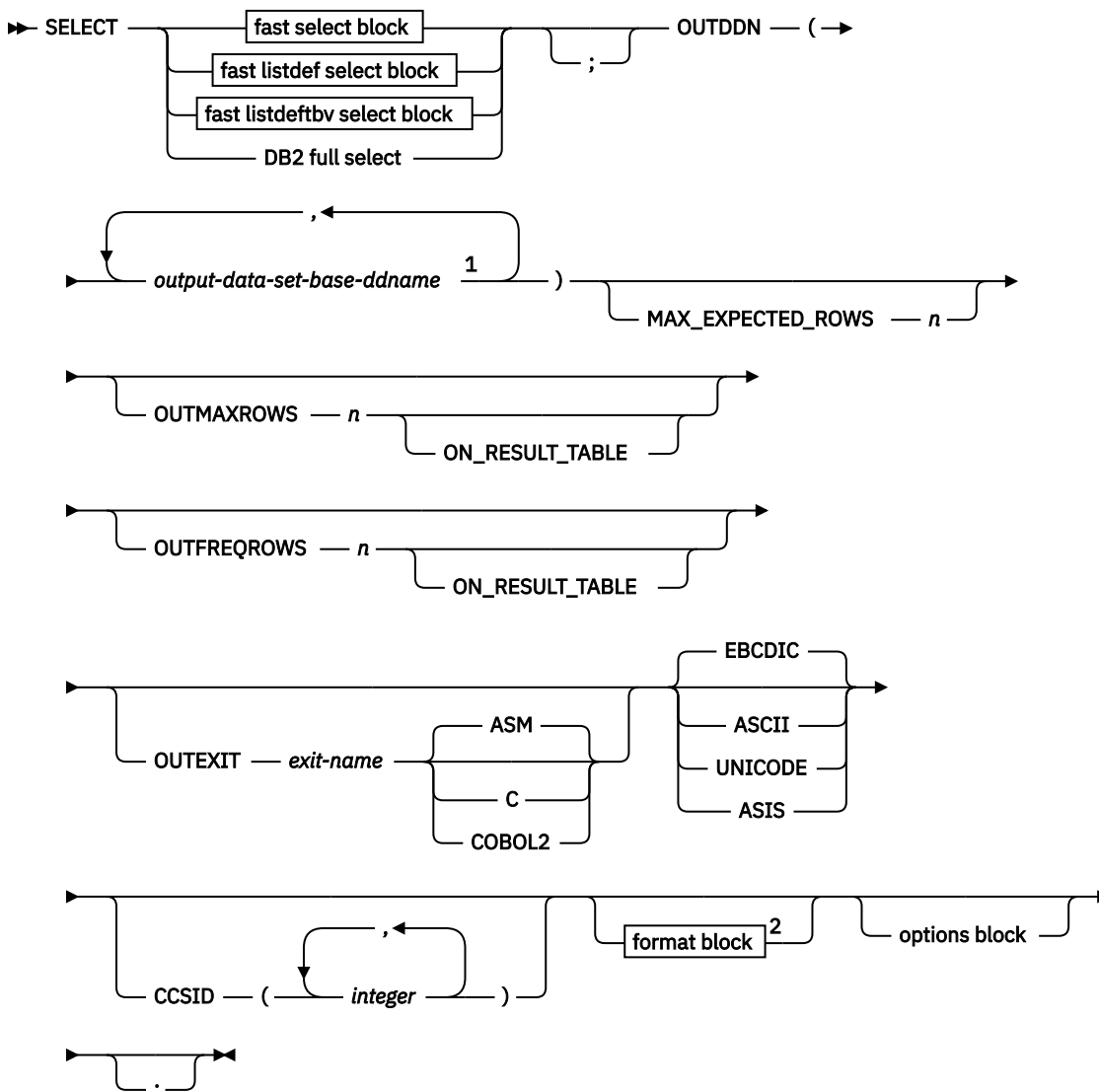
- it involves only one table,
- it specifies only supported [SQL expressions](#),
- it fulfills other more specific conditions that cannot be comprehensively listed in a simple manner and that depend on the maintenance level of Db2 HPU.

More complex SQL SELECT statements can be processed in SQL mode that can be allowed by setting VUU011/ULSEDB2 to YES or by specifying the DB2 YES option or requested by specifying the DB2 FORCE option. If DB2 YES applies, Db2 HPU processes the SELECT statement in native mode, if supported, and attempts to process it in SQL mode otherwise, in which case it reports the situation by issuing the INZU063I UNSUPPORTED SELECT message.

If you specify more than one SELECT statement, Db2 HPU attempts to run the unload jobs in parallel.

The following diagram shows the syntax for the SELECT block:

SELECT block



Notes:

¹ You can specify a maximum of 255 ddnames for copies of the output data set

² When the format block is not specified, the default format is the value of the VUU045/ULFORMAT parameter.

SELECT

Specifies the SELECT statement as a standard SQL statement.

fast select block

See [“Fast select, fast listdef and fast listdeftbv select blocks syntax and description”](#) on page 206 for keyword definitions.

fast listdef select block

See [“Fast select, fast listdef and fast listdeftbv select blocks syntax and description”](#) on page 206 for keyword definitions.

fast listdeftbv select block

See [“Fast select, fast listdef and fast listdeftbv select blocks syntax and description”](#) on page 206 for keyword definitions.

DB2 full select

All valid Db2 SELECT statements that do not conform to Db2 HPU fast select block requirements are considered a DB2 full select and are processed by using Db2 unless DB2 NO was specified in the UNLOAD command.

OUTDDN *output-data-set-base-ddname*

Specifies the ddname of the sequential output data set that contains the unloaded data or the name of a TEMPLATE statement that is defined in the same SYSIN or in a TEMPLATE library. You can specify up to 255 ddnames for copies of the output data set. When you use JCL-allocated ddnames, in the JCL, include a DD statement that corresponds to each ddname that you specify.

The variable *outddn* is the base ddname of the output data set.

To process partitioned table spaces in parallel, either use a TEMPLATE with a DSNAME that contains the &PART variable, or code in your JCL one *outddnnn* statement for each partition (*outdd01*, *outdd02*,... *outddnnn*), where *nnn* is a 1- to 7-digit sequential number that identifies a partition to be unloaded. During the unload process, data from each partition is directed to the corresponding ddname. If the corresponding ddname is allocated, it is used for the given partition. Otherwise, the base ddname is used if it is allocated.

In the following example, if MYDD, MYDD01, and MYDD0004 are allocated, MYDD contains the rows from partition 2 and 5, MYDD01 contains the rows from partition 1, and MYDD0004 contains the rows from partition 4.

```
UNLOAD TABLESPACE PART(1,2,4,5) SELECT * FROM Q.T OUTDDN(MYDD) FORMAT
DSNTIAUL
```

If a single ddname is used as output for multiple UNLOAD or SELECT statements, data from one or more of the UNLOAD or SELECT statements might be included in the single output ddname file. To ensure that data collected from each source remains together in the generated output, specify unique base ddnames for each SELECT or UNLOAD statement, . A base ddname that is used as an operand of either the UNLDDN keyword or the OUTDDN keyword is not used as a suffixed ddname, as shown in the following example:

```
UNLOAD TABLESPACE PART(1,2,4,5)
SELECT * FROM Q.TA OUTDDN(MYDD) FORMAT DSNTIAUL
SELECT * FROM Q.TB OUTDDN(MYDD1) FORMAT DSNTIAUL
```

To avoid including the data from tables Q.TA and Q.TB in the same data set, ddname MYDD1, if allocated, is used as the base ddname for only the second SELECT, and does not contain data from partition 1 of the Q.TA table. The data from partition 1 of the Q.TA table is written in ddname MYDD, which is allocated.

When a PBG tablespace is unloaded in dataset by partitions from a global image copy, data from partition not defined for the target tablespace are unloaded in the last partition defined for the target tablespace.

Tip: When you use a TEMPLATE in the OUTDDN keyword with a SELECT FROM LIST (fast listdef select block) or a SELECT FROM LISTTBV (fast LISTDEFTBV select block), and when some of the table spaces that are in the list are multi-table table spaces, include a user-defined variable that is set to the :SELNUM predefined variable, using a TEMPLATESET option in the DSN expression of the TEMPLATE.

The OUTDDN keyword is required for SELECT statements.

MAX_EXPECTED_ROWS *n*

Specifies an estimate of the number of unloaded rows. Use this keyword when a WHERE clause is specified because the number of unloaded rows is less than the number of rows that are contained in the table. You can use MAX_EXPECTED_ROWS to do the following functions:

- Limit the number of rows that are specified to the sort utility.
- Limit the size of the allocated output dataset when you use a template without allocation parameters. When you specify MAX_EXPECTED_ROWS, data is unloaded by Db2 into a template file without space allocation being specified.

Consider specifying MAX_EXPECTED_ROWS if Db2 HPU fails because of a lack of resources. However, if the Db2 HPU estimate is accurate, specifying MAX_EXPECTED_ROWS will not solve resource problems.

Important: Specifying MAX_EXPECTED_ROWS disables the index scan feature and might decrease the Db2 HPU performance.

OUTMAXROWS *n*

Specifies if a limitation of the number of rows extracted for this SELECT statement must be applied.

- 0: no limitation applies. All the rows corresponding to the SELECT statement are unloaded.
- integer from 1 to 2147483647: the specified value is used to limit the number of rows unloaded for the related SELECT statement. The number of unloaded rows never exceeds the specified value except for an unload run in native mode against a partitioned table space with partition parallelism, i.e. the value of the first argument of the PARALLELISM option or the PARALLEL parmllib parameter is greater than 1. In such a case, the specified value is used as a limit for the unload of each involved partition. Therefore, the overall number of rows unloaded for the SELECT statement is *p* times the specified value where *p* is the number of involved partitions. If the UNLOAD statement requests the data of each partition be unloaded, Db2 HPU does not write more than the specified value into each partition-related output data set.

Important: If you specify OUTMAXROWS, do not specify the SQLPART keyword because these keywords are incompatible with each other.

ON_RESULT_TABLE

Specifies that the maximum number of rows is applied when a SELECT statement is processed natively by Db2 HPU and when a SELECT statement, with or without SORT(EXTERNAL) specified, is processed by Db2. If an ORDER BY clause is specified, the ON_RESULT_TABLE keyword is applied after the WHERE clause is applied and after the data is sorted.

For SELECT statements with SORT(INTERNAL) specified and that are processed by Db2, specifying ON_RESULT_TABLE has no effect because the setting corresponds with the default processing.

For SELECT statements with SORT(EXTERNAL) specified and that are processed by Db2, the OUTMAXROWS keyword is applied by default after data from the SQL cursor is fetched before the sort. If you specify ON_RESULT_TABLE, all data that is returned by the Db2 cursor is processed by the sort, and the OUTMAXROWS keyword allows the first *n* rows to be retrieved after sorting.

For SELECT statements that are processed natively by Db2 HPU, the OUTMAXROWS keyword is applied by default when data from the pages of the unloaded table space is read, before the WHERE clause is applied, and before the data is sorted, if an ORDER BY clause is specified. However, if you specify ON_RESULT_TABLE, the OUTMAXROWS keyword is applied after the WHERE clause is applied and after the sort by the ORDER BY clause.



Attention: Specifying `ON_RESULT_TABLE` might adversely affect Db2 HPU performance because a large amount of data might be processed before the number of records is limited.

OUTFREQROWS *n*

Specifies the unload sampling frequency.

If the `SELECT` statement is processed natively by Db2 HPU, one row in every *n* rows is kept when reading the rows from the linear data set (LDS) that contains the table space. In this case, the `WHERE` clause and the `ORDER BY` clause, if they exist, are applied after the sampling is done.

If the `SELECT` statement is processed by Db2, one row in every *n* rows is kept when fetching the rows from the cursor that is dynamically prepared by Db2 HPU for the complete `SELECT` statement, including the `WHERE` clause and the `ORDER BY` clause. In this case, if you specify `SORT(INTERNAL)`, the `WHERE` clause and the `ORDER BY` clause, if they exist, are applied before the sampling is done. If the `SORT(EXTERNAL)` option is active, only the `WHERE` clause is applied before the sampling is done.

Important: If you specify `OUTFREQROWS`, do not specify the `SQLPART` keyword because these keywords are incompatible with each other.

ON_RESULT_TABLE

Specifies that the sampling for the `SELECT` statement is applied when a `SELECT` statement is processed natively by Db2 HPU or when a `SELECT` statement, with or without `SORT(EXTERNAL)` specified, is processed by Db2. The `OUTFREQROWS` keyword is applied after the `WHERE` clause is applied and after the data is sorted if an `ORDER BY` clause is specified.

For `SELECT` statements with `SORT(INTERNAL)` specified and that are processed by Db2, specifying `ON_RESULT_TABLE` has no effect because the setting corresponds with the default processing.

For `SELECT` statements with `SORT(EXTERNAL)` specified and that are processed by Db2, the `OUTFREQROWS` keyword is applied by default after data is fetched from the SQL cursor and before the sort. If you specify `ON_RESULT_TABLE`, all data that is returned by the Db2 cursor is processed by the sort, and the `OUTFREQROWS` keyword causes sampling after the sort.

For `SELECT` statements that are processed natively Db2 HPU, the `OUTFREQROWS` keyword is applied by default when data from the pages of the unloaded table space is read, before the `WHERE` clause is applied, and before the data is sorted by the `ORDER BY` clause. However, if you specify `ON_RESULT_TABLE`, the `OUTFREQROWS` keyword is applied after the `WHERE` clause is applied and after the sort by the `ORDER BY` clause.



Attention: Specifying `ON_RESULT_TABLE` might adversely affect Db2 HPU performance because a large amount of data might be processed before the records are sampled.

OUTEXIT *exit-name*

Specifies the name and the language of the exit that handles the rows during unload processing. The exit that you specify is loaded dynamically during unload processing. The exit must reside in an authorized library that must be in either the `LINKLIST` or an authorized `JOBLIB` or `STEPLIB`. For COBOL/2 and C, the `STEPLIB`, `JOBLIB`, or `LINKLIST` must also point to the LE/370 runtime libraries.



Attention: This option is not supported when the SQL mode is used.

ASM

Assembly language

C

C language

COBOL2

COBOL/2 language

The default value is ASM.

EBCDIC/ASCII/UNICODE/ASIS

Specifies whether the data is unloaded in EBCDIC, ASCII, or UNICODE format by using the coded character set identifier (CCSID) of the installation or the specified CCSID.

ASCII

Indicates that the unloaded data must be in ASCII format. Db2 HPU uses the ASCII CCSID of the subsystem, unless you override it by specifying the CCSID option.

ASIS

Specifies that the data is unloaded in its original format. If the specification for the underlying table space cannot be determined, such as when the SQL statement is not supported and the table name not determined, data is unloaded in EBCDIC and the message INZU194W is issued. You can override ASIS by specifying the CCSID keyword. You can also override ASIS by specifying the CCSID keyword.

Specifying ASIS does not guarantee no conversion is required. Conversion might still be required when columns that are not CHAR, VARCHAR, GRAPHIC, and VARGRAPHIC types are unloaded in an external format and when the schema of the unloaded table space is not system-EBCDIC.

Db2 HPU first converts the value to the external format (in system-EBCDIC), and the result is converted to the table space schema.

Similarly, the padding characters or field separators (FORMAT DELIMITED) are in system-EBCDIC by default. They are also converted to the table space schema if the table space schema is not EBCDIC.

Conversion is also required when the table space CCSID is not the same as the SYSIN CCSID and when the SELECT statement contains a C'constant' expression.

EBCDIC

Indicates that the data is unloaded in EBCDIC format. Db2 HPU uses the EBCDIC CCSID subsystem, unless you override it by specifying the CCSID keyword.

UNICODE

Indicates that the data is unloaded in UNICODE format. Db2 HPU uses the UNICODE CCSID of the subsystem, unless you override it by specifying the CCSID option.

The default value is EBCDIC.

Attention: If the unload format that was specified in either the SYSIN or in the PARMLIB by using the UNLSCHM parameter is not identical to the EBCDIC format of the system, all constants that are specified in SYSIN are translated to the unload format.

Note: No translation is allowed for LOB/XML data when they are unloaded in VBS file (SPANNED YES option).

CCSID integer

Specifies up to three coded character set identifiers (CCSIDs) for the unloaded data. The first identifier specifies the CCSID for SBCS data, the second identifier specifies the CCSID for MIXED DBCS data, and the third identifier specifies the CCSID for DBCS data. If you omit any of these CCSIDs or specify 0 for any of them, the CCSID of the corresponding data type is assumed to be the same as the installation default CCSID.

You can also specify the CCSID at the column level in the USER block syntax.

The default value is 0.

Note: No translation is allowed for LOB/XML data when they are unloaded in VBS file (SPANNED YES option)

format block

See [“FORMAT block syntax and description” on page 225.](#)

options block

See [“OPTIONS block syntax and description” on page 157.](#)

See the *Db2 Universal Database for z/OS SQL Reference* for syntax and definitions for DB2 full select.

Related concepts

Db2 HPU user exit

The Db2 HPU user exit is used to customize the output data set that is created by a SELECT statement.

Related reference

User-allocated ddnames

To run unload jobs, you must allocate certain ddnames in the Db2 HPU JCL.

SELECT statement examples

These SELECT statement examples show how to create sequential data sets in different formats, how to use the LISTDEF and TEMPLATE keywords, how to use the INTO clause and the REFORMAT clause, and how to use other Db2 HPU options.

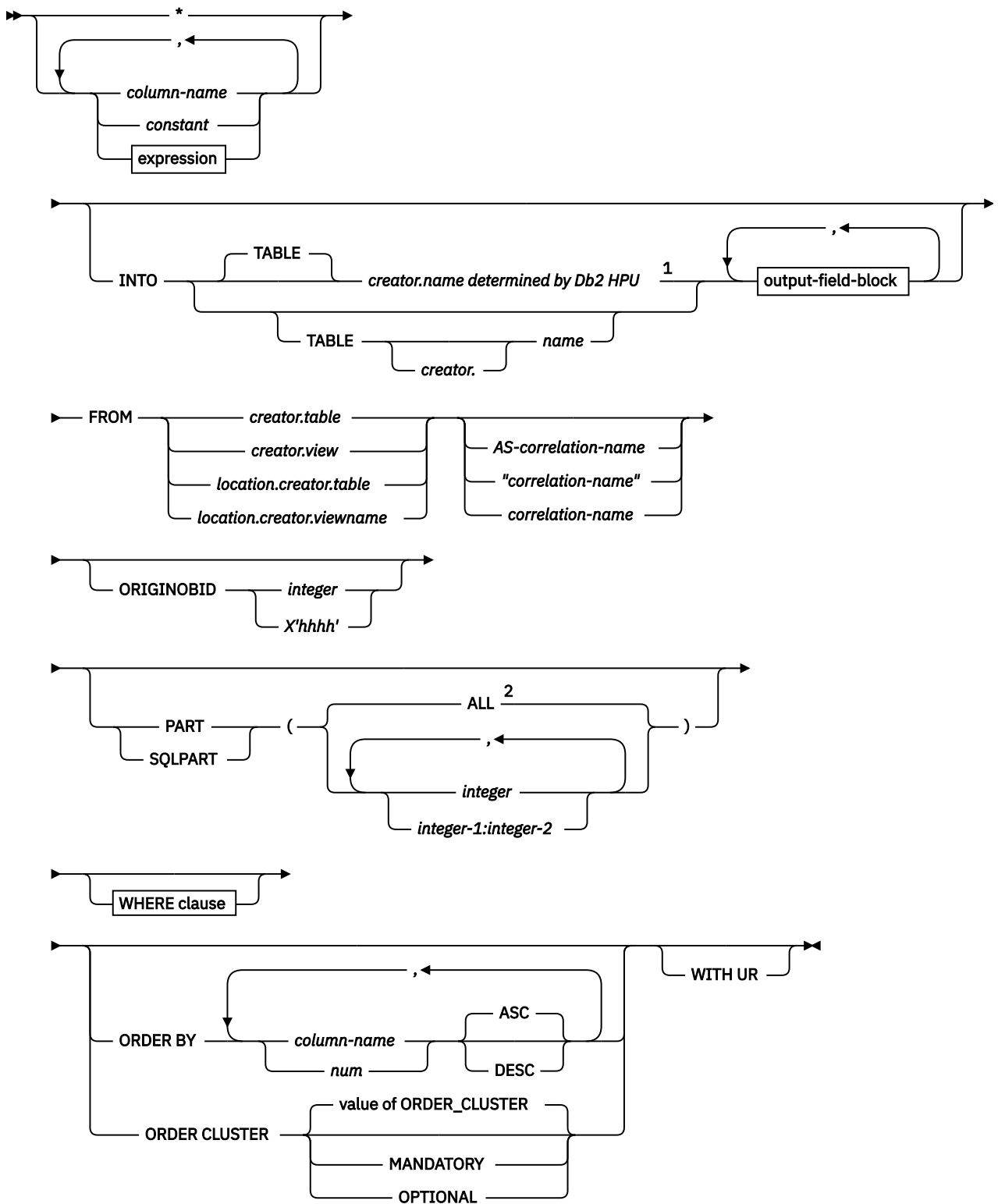
Fast select, fast listdef and fast listdeftbv select blocks syntax and description

The fast select, fast listdef and fast listdeftbv select blocks describe the syntax for SELECT statements that can be supported natively by Db2 HPU when DB2 NO or DB2 YES is specified in the UNLOAD command. The fast select, fast listdef and fast listdeftbv select blocks are part of the SELECT block.

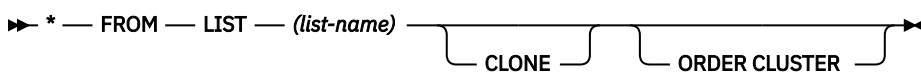
The INTO clause of the fast select block can also be used for any fullselect component that is coded in the Db2 HPU syntax even if the fullselect does not follow the syntax rules of the fast select block. To use the INTO clause for an unsupported SELECT statement, include the INTO clause in the SELECT statement between the list of selected items and the FROM clause. If the fullselect contains a UNION, EXCEPT, or INTERSECT clause, an INTO clause can be coded only on the first SELECT statement of the fullselect.

The following diagram shows the syntax of the fast select block:

fast select block



fast listdef select block



fast listdeftbv select block:



Notes:

¹ Db2 HPU determines the creator and name of the table, if applicable - i.e. if a single table is involved by the SELECT statement - and sets creator.name to "?????????????????" otherwise.

² If you do not specify the PART keyword or SQLPART keyword, the default value is PART(ALL).

The fast select block contains the following keywords. For the subset of keywords that the fast listdef select block accepts, see the syntax diagram.

Indicates that this SELECT statement applies to all columns of the table.

column-name

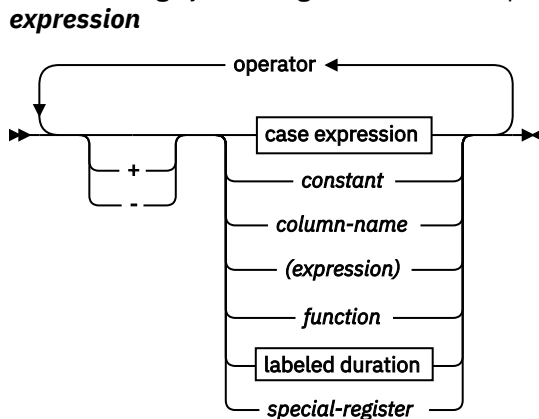
Indicates the name of a column in the table.

constant

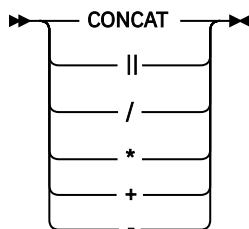
Specifies a literal or a numeric value. If you specify a literal value, enclose it in single quotation marks (') or double quotation marks ("), according to your Db2 installation.

expression

The following syntax diagram shows an *expression*:



operator



INTO

Use the INTO clause to do either of the following actions:

- specify the name of the target table
- for some or all the columns of the resulting table, do either of the following regarding the output fields:
 - specify the field name
 - specify the data type
 - specify format options

This respectively allows to rename the target table and, like what can be done with FORMAT USER, to rename, cast and reformat the output field.

Restriction: If the INTO clause is specified along with a LIKE clause and FORMAT DSNTIAUL or FORMAT VARIABLE is requested, changing the output field characteristics is not allowed, and only the TABLE keyword suboption can be used.

TABLE *creator.name* or TABLE *name*

Specifies the name of the target table in the LOAD control cards generated if the LOADDDN feature is requested. The creator name of the table name may be omitted. In such a case, the applicable creator name is determined when the LOAD controls cards are used to run the LOAD utility.

The table name defined by the INTO clause is only used to name the target table. This table does not need to exist in the source Db2 against which the unload is run. The field description generated in the LOAD control cards is consistent with the structure of the resulting table defined either through the SELECT statement or the LIKE table-name clause of the DSNTIIAUL block . It belongs to the user to make sure the target table structure is compatible with this fields description.

output-field-block

Specifies the output field characteristics. When left blank, If the output-field-block is empty, the following rules apply:

- the field-name is that of the column of the resulting table
- the output-data-type is that of the column of the resulting table modified by the applicable REFORMAT clause, if any.
- the column-format-options are inherited from the format options specified at upper levels with the following order of precedence
 - the SELECT level
 - the UNLOAD level
 - the GLOBAL that applies to the requested output format
 - the parmlib level that applies to the requested output format
- the column-format-options specified by the applicable REFORMAT clause, if any, override the values specified at any level, regardless of the level where the REFORMAT clause is specified.

Otherwise, specifies the field name (mandatory) and (optionally) the data type and format options for the output field.

An output-field-block applies to a specific column of the final result table in a positional manner, i.e. the output-field-block specifies in a given rank in the list of output-field-block applies to the column of the final result table having the same rank. The output-field-blocks must be separated by commas. An output-field-block must be specified for every field up to the field with a non-blank output-field-block of highest rank. The remaining blank output-field-block may be omitted as well as the related comas.

field-name

Specifies the name out the output-field. This allows to rename the output field or to remind the genuine field name.

output-data-type

Specifies the data type of the output field. This allows to cast the data. When left blank, If no output-data-type is specified, the following rules apply:

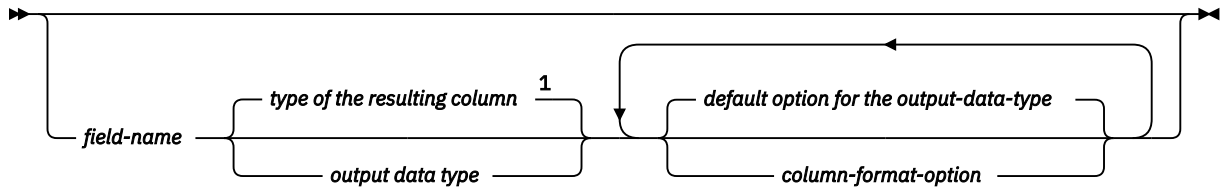
- the output-data-type is that of the column of the resulting table
- no REFORMAT clause is taken into account, since the output-data-type implicitly or explicitly specified through a non-blank output-field-block defines a casting rule such as a REFORMAT clause.

column-format-option

Specifies a formatting option of the output data. For an omitted formatting option, the following rules apply:

- the output format option is inherited from the format options specified at upper levels with the following order of precedence
 - the SELECT level
 - the UNLOAD level

- the GLOBAL that applies to the requested output format)
- the parmlib level that applies to the requested output format
- no REFORMAT clause is taken into account.



Notes:

¹ If no output-data-type is specified, the following rules apply, either the output-data-type is that of the column of the resulting table, or no REFORMAT clause is taken into account.

Note: If the output-field-block is empty, the following rules apply:

- the field-name is that of the column of the resulting table
- the output-data-type is that of the column of the resulting table modified by the applicable REFORMAT clause, if any.
- the column-format-options are inherited from the format options specified at upper levels with the following order of precedence
 - the SELECT level
 - the UNLOAD level
 - the GLOBAL that applies to the requested output format
 - the parmlib level that applies to the requested output format
- the column-format-options specified by the applicable REFORMAT clause, if any, override the values specified at any level, regardless of the level where the REFORMAT clause is specified.

Note: On the default option for the output-data-type on the output-field-block: If a column-format-option is not specified, the following rules apply:

- the output format option is inherited from the format options specified at upper levels with the following order of precedence
 - the SELECT level
 - the UNLOAD level
 - the GLOBAL that applies to the requested output format
 - the parmlib level that applies to the requested output format
- no REFORMAT clause is taken into account.

FROM

Specifies the table or view from which columns are selected.

creator.table

Columns are selected from the table.

creator.view

Columns are selected from the view.

When you define SELECT statements that select data from views, the SELECT statements that you code must meet the following conditions if you want Db2 HPU to process the SELECT statement directly:

- The view can be defined only on a unique table. You cannot include joins, views of views, or subselects in the view definition.
- Each column of the view must precisely correspond to a column of the table. You cannot use scalar functions, column functions, expressions, or literals.

- The view cannot contain a WHERE clause.

Db2 HPU can process view definitions that do not conform to these conditions if DB2 YES or DB2 FORCE is specified. In these cases, the retrieval of the data is performed by Db2, but all other processing of the data is performed by Db2 HPU.

location.creator.table

location.creator.viewname

If the location that is used is identical to the current server (local Db2), Db2 HPU checks whether the SELECT statement can be processed. Otherwise, depending on whether you specified YES, NO, or FORCE for the DB2 parameter, the SELECT statement is not processed natively by Db2 HPU, and Db2 processing is attempted.

correlation-name

You can use a correlation name in a fast select block. If the AS keyword is used or if the correlation name is delimited with quotation marks, you can use any correlation name that is accepted by Db2. If any of the following keywords are used as a correlation name, they must be enclosed in quotation marks or preceded by the AS keyword:

- SELECT
- FROM
- ALL
- CHECK
- CURRENT
- END
- LIKE
- LOCK
- NO
- NULL
- WITH
- DATABASE
- TABLESPACE
- TABLE
- INDEX
- WHERE
- ORDER
- ORIGINOBID
- GROUP
- HAVING
- AS
- PART
- FORMAT

LIST(list-name)

Identifies the name of a list of objects that is defined by a LISTDEF control statement. The list can include table spaces, index spaces, databases, and partitions. The list cannot include LOB table spaces and directory objects. The list that is generated by the LISTDEF identifies the following objects:

- The tables from which the data is to be unloaded. You can use the pattern-matching feature of LISTDEF.
- For partitioned table spaces, the partitions from which the data will be unloaded. These partitions are defined by the INCLUDE, EXCLUDE, and PARTLEVEL keywords in the LISTDEF statement.

When you specify the LIST keyword in the fast listdef select block, Db2 HPU generates a SELECT statement for each table of each table space that is contained in the list. Using a TEMPLATE statement in the OUTDDN keyword is recommended. To activate partition parallelism with a TEMPLATE statement for partitioned tables, the data set name that is defined in the TEMPLATE statement must contain the &PART variable.

LISTTBV(list-name)

Identifies the name of a list of objects that is defined by a LISTDEFTBV control statement. The list can include tables and views. The list cannot include LOB tables and directory objects. The list that is generated by the LISTDEFTBV identifies the following objects:

- The tables and views from which the data is to be unloaded. You can use the pattern-matching feature of LISTDEFTBV.
- For partitioned tables, the partitions from which the data will be unloaded. These partitions are defined by the INCLUDE, EXCLUDE, and PARTLEVEL keywords in the LISTDEFTBV statement.

When you specify the LISTTBV keyword in the fast listdeftbv select block, Db2 HPU generates a SELECT statement for each table contained in the list. Using a TEMPLATE statement in the OUTDDN keyword is recommended. To activate partition parallelism with a TEMPLATE statement for partitioned tables, the data set name that is defined in the TEMPLATE statement must contain the &PART variable.

CLONE

Indicates that Db2 HPU is to unload data only from clone tables that are in the list of table spaces that are defined by the LISTDEF. If the list contains only table spaces without clones, no SELECT statement is generated.

When the CLONE keyword is not specified, Db2 HPU generates only SELECT statements on the base tables. The CLONE keyword can be specified only when you specify SELECT FROM LISTDEF. To unload data from a clone table by specifying SELECT FROM *table_name*, specify the name of the clone table in the FROM clause.

ORIGINOBID

Indicates when the OBID table in the image copy is not the same as the OBID that is read in the catalog. This situation can occur when an image copy of a table that is dropped and then re-created with a new OBID.

If the source data is an image copy, use this keyword to specify the OBID of the rows to be processed in this image copy.

integer

If the image copy file contains a unique table that you can use, you can specify 0 instead of the OBID of the table. If you specify the 0, Db2 HPU processes the first OBID that is found in the image copy.

X'hhhh'

X'hhhh' is the hexadecimal value of the OBID of the table in the image copy.

This keyword must be specified with the COPYDDN statement.

PART

Specifies the physical partitions of the table space to be processed. You can specify the PART keyword in the UNLOAD block and the SELECT block.

- If PART is not specified in the UNLOAD block, then PART(ALL) is the default.
- If PART is not specified in a SELECT block of this UNLOAD block, the PART specification in the UNLOAD block is used.
- If you specify PART in any SELECT statement, it overrides any values that are specified in the UNLOAD block.
- For each UNLOAD statement, the union of all the subsets of partitions that are selected in all SELECT blocks must be equal to the subset that is specified in the UNLOAD PART, unless UNLDDN is used.

- If a statement is processed by Db2, PART is ignored.

Requirement: If you are unloading from partition-level full image copies, you must provide a uniquely named DD statement for each partition to be unloaded. For example, if one SELECT statement unloads from partitions 1, 2, and 4, and another SELECT statement unloads from partitions 2 and 3, you must specify a DD statement with a unique name for image copy partitions 1, 2, 3, and 4.

integer

Indicates which physical partitions are to be processed.

ALL

Specifies that the entire table space is to be processed.

integer-1:integer-2

Designates a range of physical partitions *integer-1 -integer-2*. *Integer-1* must be positive and less than the highest partition number in the table space. *Integer-2* must be greater than *Integer-1* and less than or equal to the highest partition number.

The default value is ALL.

Attention: Do not use this option when the table space is simple or segmented.

SQLPART

Specifies the partitions of the table space to be processed. The SQLPART parameter applies to a physical partition number, which can be different from logical partitions. Unlike the PART keyword, you can specify SQLPART only in the SELECT block. SQLPART is used only when partitioned table spaces are unloaded.

SQLPART applies to SELECT statements that are processed natively by Db2 HPU and to SELECT statements that are processed by Db2. SQLPART is not accepted when either the LISTDEF option, the LUSTDEFTBV option or the DDLDDN option is used.

SQLPART is used only on table spaces that are partitioned by range or partitioned by index. Table spaces that are partitioned by growth or that are not partitioned are not supported.

SQLPART acts according to the following specifications in the UNLOAD command:

- If DB2 NO is specified, SQLPART is equivalent to PART.
- If DB2 FORCE is specified, SQLPART allows unloading per partition. In this case, a separate UNLOAD file can be used for each partition, and parallelism is activated between the unloaded partitions.
- If DB2 YES is specified, SQLPART is processed as PART for supported SELECT statements. For unsupported SELECT statements, SQLPART allows unloading per partition.

If SQLPART is used and you are unloading partitioned table spaces, the rules for correspondence between partitions and output files apply.

Specifying SQLPART(ALL) is different from not specifying SQLPART in the following ways:

- When SQLPART is not specified, data is entirely unloaded into a single file. If a TEMPLATE is used to create the UNLOAD file, the &PART variable in the TEMPLATE is replaced with '00000'.
- When SQLPART(ALL) is specified, the processing depends on whether one output file per partition is used. If a TEMPLATE that contains the &PART variable is used, Db2 HPU allocates one output file for each partition, and data is unloaded on a per-partition basis. If JCL-allocated files are used, the type of process depends on whether files per partition are used.

SQLPART is incompatible with the OUTFREQROWS keyword and the OUTMAXROWS keyword.

When SQLPART is used, Db2 HPU determines the name of the unloaded table. Joins and unions are not allowed on the processed SELECT statement.

If the limit key for FLOAT and DECFLOAT columns is not defined explicitly when the partitioning key is created, Db2 HPU does not support using SQLPART with key limits for FLOAT and DECFLOAT columns of the partitioning key.

The following examples show how the SQLPART option is used:

Example: Obtaining separate files per partition with SQLPART in DB2 FORCE

The following example shows an unloaded table space that contains six partitions. The execution JCL contains two DD statements, SYSREC, and SYSREC2, which are allocated to two output files.

```
UNLOAD TABLESPACE DBDM8A.TSTEST16
QUIESCE NO LOCK YES
DB2 FORCE
SELECT * FROM TSTEST16 SQLPART(ALL)
OUTDDN(SYSREC)
FORMAT DSNTIAUL LOADDN SYSPUNCH
```

Data from partition 1 and partitions 3-6 is unloaded in the file SYSREC, and data from partition 2 is unloaded in file SYSREC2. At least two SELECT statements are used internally for the following partitions:

- One SELECT statement is used for partition 2, which writes in file SYSREC2 (second message INZR3000).
- One to five SELECT statements are used for partition 1 and partitions 3-6, which write in file SYSREC (third message INZR3000). The effective number of SELECT statements depends on correspondence between the physical partitions and the logical partitions. If physical partitions 3-6 correspond to four consecutive logical partitions, a single SELECT statement is used. Otherwise, Db2 HPU generates a SELECT statement for each range of adjacent logical partitions.

The following SYSPRINT corresponds to partitioned table space DBDM8A.TSTEST16:

```
UDBU281I - UNLOAD STARTING AT POS(2, 1)

UDBU277I - PROCESSING UNLOAD 00001 FROM TABLESPACE DBDM8A.TSTEST16
UDBU360I - SELECT STATEMENT PROCESSING THROUGH DB2
UDBU280I - SELECT 00001 STARTING AT POS(6, 2)
UDBU282I OUTPUT DDNAME=SYSREC
INZR3000 NUMBER OF ROWS EXTRACTED COPIED ON SYSREC : 8333
INZR3000 NUMBER OF ROWS EXTRACTED COPIED ON SYSREC2 : 8333
INZR3000 NUMBER OF ROWS EXTRACTED COPIED ON SYSREC : 33334
UDBU260I GENERATING LOAD STATEMENT FOR SELECT STARTING AT POS(6, 2)
UDBU222I SYSREC , TOTAL NUMBER OF RECORDS WRITTEN 41667
UDBU376I UNLOAD 1 SELECT 1 NUMBER OF RECORDS WRITTEN 41667
UDBU222I SYSREC2 , TOTAL NUMBER OF RECORDS WRITTEN 8333
UDBU376I UNLOAD 1 SELECT 1 PARTITION 2 NUMBER OF RECORDS WRITTEN 8333
```

Example: Implicit usage of SORT EXTERNAL with SQLPART

When an ORDER BY clause is coded on the SELECT statement, Db2 HPU can switch automatically to SORT(EXTERNAL) processing to be able to sort data that comes from different ranges of partitions that are unloaded in a single output file. The following example shows an implicit usage of SORT(EXTERNAL). A single SYSREC file is allocated in the JCL.

```
//UNLOAD EXEC PGM=INZUTILB,PARM='DZ8A,INZUTIL',
// REGION=0M,TIME=1440
//STEPLIB DD DSN=HINZ510.SINZLINK,DISP=SHR
// DD DSN=DSNA10.SDSNLOAD,DISP=SHR
// DD DSN=DSNA10.SDSNLOAD2,DISP=SHR
//SYSREC DD DSN=...
//UTPRINT DD SYSOUT=*
//SYSPRINT DD SYSOUT=*
//SYSPUNCH DD SYSOUT=*
//SYSIN DD *
UNLOAD TABLESPACE DBDM8A.TSTEST16
QUIESCE NO LOCK YES
DB2 FORCE
SELECT * FROM TSTEST16 SQLPART(1:3,5:6)
ORDER BY COLINTEGER
OUTDDN(SYSREC)
FORMAT DSNTIAUL LOADDN SYSPUNCH
//
```

In this example, two SELECT statements are generated to process the two ranges of partitions. Data from partitions 1 - 3 might be mixed with data from partitions 5 - 6 because both SELECT statements are processed in parallel. For these two ranges of partitions, Db2 HPU processes the sort that corresponds to the ORDER BY specification based on the result of merging the

two SELECT statements to obtain data that is written in file SYSREC and sorted on column COLINTEGER.

When the SORT(EXTERNAL) option is specified in Db2 HPU, and the SORT specification is not supported natively, the sort is not done, warning message UDBU511W is issued, and the output data is not sorted.

When an ORDER BY clause is coded on the SELECT statement, Db2 HPU can automatically switch to SORT(EXTERNAL) processing to be able to sort data that comes from different ranges of partitions that are unloaded in a single output file.

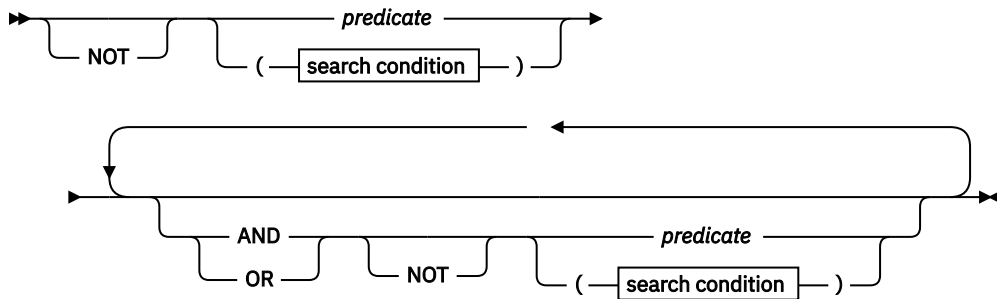
WHERE

The following syntax diagram shows the format of the WHERE clause:

WHERE clause



search condition



search condition

NOT

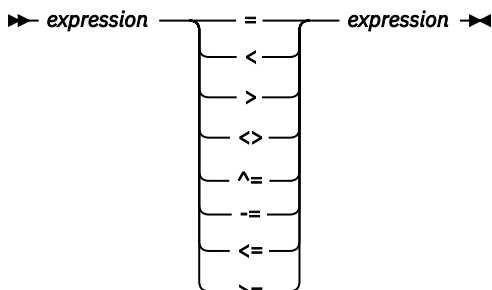
predicate

The following predicates specify a comparison between two expressions.

- basic predicate
- between predicate
- in predicate
- like predicate
- null predicate

The following syntax diagram shows the predicate syntax:

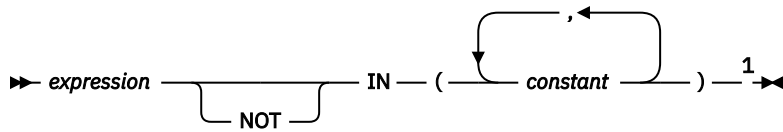
basic predicate



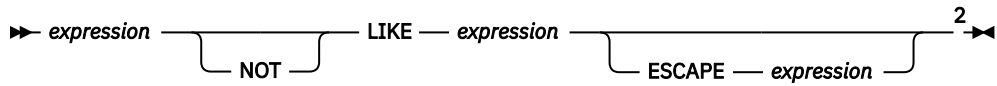
between predicate



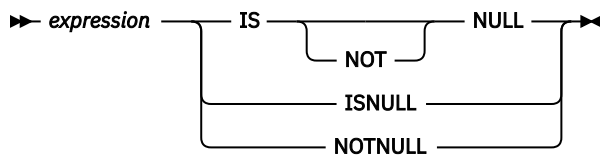
in predicate



like predicate



null predicate

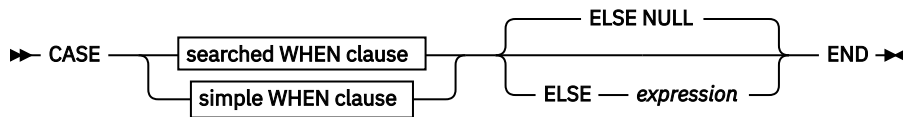


Notes:

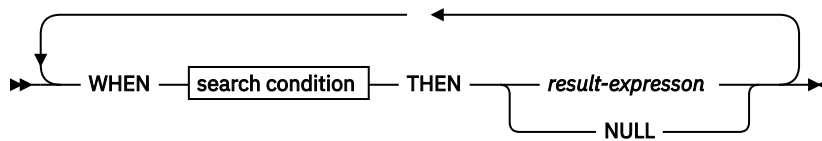
¹ The IN predicate compares an expression with a set of values. The result of this predicate is true if the value of the expression matches one in the list; otherwise, the result is false.

² The LIKE predicate works the same as the standard SQL LIKE predicate.

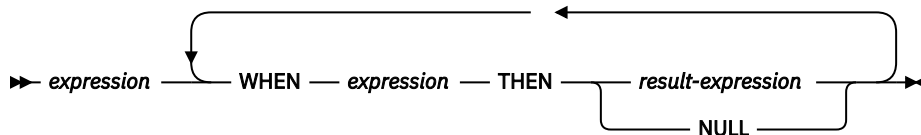
case expression



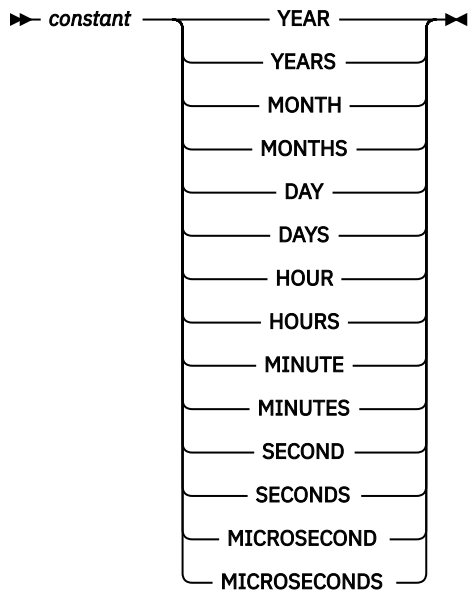
searched WHEN clause



simple WHEN clause



labeled duration



expression

An SQL expression is a combination of columns, functions and special registers and operators.

The following tables give the list of supported and unsupported SQL items (scalar functions and operators). Be aware that SQL statements containing only supported items may not be supported as some combinations may prevent Db2 HPU to process the statement in native mode.

The following table contains a list of supported and unsupported SQL:

Table 34. Supported and unsupported scalar functions and operators

Items	Supported? (1)
ABS	SUPPORTED
ADD_MONTHS	UNSUPPORTED (3)
AND	SUPPORTED
ANY	SUPPORTED
ASCII	UNSUPPORTED (4)
ASCII_CHR	UNSUPPORTED (4)
ASCII_STR	UNSUPPORTED (4)
ASIN	UNSUPPORTED (4)
ATAN	UNSUPPORTED (4)
BETWEEN	SUPPORTED
BIGINT	SUPPORTED
BINARY	UNSUPPORTED (4)
BITAND	UNSUPPORTED (3)
BITANDNOT	UNSUPPORTED (3)
BITNOT	UNSUPPORTED (3)
BITOR	UNSUPPORTED (3)
BITXOR	UNSUPPORTED (3)

Table 34. Supported and unsupported scalar functions and operators (continued)

Items	Supported? (1)
BLOB	UNSUPPORTED (4)
CASE expression	SUPPORTED
CCSID_ENCODING	UNSUPPORTED (4)
CEIL	SUPPORTED
CEILING	SUPPORTED
CHAR	SUPPORTED
CHARACTER_LENGTH	UNSUPPORTED (4)
CLOB	UNSUPPORTED (4)
COALESCE	SUPPORTED
COLLATION_KEY	UNSUPPORTED (4)
COMPARE_DECFLOAT	UNSUPPORTED (3)
CONCAT	SUPPORTED
CONTAINS	UNSUPPORTED (4)
COS	UNSUPPORTED (4)
COSH	UNSUPPORTED (4)
CURRENT	SUPPORTED TIME REGISTER
CURRENT_TIME	SUPPORTED TIME REGISTER
CURRENT_TIMESTAMP	SUPPORTED TIME REGISTER
DATE	SUPPORTED
DAY	SUPPORTED
DAYOFMONTH	SUPPORTED
DAYOFWEEK	SUPPORTED
DAYOFWEEK_ISO	UNSUPPORTED (4)
DAYOFYEAR	SUPPORTED
DAYS	SUPPORTED
DBCLOB	UNSUPPORTED (4)
DEC	SUPPORTED
DECFLOAT	SUPPORTED
DECFLOAT_FORMAT	UNSUPPORTED (4)
DECFLOAT_SORTKEYS	UNSUPPORTED (4)
DECIMAL	SUPPORTED
DECRYPT_BINARY	UNSUPPORTED (4)

Table 34. Supported and unsupported scalar functions and operators (continued)

Items	Supported? (1)
DECRYPT_BIT	UNSUPPORTED (4)
DECRYPT_CHAR	UNSUPPORTED (4)
DECRYPT_DB	UNSUPPORTED (4)
DEGREES	UNSUPPORTED (3)
DIFFERENCE	UNSUPPORTED (4)
DIGITS	SUPPORTED
DOUBLE	SUPPORTED
DOUBLE_PRECISION	SUPPORTED
DSN_XMLVALIDATE	UNSUPPORTED (4)
EBCDIC_CHAR	UNSUPPORTED (4)
EBCDIC_STR	UNSUPPORTED (4)
ENCRYPT_TDES	UNSUPPORTED (4)
EXP	UNSUPPORTED (3)
EXTRACT	UNSUPPORTED (4)
FLOAT	SUPPORTED
FLOOR	SUPPORTED
GENERATE_UNIQUE	UNSUPPORTED (4)
GETHINT	UNSUPPORTED (4)
GETVARIABLE	SUPPORTED
GRAPHIC	SUPPORTED
GREATEST	UNSUPPORTED (3)
HEX	SUPPORTED
HOUR	SUPPORTED
HOURS	SUPPORTED
IDENTIFY_VAL_LOCAL	UNSUPPORTED (4)
IF statement	SUPPORTED
IFNULL	SUPPORTED
IN	SUPPORTED
INSERT	UNSUPPORTED (4)
INT	SUPPORTED
INTEGER	SUPPORTED
IS	SUPPORTED
JULIAN_DAY	UNSUPPORTED (4)
LAST_DAY	UNSUPPORTED (3)

Table 34. Supported and unsupported scalar functions and operators (continued)

Items	Supported? (1)
LCASE	UNSUPPORTED (4)
LEAST	UNSUPPORTED (3)
LEFT	UNSUPPORTED (2)
LENGTH	SUPPORTED
LIKE	SUPPORTED
LN	UNSUPPORTED (3)
LOCAL	SUPPORTED
LOCATE	UNSUPPORTED (4)
LOG	UNSUPPORTED (3)
LOG10	UNSUPPORTED (3)
LOWER	UNSUPPORTED (4)
LPAD	UNSUPPORTED (3)
LTRIM	SUPPORTED
MAX	UNSUPPORTED (3)
MICROSECOND	SUPPORTED
MICROSECONDS	SUPPORTED
MIDNIGHT_SECONDS	SUPPORTED
MIN	SUPPORTED
MINUTE	SUPPORTED
MINUTES	SUPPORTED
MOD	SUPPORTED
MONTH	SUPPORTED
MONTH_BETWEEN	UNSUPPORTED (4)
MONTHS	SUPPORTED
MONTHS_BETWEEN	UNSUPPORTED (3)
MQPUBLISH	UNSUPPORTED (4)
MQPUBLISHXML	UNSUPPORTED (4)
MQREAD	UNSUPPORTED (4)
MQREADCLOB	UNSUPPORTED (4)
MQREADXML	UNSUPPORTED (4)
MQRECEIVE	UNSUPPORTED (4)
MQRECEIVELOB	UNSUPPORTED (4)
MQRECEIVEXML	UNSUPPORTED (4)
MQSEND	UNSUPPORTED (4)

Table 34. Supported and unsupported scalar functions and operators (continued)

Items	Supported? (1)
MQSENDXML	UNSUPPORTED (4)
MQSENDXMLFILE	UNSUPPORTED (4)
MQSENDXMLFILECLOB	UNSUPPORTED (4)
MQSUBSCRIBE	UNSUPPORTED (4)
MQUNSUBSCRIBE	UNSUPPORTED (4)
MULTIPLY_ALT	UNSUPPORTED (4)
NEXT_DAY	UNSUPPORTED (4)
NORMALIZE_DECFLOAT	UNSUPPORTED (3)
NORMALIZE_STRING	UNSUPPORTED (4)
NOT	SUPPORTED
NULLIF	SUPPORTED
NVL	SUPPORTED
OR	SUPPORTED
OVERPLAY	UNSUPPORTED (4)
POSITION	UNSUPPORTED (4)
POSSTR	UNSUPPORTED (4)
POWER	UNSUPPORTED (3)
QUANTIZE	UNSUPPORTED (3)
QUARTER	SUPPORTED
RADIANS	UNSUPPORTED (4)
RAISE_ERROR	UNSUPPORTED (4)
RAND	UNSUPPORTED (4)
REAL	SUPPORTED
REPEAT	UNSUPPORTED (3)
RID	UNSUPPORTED (4)
RIGHT	UNSUPPORTED (2)
ROUND	UNSUPPORTED (4)
ROUND_TIMESTAMP	UNSUPPORTED (4)
ROWID	UNSUPPORTED (4)
RPAD	UNSUPPORTED (3)
RTRIM	SUPPORTED
SCORE	UNSUPPORTED (4)
SECOND	SUPPORTED
SECONDS	SUPPORTED

Table 34. Supported and unsupported scalar functions and operators (continued)

Items	Supported? (1)
SIGN	SUPPORTED
SIN	UNSUPPORTED (4)
SINH	UNSUPPORTED (4)
SMALLINT	SUPPORTED
SOAPHTTPC	UNSUPPORTED (4)
SOAPHTTPNC	UNSUPPORTED (4)
SOAPHTTPNV	UNSUPPORTED (4)
SOAPHTTPV	UNSUPPORTED (4)
SOUNDEX	UNSUPPORTED (4)
SPACE	UNSUPPORTED (4)
SQRT	UNSUPPORTED (3)
STRIP	SUPPORTED
SUBSTR	SUPPORTED
TAN	UNSUPPORTED (4)
TANH	UNSUPPORTED (4)
TIME	SUPPORTED
TIMESTAMP	SUPPORTED
TIMESTAMP_FORMAT	UNSUPPORTED (4)
TIMESTAMP_iso	UNSUPPORTED (3)
TIMESTAMPADD	UNSUPPORTED (4)
TIMESTAMPDIFF	UNSUPPORTED (3)
TO_NUMBER	UNSUPPORTED (3)
TOTALORDER	UNSUPPORTED (4)
TRANSLATE	UNSUPPORTED (4)
TRIM	SUPPORTED
TRUNC	SUPPORTED
TRUNC_TIMESTAMP	UNSUPPORTED (4)
TRUNCATE	SUPPORTED
UCASE	UNSUPPORTED (4)
UNICODE	UNSUPPORTED (4)
UNICODE_STR	UNSUPPORTED (4)
UPPER	UNSUPPORTED (4)
VALUE	SUPPORTED
VARBINARY	UNSUPPORTED (4)

Table 34. Supported and unsupported scalar functions and operators (continued)

Items	Supported? (1)
VARCHAR	SUPPORTED
VARCHAR_FORMAT	UNSUPPORTED (4)
VARGRAPHIC	SUPPORTED
VERIFY_GROUP_FOR_USER	UNSUPPORTED (4)
VERIFY_ROLE_FOR_USER	UNSUPPORTED (4)
VERIFY_TRUSTED_CONTECT_ROLE_FOR_USER	UNSUPPORTED (4)
WEEK	UNSUPPORTED (4)
WEEK_ISO	UNSUPPORTED (4)
XMLATTRIBUTES	UNSUPPORTED (4)
XMLCOMMENT	UNSUPPORTED (4)
XMLCONCAT	UNSUPPORTED (4)
XMLDOCUMENT	UNSUPPORTED (4)
XMLELEMENT	UNSUPPORTED (4)
XMLFOREST	UNSUPPORTED (4)
XMLNAMESPACES	UNSUPPORTED (4)
XMLPARSE	UNSUPPORTED (4)
XMLPI	UNSUPPORTED (4)
XMLQUERY	UNSUPPORTED (4)
XMLSERIALIZE	UNSUPPORTED (4)
YEAR	SUPPORTED
YEARS	SUPPORTED

Notes:

- SUPPORTED? (1): The column represents the list of scalars and words known or unknown by Db2 HPU
- SUPPORTED: Scalar function known by Db2 HPU.
- UNSUPPORTED (2): Db2 HPU only qualifies the whole SQL statements as unsupported but not specific error message is issued for them.
- UNSUPPORTED (3): Db2 HPU issues a specific error message mentioning this item. The location is not mentioned within the SQL statement.
- UNSUPPORTED (4): Db2 HPU issues the INZU228E message and indicates the name and the location of this unsupported item.

ORDER BY

Indicates that the output data set must be sorted based on the chosen criteria.

ASC

Specifies that the rows are sorted in ascending order and the column name or an integer that identifies the *n*th column of the result table.

DESC

Specifies that the rows are sorted in descending order and the column name or an integer that identifies the *n*th column of the result table.

If the ORDER BY clause corresponds to the order of the clustering index, Db2 HPU tries to use this index to unload the rows in the required order. In all other cases, a SORT is issued.

The default value is ASC.



Attention: When an ORDER clause is specified along with the FORMAT INTERNAL, Db2 HPU automatically generates the PRESORTED YES option at the table level in the LOAD control cards if requested through the LOADDDN option. As a consequence, the target table to be loaded with the data produced for the unload should have a clustering index with a key compatible with the ORDER clause specified by the unload statement. If this is not the case, it is advisable to remove the ORDER clause that would cause extra processing time at UNLOAD time without any subsequent benefit at LOAD time.

ORDER CLUSTER

Indicates that the output data set must be sorted according to the index cluster. To display the sort messages, code the UTPRINT ddname. If an index is not defined on the table, a warning message is issued and processing continues.

Restriction: ORDER CLUSTER is only supported with native mode processing. If a logical unload is processed in SQL mode, specifying ORDER CLUSTER leads to an SQL error=-199.



Attention: When an ORDER clause is specified along with the FORMAT INTERNAL option, Db2 HPU automatically generates the PRESORTED YES option at the table level in the LOAD control cards if requested through the LOADDDN option. As a consequence, the target table to be loaded with the data produced for the unload should have a clustering index with a key compatible with the ORDER clause specified by the unload statement. If this is not the case, it is advisable to remove the ORDER clause that would cause extra processing time at UNLOAD time without any subsequent benefit at LOAD time.

WITH UR

This clause is accepted for SELECT statements that are processed natively only for compatibility with SELECT statements that are processed by using Db2. Internal lock mechanisms do not apply because the SELECT statements that are processed natively are processed outside of Db2. Specifying the WITH UR clause does not affect the results of SELECT statements that are processed natively and does not affect the integrity of data that is unloaded by Db2 HPU.

The LOCK and QUIESCE options apply to the SELECT statements that are processed natively or processed by using Db2 even if the WITH UR clause is specified.

Restriction: The WITH UR clause is not supported in the fast listdef select blocks.

The following example shows how you can unload data with the WITH UR clause in native mode:

```
UNLOAD TABLESPACE
QUIESCE YES
DB2 NO
SELECT * FROM DSN81010.EMP
WITH UR
FORMAT DSNTIAUL
OUTDDN(OUTPUT)
```

See the *Db2 Universal Database for z/OS SQL Reference* for more information about function parameters.

Related concepts

Db2 HPU ddname allocation: UTPRINT ddname.

Db2 HPU uses two types of ddnames: ddnames that Db2 HPU allocates and ddnames that you must allocate.

Related reference

[FORMAT block syntax and description](#)

Use the FORMAT block to specify the format of the data that is unloaded. The FORMAT block is a part of the SELECT block.

SELECT statement examples

These SELECT statement examples show how to create sequential data sets in different formats, how to use the LISTDEF and TEMPLATE keywords, how to use the INTO clause and the REFORMAT clause, and how to use other Db2 HPU options.

OPTIONS block syntax and description

Use the OPTIONS block to specify the default conversions that are with the SELECT statements. This block can be used in the GLOBAL block, the UNLOAD block, and the SELECT block.

Example: Unloading data from a table with informational header

This example shows how to unload data from a table with a line header saying from which Db2 subsystem the data has been unloaded.

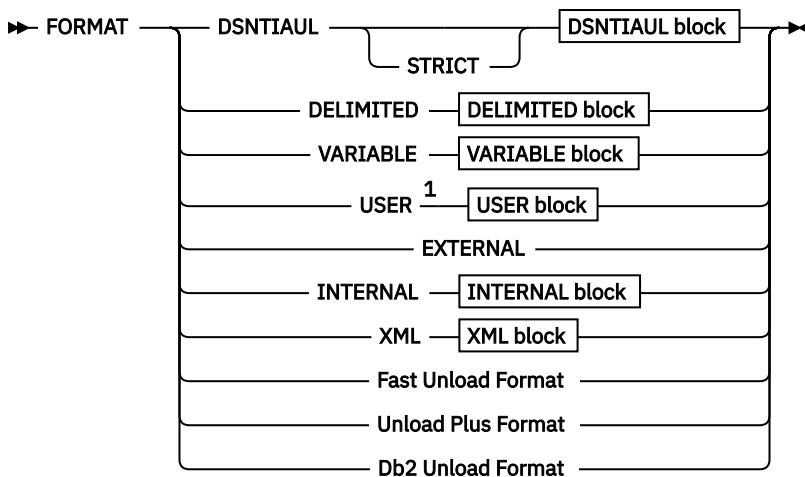
```
UNLOAD TABLESPACE
DB2 NO
SELECT CHAR(
  CHAR('SOURCE_SSID='),!!
  CHAR(GETVARIABLE('SYSIBM.SYSTEM_NAME')),
  16),
C1,
C2,
C3
FROM MZLFLB.TBDZ9AFLB00101
OUTDDN(SYSRECC01)
FORMAT DELIMITED
```

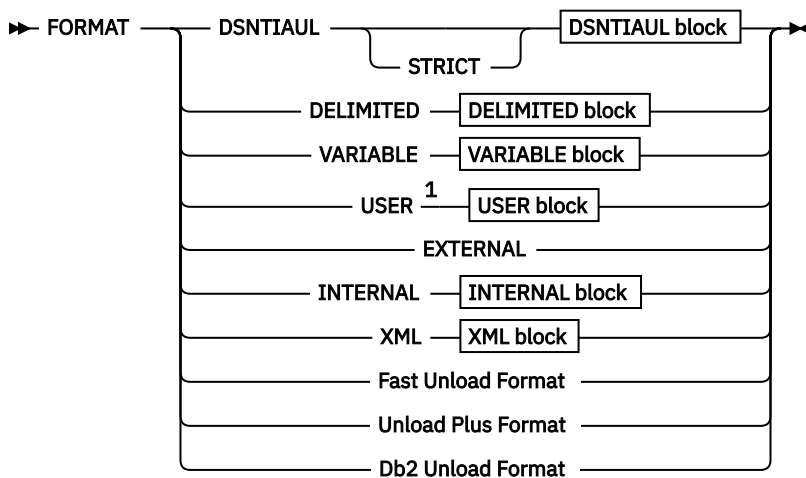
FORMAT block syntax and description

Use the FORMAT block to specify the format of the data that is unloaded. The FORMAT block is a part of the SELECT block.

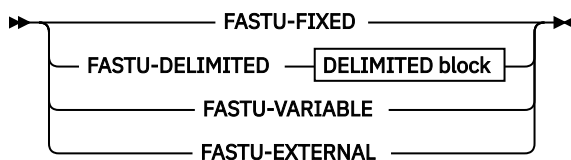
The following diagram shows the syntax of the FORMAT block:

FORMAT block

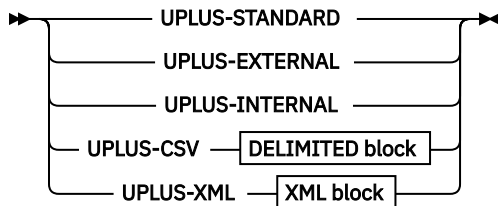




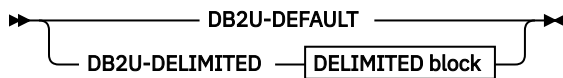
Fast Unload Format



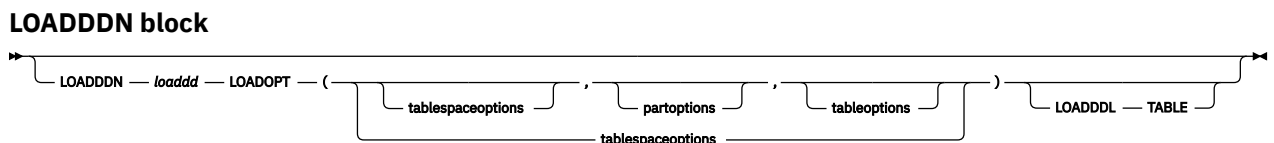
Unload Plus Format



Db2 Unload Format



LOADDDN block



Notes:

¹ Important: This feature is deprecated and is only supported for compatibility purpose.. See "Input and output/Output formats/Performing logical unloads/Deprecated feature: replacement features" for more details.

The main items from the FORMAT block are described below:

FORMAT

Introduces a FORMAT block that allows to specify the format to use to unload the data and optionally to request to generate LOAD control cards for the Db2 LOAD utility. You may specify one of the Db2 HPU genuine formats or a format provided for compatibility with other unload tools.

Important: The actual format of the data does not only depend on the format requested by the FORMAT clause but can also be affected by - the Db2 HPU settings - the options specified by

OPTIONS block that have an impact on the output format (i.e., different from LOADOPT, LOADINDDN and UNLROWSET).

The options having an impact on the output format specified in a SELECT block apply to all formats. Except for FLOAT, the options having an impact on the output format specified in a GLOBAL block or UNLOAD block apply, when relevant, to all formats if the VUU057/OPALLFMT parmlib parameter is set to YES. They apply only to the USER format otherwise.

Regardless of its location, the FLOAT option is applied to all format that write float data in binary format, i.e. the DSNTIAUL, USER, VARIABLE as well as to DSNTIAUL-like and VARIABLE-like compatibility formats.

Db2 HPU genuine formats

DSNTIAUL dsntiaul block

Unloads data in the same format that is produced by the DSNTIAUL program.

DELIMITED delimited block

Unloads data in DELIMITED format.

VARIABLE variable block

Unloads data in a format that is compatible with the Db2 LOAD data set.

USER user block

Unloads data in the defined format. You can specify the format of a specific column using a USER block.

EXTERNAL

Unloads data in EXTERNAL format. The EXTERNAL keyword contains the following characteristics:

- Output records are fixed by default.
- Variable-length columns that are at the maximum length are preceded with the two length bytes and are padded on the right with binary zeros.
- Nullable fields are followed by a byte that contains x'00' if the data is not null and contains '?' if the data is null.
- A field separator is not used.

All fields are in the EXTERNAL format that corresponds to their default type.

INTERNAL

Unloads data in the Db2 INTERNAL format. This format is compatible with the INTERNAL format in the Db2 LOAD utility. The INTERNAL keyword is limited by the following restrictions:

- The INTERNAL keyword is accepted only on natively processed SELECT statements.
- The INTERNAL keyword is allowed only on a SELECT * FROM *table-name* statement or a SELECT FROM LIST (*listdef-name*) statement or a SELECT FROM LISTTBV (*listdef-name*) statement.
- The INTERNAL keyword is not accepted on views.
- The INTERNAL keyword cannot be combined with other format types in SELECT statements that are processed on the same table space with the same UNLOAD command.
- The INTERNAL keyword is not supported with tables that contain a LOB column or an XML column.
- When you use the INTERNAL keyword, an OPTIONS block that is used to change the formatting of the output record or a REFORMAT clause is ignored.
- If you specify the INTERNAL keyword, the OUTEXIT and CCSID keywords or encoding scheme specifications are ignored.
- You cannot specify the INTERNAL keyword with the OUTMAXROWS or OUTFREQROWS keywords.
- The INTO clause is not allowed for SELECT statements that use the INTERNAL keyword.
- The ORDER CLUSTER and ORDER BY clauses are accepted with the INTERNAL keyword in the following conditions:

- The table is in reordered row format (RRF).
- The table is in basic row format (BRF), and the ORDER CLUSTER clause or the ORDER BY clause does not include columns that are located after the first variable-length column in the table.

When an ORDER clause is specified along with the FORMAT INTERNAL option, Db2 HPU automatically generates the PRESORTED YES option at the table level in the LOAD control cards if requested through the LOADDN option. As a consequence, the target table to be loaded with the data produced for the unload should have a clustering index with a key compatible with the ORDER clause specified by the unload statement. If this is not the case, it is advisable to remove the ORDER clause that would cause extra processing time at UNLOAD time without any subsequent benefit at LOAD time.

- When the INTERNAL keyword is specified, the setting of the VUU050/ULFRQMSG parameter is ignored, and information messages that display the number of currently written records are not displayed.

The following example shows how you can request a logical unload of data by using the INTERNAL keyword. Data from the DSN81010.EMP table is unloaded in the INTERNAL format.

```
UNLOAD TABLESPACE
QUIESCE YES
DB2 NO
SELECT * FROM DSN81010.EMP
FORMAT INTERNAL
OUTDDN(OUTPUT)
```

XML XML block

Unloads data in the Db2 HPU XML format.

Compatibility formats

Db2 HPU offers built-in formats that allows to generate output data with the same format as generated by the following unload tools:

- Fast Unload
- Unload Plus
- Db2 Unload utility

These formats are meant to help you convert your legacy unload steps using one of the tools listed above in Db2 HPU genuine steps that produce the same output data and can take benefit from the numerous Db2 HPU specific features that can be only invoked through the genuine syntax. You may use these formats for brand new unloads if they match your needs. However, be aware that the settings of some of these formats are driven by common parameters which limits the fine tuning capabilities when formats compatible with several tools are used.

Fast Unload formats

FASTU-FIXED

Unloads data in the same format as the FastUnload FIXED format.

FASTU-DELIMITED DELIMITED block

Unloads data in the same format as the FastUnload COMMA-DELIMITED format.

FASTU-VARIABLE

Unloads data in the same format as the FastUnload VARIABLE format.

FASTU-EXTERNAL

Unloads data in the same format as the FastUnload EXTERNAL format.

Unload Plus formats

UPLUS-STANDARD

Unloads data in the same format as the Unload Plus STANDARD format.

UPLUS-EXTERNAL

Unloads data in the same format as the Unload Plus EXTERNAL format.

UPLUS-INTERNAL

Unloads data in the same format as the Unload Plus INTERNAL format.

UPLUS-CSV DELIMITED block

Unloads data in the same format as the Unload Plus CSV format.

UPLUS-XML XML block

Unloads data in the same format as the Unload Plus XML format.

Db2 Unload formats

DB2U-DEFAULT

Unloads data in the same format as the Db2 Unload utility default format.

DB2U-DELIMITED DELIMITED block

Unloads data in the same format as the Db2 Unload utility DELIMITED format.

LOADDDN

Specifies the name of the DD statement that describes the command data set. Use this keyword if you want Db2 HPU to create a command data set for the Db2 LOAD utility. The corresponding DD statement must be present in the execution JCL. This data set contains the required commands for loading a sequential data set by using the Db2 LOAD utility.

If the LIKE *table-name* clause is not used, the model table is the table that is referred to in the SELECT statement.



Attention: If both an ORDER clause and the FORMAT INTERNAL option are specified, Db2 HPU automatically generates the PRESORTED YES option at the table level in the LOAD control cards. As a consequence, the target table to be loaded with the data produced for the unload should have a clustering index with a key compatible with the ORDER clause specified by the unload statement.

LOADOPT

For a description of this keyword, see [“OPTIONS block syntax and description” on page 157](#).



Attention: If both an ORDER clause and the FORMAT INTERNAL option are specified, as Db2 HPU automatically generates the PRESORTED YES option at the table level in the LOAD control cards, the LOADOPT option should not specify the PRESORTED keyword.

The description of the XML keyword is the following one:

DELIM delimiter character

Specifies the delimiter character to be used to enclose CHAR, VARCHAR, GRAPHIC and VARGRAPHIC fields in the output data set.

The value of the delimiter-character can be 'c' or X'hh'

DELIM does not have a default value. The value are not delimited if no DELIM option is specified.

NULLVAL character expression

Specifies the character string to be written into the output data set when a NULL value is to be unloaded. This character string is not delimited even if the DELIM option is specified.

If NULLVAL is not specified, the NULL value are not substituted and an empty string with no delimiter is unloaded.

Related reference

[Fast select, fast listdef and fast listdeftbv select blocks syntax and description](#)

The fast select, fast listdef and fast listdeftbv select blocks describe the syntax for SELECT statements that can be supported natively by Db2 HPU when DB2 NO or DB2 YES is specified in the UNLOAD command. The fast select, fast listdef and fast listdeftbv select blocks are part of the SELECT block.

[SELECT statement examples](#)

These SELECT statement examples show how to create sequential data sets in different formats, how to use the LISTDEF and TEMPLATE keywords, how to use the INTO clause and the REFORMAT clause, and how to use other Db2 HPU options.

[OPTIONS block syntax and description](#)

Use the OPTIONS block to specify the default conversions that are with the SELECT statements. This block can be used in the GLOBAL block, the UNLOAD block, and the SELECT block.

DSNTIAUL block syntax and description

Use the DSNTIAUL block to put the output data set in the same format that is produced by the DSNTIAUL program.

DELIMITED block syntax and description

Use the DELIMITED block to indicate that the format of the output data set is a comma-separated-value file, which corresponds to a .csv file that can be processed by your personal computer.

VARIABLE block syntax and description

Use the VARIABLE block to indicate that the output data set must be compatible with the Db2 LOAD data set.

USER block syntax and description

Use the USER block to indicate that the unloaded data is formatted according to the keywords that are specified in the USER block.

Db2 HPU output data parameters

The Db2 HPU output data parameters section on the Product Parameters panel (CCQPPRD) in Tools Customizer contains the parameters for configuring output data.

DSNTIAUL block syntax and description

Use the DSNTIAUL block to put the output data set in the same format that is produced by the DSNTIAUL program.

The DATE and TIME columns are unloaded based on Db2 installation parameters.

The default data set record format is fixed blocked (FB), but it can be specified as fixed (F), variable (V), or variable blocked (VB) in the JCL.

If the LRECL is specified, it is kept by Db2 HPU. In this case, data can be truncated.

If the LRECL is not specified, Db2 HPU determines it at run time based on the following rules:

- If you specified RECFM=F, the LRECL of the data set is equal to the sum of the maximum length of fields, regardless of the LRECL value that you specified in the JCL. The output data set is in FB format.
- If you specified RECFM=V or RECFM=VB, the LRECL of the data set is equal to the sum of the maximum length of fields plus 4 bytes, regardless of the LRECL value that you specified in the JCL. The output data set is in VB format.

The length of variable-length fields is the sum of their maximum length plus 2 bytes.

DSNTIAUL STRICT affects the formatting of constant character strings that are specified in SELECT statements. For example:

```
SELECT 'character-string'
```

If you specify DSNTIAUL, *character-string* is written to the output data set as type CHAR.

If you specify DSNTIAUL STRICT, *character-string* is written to the output data set as type VARCHAR.

The following syntax diagram shows the DSNTIAUL block:



If the LIKE *table-name* clause is not specified, the characteristics and sequence of fields in the generated data set are the same as the selected columns. The format of data that is written in the data set is in the same format that is generated by the DSNTIAUL program:

- Numeric data has a standard format.

- Columns of type DATE, TIME, or TIMESTAMP have the default format for the site.
- Variable-length fields (VARCHAR, LONG VARCHAR, VARGRAPHIC, and LONG VARGRAPHIC) contain length bytes at the beginning of the field. The field is extended to the maximum size of the column.
- If a column accepts nulls, a null-byte indicator is generated into the encoding scheme (EBCDIC, ASCII, or UNICODE) and into the CCSID of the output data. This indicator contains the value ? when the field is null, or a binary zero (x'00') if the value is not null. The hexadecimal value of ? depends on the encoding scheme.

LIKE *table-name*

If the LIKE *table-name* clause is specified, Db2 HPU uses the characteristics of the table model as parameters and formats the data set to allow this table to be loaded.

The sequence of columns in the SELECT statement must match the columns in the model table. If format conversions are required, they follow Db2 HPU format rules.

The *table-name* must be in the format *user_ID*.TABLE. If the user ID is not specified, the name of the user (CURRENT SQLID) is used.

Field types are provided by the table model. A null-byte indicator is generated behind the field if the column of the table model can be null.

If a column in the SELECT statement is null and if the corresponding column in the table model does not allow nulls, the field in the output sequential data set has one of the following standard default values:

- 0 for numeric fields (INTEGER, SMALLINT, DECIMAL, FLOAT)
- A string of blank characters (CHAR, GRAPHIC)
- Two bytes of zero length (VARCHAR, LONG VARCHAR, VARGRAPHIC, LONG VARGRAPHIC)
- 0001-01-01 (DATE)
- 00.00.00 (TIME)
- 0001-01-01-00.00.00.000000 (TIMESTAMP)

You can override the default DATE, TIME, and TIMESTAMP formats by specifying an OPTIONS block at the SELECT level. Only an OPTIONS block at the SELECT level is considered for this format.

Related reference

[VARIABLE block syntax and description](#)

Use the VARIABLE block to indicate that the output data set must be compatible with the Db2 LOAD data set.

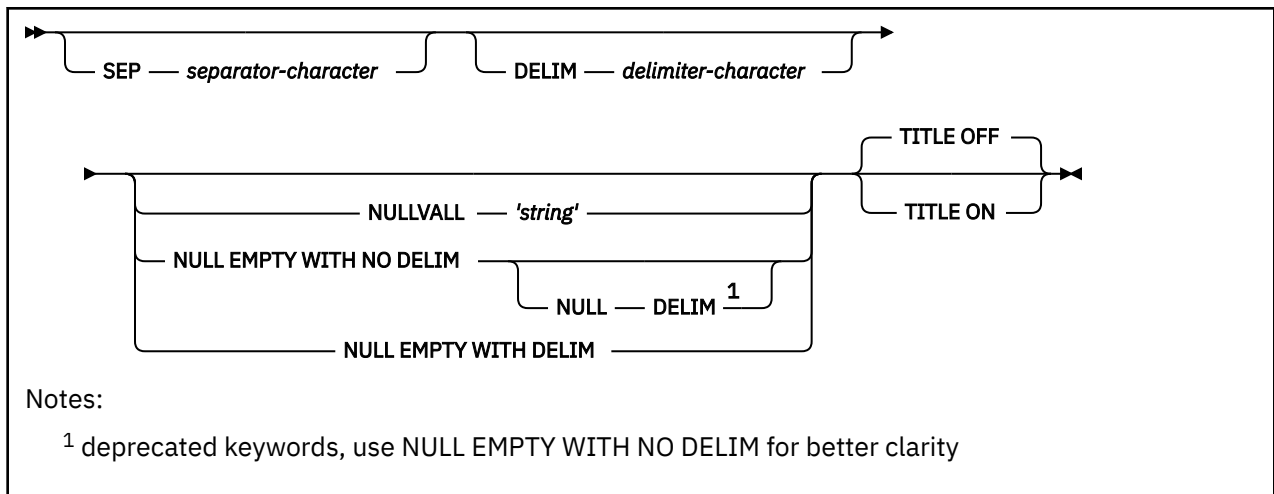
DELIMITED block syntax and description

Use the DELIMITED block to indicate that the format of the output data set is a comma-separated-value file, which corresponds to a .csv file that can be processed by your personal computer.

When numeric and date, time, and timestamp data is unloaded in DELIMITED format, the data is always unloaded in an external, displayable format, even if an INTO clause or a REFORMAT clause specifies a conversion to INTERNAL format. For example, specifying REFORMAT (TYPE SMALLINT INTO DECIMAL(5,0)) generates a field that contains decimal external data. When data is converted into date, time, or timestamp data by using an INTO clause or a REFORMAT clause, the default output format is the ISO representation of this data. For example, specifying COL_DATE INTO C1 DATE returns a field in the ISO representation of a date column.

The following syntax diagram shows the format of the DELIMITED block:

DELIMITED block



SEP *separator-character*

Specifies the separator character to be used to separate fields in the output data set.

The value of the *separator-character* can be 'c' or X'hh'.

The default value is (X'40').

DELIM *delimiter-character*

Specifies the delimiter character to be used to enclose CHAR, VARCHAR, GRAPHIC, and VARGRAPHIC fields in the output data set.

The value of the *delimiter-character* can be 'c' or X'hh'.

DELIM does not have a default value.

NULLVAL '*string*'

Specifies the string value that is written in the output field whenever the corresponding column table has a NULL value. The specified string must be surrounded between apostrophes but it is not enclosed in any delimiter in the output data set. The string is written as is regardless of any format. The string is converted into the output file CCSID. The value " (quote quote) specifies that the NULL value is an empty string.

NULL EMPTY WITH NO DELIM

Specifies that NULL values are unloaded as empty strings regardless of the data type of the related column. A NULL value is identified in the output record by two consecutive separators.

Note: Replaces former NULL DELIM option for better clarity.

NULL DELIM

same as NULL EMPTY WITH NO DELIM. This deprecated syntax item is kept for backward compatibility purpose.

NULL EMPTY WITH DELIM

Specifies that NULL values are unloaded as empty strings and, for string data types, the empty string is enclosed by the delimiter character that is specified by DELIM *delimiter-character*.

TITLE

Specify whether a title is requested for the columns of the output data unloaded in DELIMITED format.

OFF

the output data set does not contain any title line.

ON

the first line of the output data set is a title line built from the columns names of the target table, enclosed by the DELIM character and separated by the SEP character. The name of the target column is determined by the first rules of the following ordered list that applies.

- The name defined by an INTO clause, if any.

- The name of the column, if the target column exactly matches one of the columns from a source table.
- "COLnnn" - where nnn is the rank of the considered target column in the SELECT clause - if none of the previous situation applies.

The LRECL of the output file that includes a title line, if no forced by any user specification, is set to the greatest value between the maximum data record length and the title line length. TITLE ON is supported only if the output ddname (specified by the OUTDDN option) is dedicated to a single SELECT.

The title line is encoded with the Db2 subsystem encoding scheme (ENSCHEME of the Db2 settings) and with the SBCS CCSID (SCCSID of the Db2 settings) for a non-mixed subsystem and the mixed CSSID (MCCSID of the Db2 settings) for a mixed subsystem.

These options are mutually exclusive. If none is specified, the content of the output fields for NULL values is determined according to the value of the VUU078/ULNULLFL parameter

To ensure that you can distinguish between empty values and null values, specify all three keywords.

The following table shows the results of different settings for a row that contains five columns that have the following values:

- Col 1**
BEGINNING (VARCHAR)
- Col 2**
NULL (Integer)
- Col 3**
NULL (Character 5)
- Col 4**
empty (VARCHAR)
- Col 5**
END (Character 3)

Table 35. Results of selected DELIMITED block keyword settings

DELIMITED block setting	Result
SEP ','	BEGINNING;;;END
SEP',' DELIM '/'	/BEGINNING/;;;//;/END/
SEP',' DELIM '/' NULL DELIM	/BEGINNING/;;;//;/END/

The DATE, TIME, and TIMESTAMP columns are in ISO format and correspond to the following formats:

- DATE**
YYYY-MM-DD
- TIME**
HH.MM.SS
- TIMESTAMP**
YYYY-MM-DD-HH.MM.SS.NNNNNN

You can override the default DATE, TIME, and TIMESTAMP formats by specifying an OPTIONS block at the SELECT level. Only an OPTIONS block at the SELECT level is considered for this format.

VARIABLE block syntax and description

Use the VARIABLE block to indicate that the output data set must be compatible with the Db2 LOAD data set.

The default format of the output data set is variable block (VB), but you can specify fixed (F), fixed block (FB), or variable (V) in the JCL. Db2 HPU determines the LRECL at run time based on the following rules:

- If you specified RECFM=F or RECFM=FB, the LRECL must be larger than or equal to the sum of the lengths of the fields.
- If you specified RECFM=V, the LRECL must be larger than or equal to the sum of the lengths of the fields plus 4 bytes.

The length of variable-length fields is the sum of their maximum length plus 2 bytes.

The following syntax diagram shows the VARIABLE block:



END

The characteristics and the sequence of fields in the output data set correspond to the characteristics and the sequence of fields in the SELECT statement.

The fields in the data set are also like the fields in the data set in DSNTIAUL format except for the following differences:

- The DATE, TIME, and TIMESTAMP columns are in ISO format and correspond to the following formats:

DATE

YYYY-MM-DD

TIME

HH.MM.SS

TIMESTAMP

YYYY-MM-DD-HH.MM.SS.NNNNNN

- If a column accepts nulls, the null indicator is generated at the beginning of the field. This indicator contains the value X'FF' if the field is null and X'00' if the value is usable.
- If the last-selected column is variable, the output data set is VB, and this column is written only on its effective length. The two length bytes are placed before the column.

You can override the default DATE, TIME, and TIMESTAMP formats by specifying an OPTIONS block at the SELECT level. Only an OPTIONS block at the SELECT level is considered for this format.

ALL

All the variable columns are written using their actual length.

LIKE *table-name*

If the LIKE *table-name* clause is specified, Db2 HPU uses the characteristics of the table model as parameters and formats the data set to allow this table to be loaded.

The sequence of columns in the SELECT statement must match the columns in the model table. If format conversions are required, they follow Db2 HPU format rules.

The *table-name* must be in the format *user_ID*.TABLE. If the user ID is not specified, the name of the user (CURRENT SQLID) is used.

Field types are provided by the table model. A null-byte indicator is generated at the end of the field if the column of the table model can be null.

If a column in the SELECT statement is null and if the corresponding column in the table model does not allow nulls, the field in the output sequential data set has one of the following standard default values:

- 0 for numeric fields (INTEGER, SMALLINT, DECIMAL, FLOAT)
- A string of blank characters (CHAR, GRAPHIC)
- Two bytes of zero length (VARCHAR, LONG VARCHAR, VARGRAPHIC, LONG VARGRAPHIC)

- 0001-01-01 (DATE)
- 00.00.00 (TIME)
- 0001-01-01-00.00.00.000000 (TIMESTAMP)

You can override the default DATE, TIME, and TIMESTAMP formats by specifying an OPTIONS block at the SELECT level. Only an OPTIONS block at the SELECT level is considered for this format.

Related reference

[DSNTIAUL block syntax and description](#)

Use the DSNTIAUL block to put the output data set in the same format that is produced by the DSNTIAUL program.

USER block syntax and description

Use the USER block to indicate that the unloaded data is formatted according to the keywords that are specified in the USER block.

You can change field attributes for all selected columns, which means that you can specify several keywords for each column according to the type of data that the column contains.

The default values are determined by the values that are specified in the OPTIONS block.

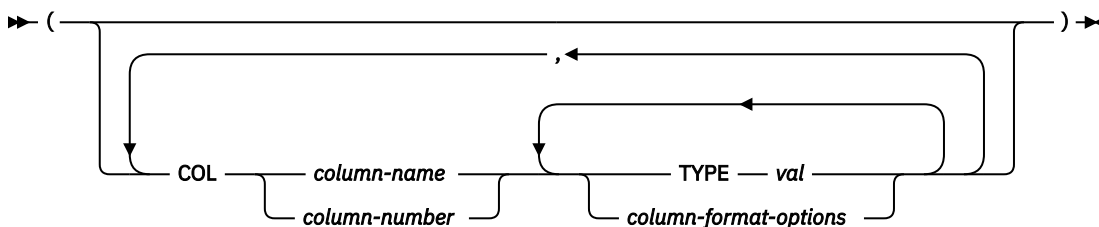
If all the unloaded fields are fixed, the default value of RECFM is FB. If at least one output field is variable, the default value of RECFM is VB.

If the LRECL is not specified, Db2 HPU determines it at run time based on the following rules:

- If you specified RECFM=F, the LRECL of the data set is equal to the sum of the maximum length of fields, regardless of the LRECL value in the JCL. The output data set is in FB format.
- If you specified RECFM=V or RECFM=VB, the LRECL of the data set is equal to the sum of the maximum length of fields plus 4 bytes, regardless of the LRECL value in the JCL. The output data set is in VB format.

The following syntax diagram shows the USER block:

USER block



COL *column-name*|*column-number*

Specifies the name or number of the column in the SELECT statement.

You can specify the following attributes (in keywords) for each field:

A description of the keywords that specify these attributes follows:

TYPE *val*

Specifies the type of output field. The TYPE keyword specifies the conversion to be performed. The following example shows how you might specify the type of output field: TYPE CHAR(10).

The default field format for output records is the format that was specified for columns in the SELECT statement.

column-format-options

Specifies the formatting options of the output data.

Important: This feature is deprecated and is only supported for compatibility purpose. For more details, see [Redundant thus deprecated feature](#) section.

Related reference

Data types for output (TYPE keyword)

The TYPE keyword of the SELECT statement (OPTION block for FORMAT USER) is used to create several types of data in the output. These types are declared in the keyword TYPE. The use of this keyword implies that data is to be converted from the original column type to the type that is declared in the TYPE keyword.

Supported conversions

Db2 HPU supports conversions to specific output data types.

OPTIONS block syntax and description

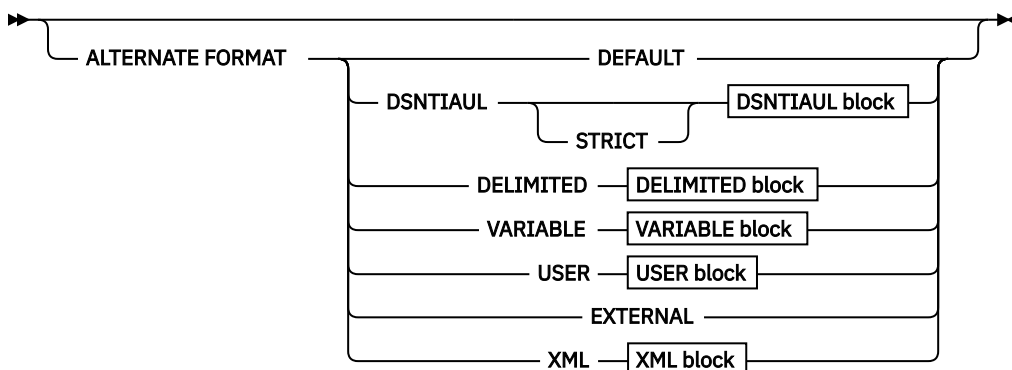
Use the OPTIONS block to specify the default conversions that are with the SELECT statements. This block can be used in the GLOBAL block, the UNLOAD block, and the SELECT block.

INTERNAL block syntax and description

Use the INTERNAL block to indicate that the unloaded data is formatted according to the keywords that are specified in the INTERNAL block.

The following syntax diagram shows the INTERNAL block:

INTERNAL block



ALTERNATE FORMAT *format_description* / DEFAULT

Specifies the FORMAT to use when INTERNAL format is not suitable, e.g. when a not supported SELECT statement is specified or if LOB/XML data is unloaded. ALTERNATE FORMAT can be specified only if the SELECT statement specifies a FROM LIST or FROM LISTTBV clause. The chosen format, either the INTERNAL or the alternate one applies at the table space level. If only a table of a multi-table is not eligible for the INTERNAL format, the data from all the tables of the table space are unloaded with the alternate format. If ALTERNATE FORMAT is not specified, the job terminates in error whenever the INTERNAL format is not suitable or supported for one of the tables involved in the SELECT * FROM LIST(listdef_name) statement. Specify the alternate format to be used as follows:

format_description

is the description of an output format to be used as an alternate format. It may be chosen from the list of formats allowed as a FORMAT option, excluding INTERNAL. The format indicated is described the same way as when specified as an argument of the FORMAT option.

DEFAULT

specifies that the alternate format is the Db2 HPU default format set by the VUU045/ULFORMAT parmlib parameter.

As this feature allows you to implicitly specify the output format, in principle, it can only be determined at run time and you may need to determine which format was chosen for post-processing purposes. You can determine which output format was used with the help of the INZU538I message that is displayed whenever the alternate format is chosen.

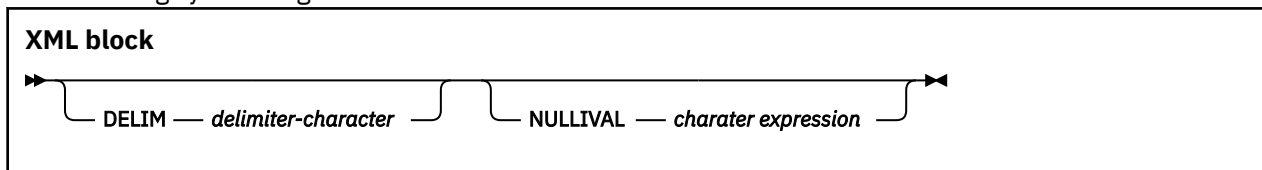
If you request the LOAD control cards be generated via the LOADDDN option, you can easily implement massive load/unload operations by using the couples of unloaded data datasets and their related LOAD control cards that Db2 HPU generates consistently. In such a case, you don't need to determine the format chosen by Db2 HPU for a given SELECT statement.

Note: The use of ALTERNATE_FORMAT implies that the format for a given SELECT statement can change from one run of the unload job to another. It can change from the INTERNAL format to the alternate one and inversely. This occurs if a change of the definition of the table involved in the SELECT statement affects its being eligible for the INTERNAL format.

XML block syntax and description

Unloads data in XML format.

The following syntax diagram shows the format of the XML block:



DELIM delimiter-character

Specifies the delimiter character to be used to enclose CHAR, VARCHAR, GRAPHIC, and VARGRAPHIC fields in the output data set.

The value of the *delimiter-character* can be 'c' or X'hh'.

DELIM does not have a default value. The value is not delimited if no DELIM option is specified

NULL DELIM character expression

Specifies the delimiter character string to be unloaded when a NULL value is unloaded. This character string is not delimited even if the DELIM option is specified.

If NULLVAL not specified, the NULL value is not substituted and an empty string with no delimiter is unloaded.

SELECT statement examples

These SELECT statement examples show how to create sequential data sets in different formats, how to use the LISTDEF and TEMPLATE keywords, how to use the INTO clause and the REFORMAT clause, and how to use other Db2 HPU options.

The SELECT statement examples are based on the PERSONAL and PERSOBIS tables.

The following SQL statement shows how to create the PERSONAL table.

```
CREATE TABLE PERSONAL
( NAME      CHARACTER(30) NOT NULL
  FNAME     CHARACTER(15)
  AGE       SMALLINT
  ADDRESS   VARCHAR(100)  NOT NULL WITH DEFAULT
  DATE_B    DATE          NOT NULL WITH DEFAULT
  SALARY    DECIMAL(7,0)  NOT NULL
  BONUS     DECIMAL(7,0)  NOT NULL WITH DEFAULT ) IN TABLESPACE DBNAME.TSNAME
```

The following SQL statement shows how to create the PERSOBIS table.

```
CREATE TABLE PERSOBIS
( WHOLE_NAME CHARACTER(40) NOT NULL
  AGE        SMALLINT      NOT NULL
  DATE_B     DATE
  COMPENSATION INTEGER      NOT NULL ) IN TABLESPACE DBNAME.TSNAME
```

Related reference

[Fast select, fast listdef and fast listdeftbv select blocks syntax and description](#)

The fast select, fast listdef and fast listdeftbv select blocks describe the syntax for SELECT statements that can be supported natively by Db2 HPU when DB2 NO or DB2 YES is specified in the UNLOAD command. The fast select, fast listdef and fast listdeftbv select blocks are part of the SELECT block.

[FORMAT block syntax and description](#)

Use the FORMAT block to specify the format of the data that is unloaded. The FORMAT block is a part of the SELECT block.

SELECT block syntax and description

The SELECT statement specifies that a logical unload is to be done and indicates the parameters that are associated with the unload job. The SELECT block is a part of the UNLOAD block.

Example: Creating a sequential data set in USER format

In this example, a sequential data set is created in USER format from the PERSONAL table.

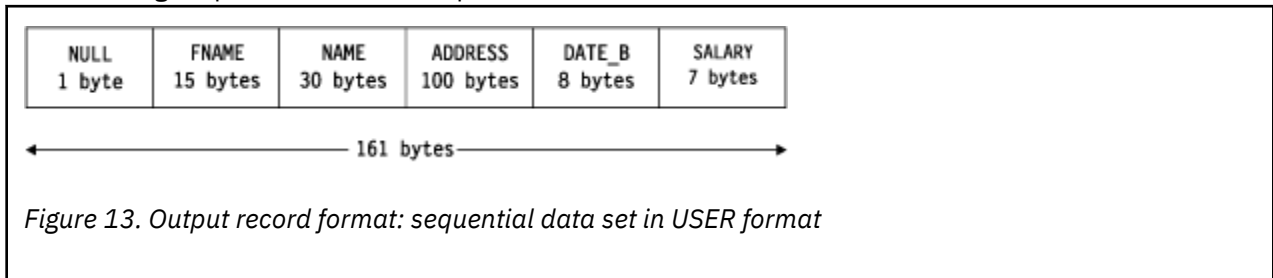
```
UNLOAD TABLESPACE DBNAME.TSNAME DB2 NO
SELECT FNAME, NAME, ADDRESS, DATE_B , SALARY
FROM PERSONAL
OUTDDN (SYSUT1)
FORMAT USER          (
COL FNAME NULLID YES           ,
COL 3 TYPE CHARACTER(100)      ,
COL SALARY TYPE CHARACTER(7)   ,
JUST RIGHT                     ,
COL 004 TYPE DATE_A           )
```

In this example, data in the following three columns is changed:

- The ADDRESS column is converted to fixed format and its length is increased to 100 characters.
- The SALARY column is converted from decimal to display characters and it is aligned on the units position with the sign first.
- The DATE column is formatted to display in MM/DD/YY format.

A NULL byte is reserved before the NAME field.

The following output record format is produced:



By default, the output data set is in VARIABLE format with a maximum LRECL of 165, including the 4-byte field that describes the record of variable length. If the LRECL of the DD statement is greater than or equal to 161, you can produce a data set in fixed format.

Related reference

Example: Creating a sequential data set in DSNTIAUL format

In this example, a sequential data set is created in DSNTIAUL format from the columns of the PERSONAL table. The format of the PERSOBIS table is used.

Example: Creating a sequential data set that is compatible with the Db2 LOAD utility

In this example, a sequential data set that is compatible with the Db2 LOAD utility is created.

Example: Using TEMPLATESET when processing multiple UNLOAD and SELECT statements

In this example, the TEMPLATESET option is used with user-defined variables in a TEMPLATE DSN expression.

Example: Using LISTDEF and TEMPLATE statements

In this example, LISTDEF and TEMPLATE statements are used to generate the logical unload of all the tables that are included in the table spaces that match the generic name DBTEST.*.

Example: Using the REFORMAT clause to unload LOB columns with a LOB file reference

In this example, the REFORMAT clause is used to unload data from tables that contain one or more LOB columns.

Example: Using the INTO clause in a SELECT statement to change the name and data type of some columns in the DSNTIAUL format

In this example, the INTO clause of the SELECT statement is used to rename and reformat some of the columns from the DSN81010.EMP table.

Example: Using an HFS file when unloading LOB data

When you unload a table that contains LOB data, specify DSNTYPE(HFS) in the TEMPLATE statement, and specify a name expression that corresponds to an HFS file.

Example: Using temporal tables

These examples show how you can unload reports with a period-specification clause in the SELECT statement or without the clause.

Example: Using timestamp precision

These examples show how you can use timestamp precision.

Example: Maximizing resources during sort operations

In this example, part of the SYSIBM.SYSCOPY table is unloaded, and the output data is sorted. Because the WHERE clause filter ratio is low, MAX_EXPECTED_ROWS is specified so that only the necessary resources (work space) are used to process the sort operation.

Example: Creating a sequential data set in DSNTIAUL format

In this example, a sequential data set is created in DSNTIAUL format from the columns of the PERSONAL table. The format of the PERSOBIS table is used.

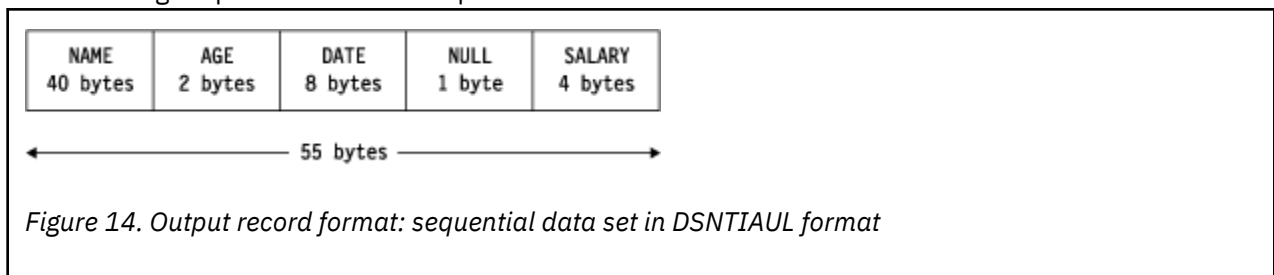
```
UNLOAD TABLESPACE DBNAME.TSNAME DB2 NO
SELECT NAME , AGE , DATE_B , SALARY
FROM PERSONAL
OUTDDN SYSUT1
FORMAT DSNTIAUL
LIKE user.PERSOBIS
LOADDDN SYSUT2
```

In this example, data in the following columns is changed:

- The NAME column is changed from 30 to 40 characters. Blanks are added to the right.
- The DATE column is written in Db2 format.
- The SALARY column is converted to binary format.
- The AGE column in the SELECT statement can be null, but the AGE column of the PERSOBIS table cannot be null. If the column is null, the field is set to binary 0.

The data set with the SYSUT1 ddname contains the rows that were extracted. The data set with the SYSUT2 ddname contains the command for loading data by using the Db2 LOAD utility.

The following output record format is produced:



The following data set loads SYSUT2 output, which was generated by Db2 HPU:

```
LOAD DATA INDDN SYSUT1
INTO TABLE PERSOBIS
(
WHOLE_NAME POSITION(1:40)
CHAR
,AGE POSITION(41:42)
```

```

,DATE_B          SMALLINT
                  POSITION(43:50)
,COMPENSATION    DATE EXTERNAL          NULLIF((51)='?')
                  POSITION(52:55)
                  INTEGER
)

```

Related reference

[Example: Creating a sequential data set in USER format](#)

In this example, a sequential data set is created in USER format from the PERSONAL table.

[Example: Creating a sequential data set that is compatible with the Db2 LOAD utility](#)

In this example, a sequential data set that is compatible with the Db2 LOAD utility is created.

[Example: Using TEMPLATESET when processing multiple UNLOAD and SELECT statements](#)

In this example, the TEMPLATESET option is used with user-defined variables in a TEMPLATE DSN expression.

[Example: Using LISTDEF and TEMPLATE statements](#)

In this example, LISTDEF and TEMPLATE statements are used to generate the logical unload of all the tables that are included in the table spaces that match the generic name DBTEST.*.

[Example: Using the REFORMAT clause to unload LOB columns with a LOB file reference](#)

In this example, the REFORMAT clause is used to unload data from tables that contain one or more LOB columns.

[Example: Using the INTO clause in a SELECT statement to change the name and data type of some columns in the DSNTIAUL format](#)

In this example, the INTO clause of the SELECT statement is used to rename and reformat some of the columns from the DSN81010.EMP table.

[Example: Using an HFS file when unloading LOB data](#)

When you unload a table that contains LOB data, specify DSNTYPE(HFS) in the TEMPLATE statement, and specify a name expression that corresponds to an HFS file.

[Example: Using temporal tables](#)

These examples show how you can unload reports with a period-specification clause in the SELECT statement or without the clause.

[Example: Using timestamp precision](#)

These examples show how you can use timestamp precision.

[Example: Maximizing resources during sort operations](#)

In this example, part of the SYSIBM.SYSCOPY table is unloaded, and the output data is sorted. Because the WHERE clause filter ratio is low, MAX_EXPECTED_ROWS is specified so that only the necessary resources (work space) are used to process the sort operation.

Example: Creating a sequential data set that is compatible with the Db2 LOAD utility

In this example, a sequential data set that is compatible with the Db2 LOAD utility is created.

```

UNLOAD TABLESPACE DBNAME.TSNAME DB2 NO
SELECT NAME , AGE , DATE_B , SALARY
FROM PERSONAL
OUTDDN SYSUT1
FORMAT VARIABLE END
LIKE user.PERSOBIS
LOADDDN SYSUT2

```

The columns are extracted from the PERSONAL table by using the format of the PERSOBIS table.

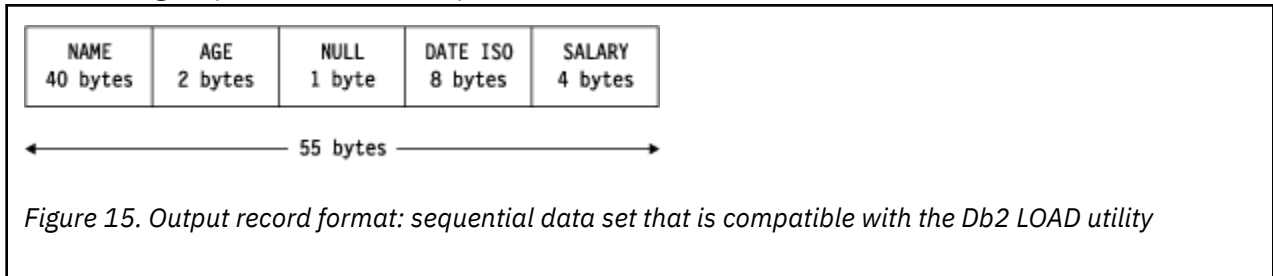
In this example, data in the following columns is changed:

- The NAME column changes from 30 to 40 characters. Blanks are used to pad the column.
- The DATE column is written in ISO format.
- The SALARY column is converted to binary format.

- The AGE column in the SELECT statement can be null, but the AGE column of the PERSOBIS table cannot be null. If the column is null, the field is set to binary 0.

The SYSUT1 ddname contains rows that were extracted. The SYSUT2 ddname contains the command for loading data by using the Db2 LOAD utility.

The following output record format is produced:



The following data set loads SYSUT2, which was generated by Db2 HPU:

```
LOAD DATA INDDN SYSUT1
INTO TABLE PERSOBIS
(
  WHOLE_NAME          POSITION(1:40)
                      CHAR
  ,AGE                POSITION(41:42)
                      SMALLINT
  ,DATE_B             POSITION(44:51)
                      DATE EXTERNAL
  ,SALARY             POSITION(52:55)
                      INTEGER
)
                      NULLIF((43)=X'FF')
```

Related reference

[Example: Creating a sequential data set in USER format](#)

In this example, a sequential data set is created in USER format from the PERSONAL table.

[Example: Creating a sequential data set in DSNTIAUL format](#)

In this example, a sequential data set is created in DSNTIAUL format from the columns of the PERSONAL table. The format of the PERSOBIS table is used.

[Example: Using TEMPLATESET when processing multiple UNLOAD and SELECT statements](#)

In this example, the TEMPLATESET option is used with user-defined variables in a TEMPLATE DSN expression.

[Example: Using LISTDEF and TEMPLATE statements](#)

In this example, LISTDEF and TEMPLATE statements are used to generate the logical unload of all the tables that are included in the table spaces that match the generic name DBTEST.*.

[Example: Using the REFORMAT clause to unload LOB columns with a LOB file reference](#)

In this example, the REFORMAT clause is used to unload data from tables that contain one or more LOB columns.

[Example: Using the INTO clause in a SELECT statement to change the name and data type of some columns in the DSNTIAUL format](#)

In this example, the INTO clause of the SELECT statement is used to rename and reformat some of the columns from the DSN81010.EMP table.

[Example: Using an HFS file when unloading LOB data](#)

When you unload a table that contains LOB data, specify DSNTYPE(HFS) in the TEMPLATE statement, and specify a name expression that corresponds to an HFS file.

[Example: Using temporal tables](#)

These examples show how you can unload reports with a period-specification clause in the SELECT statement or without the clause.

[Example: Using timestamp precision](#)

These examples show how you can use timestamp precision.

Example: Maximizing resources during sort operations

In this example, part of the SYSIBM.SYSCOPY table is unloaded, and the output data is sorted. Because the WHERE clause filter ratio is low, MAX_EXPECTED_ROWS is specified so that only the necessary resources (work space) are used to process the sort operation.

Example: Using *TEMPLATESET* when processing multiple *UNLOAD* and *SELECT* statements

In this example, the *TEMPLATESET* option is used with user-defined variables in a *TEMPLATE* DSN expression.

The *TEMPLATE* OUT1 contains two user-defined variables, &CONST and &NUMBER. The &NUMBER variable is set in the GLOBAL OPTIONS block to the select number with a *TEMPLATESET* (NUMBER = :SELNUM). This setting is available for all *UNLOAD* commands and *SELECT* statements. The &CONST variable is set to a different value in each *UNLOAD* command by using a different *TEMPLATESET* option.

```
TEMPLATE OUT1 DSN HLQ.&CONST.&NUMBER. UNIT SYSDA
GLOBAL OPTIONS TEMPLATESET( NUMBER = :SELNUM )
UNLOAD TABLESPACE
OPTIONS TEMPLATESET( CONST = "C" )
SELECT * FROM TABLE1
OUTDDN(OUT1)
FORMAT DSNTIAUL
SELECT * FROM TABLE2
OUTDDN(OUT1)
FORMAT DSNTIAUL
UNLOAD TABLESPACE
OPTIONS TEMPLATESET( CONST = "D" )
SELECT * FROM TABLE3
OUTDDN(OUT1)
FORMAT DSNTIAUL
SELECT * FROM TABLE4
OUTDDN(OUT1)
FORMAT DSNTIAUL
```

Four files are dynamically allocated by using the OUT1 template. These files contain the following output data:

- The HLQ.C00001 file contains rows that were unloaded from TABLE1.
- The HLQ.C00002 file contains rows that were unloaded from TABLE2.
- The HLQ.D00001 file contains rows that were unloaded from TABLE3.
- The HLQ.D00002 file contains rows that were unloaded from TABLE4.

Related reference

Example: Creating a sequential data set in USER format

In this example, a sequential data set is created in USER format from the PERSONAL table.

Example: Creating a sequential data set in DSNTIAUL format

In this example, a sequential data set is created in DSNTIAUL format from the columns of the PERSONAL table. The format of the PERSOBIS table is used.

Example: Creating a sequential data set that is compatible with the Db2 LOAD utility

In this example, a sequential data set that is compatible with the Db2 LOAD utility is created.

Example: Using LISTDEF and TEMPLATE statements

In this example, LISTDEF and TEMPLATE statements are used to generate the logical unload of all the tables that are included in the table spaces that match the generic name DBTEST.*.

Example: Using the REFORMAT clause to unload LOB columns with a LOB file reference

In this example, the REFORMAT clause is used to unload data from tables that contain one or more LOB columns.

Example: Using the INTO clause in a SELECT statement to change the name and data type of some columns in the DSNTIAUL format

In this example, the INTO clause of the SELECT statement is used to rename and reformat some of the columns from the DSN81010.EMP table.

Example: Using an HFS file when unloading LOB data

When you unload a table that contains LOB data, specify DSNTYPE(HFS) in the TEMPLATE statement, and specify a name expression that corresponds to an HFS file.

Example: Using temporal tables

These examples show how you can unload reports with a period-specification clause in the SELECT statement or without the clause.

Example: Using timestamp precision

These examples show how you can use timestamp precision.

Example: Maximizing resources during sort operations

In this example, part of the SYSIBM.SYSCOPY table is unloaded, and the output data is sorted. Because the WHERE clause filter ratio is low, MAX_EXPECTED_ROWS is specified so that only the necessary resources (work space) are used to process the sort operation.

Example: Using LISTDEF and TEMPLATE statements

In this example, LISTDEF and TEMPLATE statements are used to generate the logical unload of all the tables that are included in the table spaces that match the generic name DBTEST.*.

An output file that uses the OUTTEMP template and a LOAD SYSIN that uses the LOADTEMP template is generated for each table. A TEMPLATESET is used to set the value of the &SEL user-defined variable that is used in the template definitions to :SELNUM. This value is increased by one for each unloaded table starting with 00001.

```
LISTDEF LIST1 INCLUDE TABLESPACE DBTEST.*

TEMPLATE OUTTEMP DSN HLQ.&DB..&TS..T&SEL..UNLOAD
TEMPLATE LOADTEMP DSN HLQ.&DB..&TS..T&SEL..LOADD

GLOBAL OPTIONS TEMPLATESET( SEL = :SELNUM )

UNLOAD TABLESPACE
SELECT * FROM LIST(LIST1) OUTDDN OUTTEMP FORMAT DSNTIAUL LOADDN LOADTEMP
```

The following example uses LISTDEF and TEMPLATE statements on the DBTEST.TS1, DBTEST.TS2, DBTEST.TS3, and DBTEST.TS4 partitioned table spaces. TS1 and TS2 are unloaded using a separate file per partition. TS3 and TS4 are unloaded in a single output file. All partitions of TS1 and TS3 are unloaded, and only partitions 1 and 3 are unloaded for TS2 and TS4.

```
LISTDEF LIST1 INCLUDE TABLESPACE DBTEST.TS1
                INCLUDE TABLESPACE DBTEST.TS2 PARTLEVEL 1
                INCLUDE TABLESPACE DBTEST.TS2 PARTLEVEL 3

LISTDEF LIST2 INCLUDE TABLESPACE DBTEST.TS3
                INCLUDE TABLESPACE DBTEST.TS4 PARTLEVEL 1
                INCLUDE TABLESPACE DBTEST.TS4 PARTLEVEL 3

TEMPLATE OUTTEMP1 DSN HLQ.&DB..&TS..UNLOAD.P&PART.
TEMPLATE OUTTEMP2 DSN HLQ.&DB..&TS..UNLOAD
TEMPLATE LOADTEMP DSN HLQ.&DB..&TS..LOADD

UNLOAD TABLESPACE
SELECT * FROM LIST(LIST1) OUTDDN OUTTEMP1 FORMAT DSNTIAUL LOADDN LOADTEMP
SELECT * FROM LIST(LIST2) OUTDDN OUTTEMP2 FORMAT DSNTIAUL LOADDN LOADTEMP
```

The following files are generated:

Output files

- HLQ.DBTEST.TS1.UNLOAD.Pnnnnn (one file per partition)
- HLQ.DBTEST.TS2.UNLOAD.P00001
- HLQ.DBTEST.TS2.UNLOAD.P00003
- HLQ.DBTEST.TS3.UNLOAD
- HLQ.DBTEST.TS4.UNLOAD

LOADDDN files that contain the LOAD commands

- HLQ.DBTEST.TS1.LOADD
- HLQ.DBTEST.TS2.LOADD
- HLQ.DBTEST.TS3.LOADD
- HLQ.DBTEST.TS4.LOADD

Related reference

Example: Creating a sequential data set in USER format

In this example, a sequential data set is created in USER format from the PERSONAL table.

Example: Creating a sequential data set in DSNTIAUL format

In this example, a sequential data set is created in DSNTIAUL format from the columns of the PERSONAL table. The format of the PERSOBIS table is used.

Example: Creating a sequential data set that is compatible with the Db2 LOAD utility

In this example, a sequential data set that is compatible with the Db2 LOAD utility is created.

Example: Using TEMPLATESET when processing multiple UNLOAD and SELECT statements

In this example, the TEMPLATESET option is used with user-defined variables in a TEMPLATE DSN expression.

Example: Using the REFORMAT clause to unload LOB columns with a LOB file reference

In this example, the REFORMAT clause is used to unload data from tables that contain one or more LOB columns.

Example: Using the INTO clause in a SELECT statement to change the name and data type of some columns in the DSNTIAUL format

In this example, the INTO clause of the SELECT statement is used to rename and reformat some of the columns from the DSN81010.EMP table.

Example: Using an HFS file when unloading LOB data

When you unload a table that contains LOB data, specify DSNTYPE(HFS) in the TEMPLATE statement, and specify a name expression that corresponds to an HFS file.

Example: Using temporal tables

These examples show how you can unload reports with a period-specification clause in the SELECT statement or without the clause.

Example: Using timestamp precision

These examples show how you can use timestamp precision.

Example: Maximizing resources during sort operations

In this example, part of the SYSIBM.SYSCOPY table is unloaded, and the output data is sorted. Because the WHERE clause filter ratio is low, MAX_EXPECTED_ROWS is specified so that only the necessary resources (work space) are used to process the sort operation.

Example: Using the REFORMAT clause to unload LOB columns with a LOB file reference

In this example, the REFORMAT clause is used to unload data from tables that contain one or more LOB columns.

The tables are selected by using a LISTDEF statement. All tables from all table spaces that are contained in the DBTEST1 database are unloaded in FORMAT VARIABLE ALL.

The unloaded data is stored in a sequential file for standard columns and in a PDS by using a template and a LOB file reference for LOB columns. All output files, including the LOAD SYSIN, are allocated by using templates.

If some of the table spaces contain more than a single table, the &SEL user-defined variable is used in the DSN expression of the templates that are used in the OUTDDN and LOADDN files to distinguish the result of SELECT statements for tables that are located in the same table space.

For the OUTLOB template, the &TS variable is substituted with the name of the table space that stores the LOB column value, not the base table space name. This table space name is different for each LOB column of each table. Therefore, the DSN expression of template OUTLOB does not need to contain the &SEL variable.

```
LISTDEF LISTLOB INCLUDE TABLESPACE DBTEST1.*

TEMPLATE OUTDSN  DSN HLQ.&DB..&TS..T&SEL..UNLOAD
TEMPLATE OUTLOB  DSN HLQ.&DB..&TS..LOBDATA(&UNIQ.)
TEMPLATE LOADTEMP DSN HLQ.&DB..&TS..T&SEL..LOADD

GLOBAL OPTIONS REFORMAT ( TYPE CLOB   INTO VARCHAR(54) CLOBF   OUTLOB ,
                           TYPE BLOB   INTO VARCHAR(54) BLOBF   OUTLOB ;
                           TYPE DBCLOB  INTO VARCHAR(54) DBCLOBF  OUTLOB )

      TEMPLATESET( SEL = :SELNUM )

UNLOAD TABLESPACE
SELECT * FROM LIST(LISTLOB) OUTDDN OUTDSN FORMAT VARIABLE ALL LOADDN LOADTEMP
```

Related reference

[Example: Creating a sequential data set in USER format](#)

In this example, a sequential data set is created in USER format from the PERSONAL table.

[Example: Creating a sequential data set in DSNTIAUL format](#)

In this example, a sequential data set is created in DSNTIAUL format from the columns of the PERSONAL table. The format of the PERSOBIS table is used.

[Example: Creating a sequential data set that is compatible with the Db2 LOAD utility](#)

In this example, a sequential data set that is compatible with the Db2 LOAD utility is created.

[Example: Using TEMPLATESET when processing multiple UNLOAD and SELECT statements](#)

In this example, the TEMPLATESET option is used with user-defined variables in a TEMPLATE DSN expression.

[Example: Using LISTDEF and TEMPLATE statements](#)

In this example, LISTDEF and TEMPLATE statements are used to generate the logical unload of all the tables that are included in the table spaces that match the generic name DBTEST.*.

[Example: Using the INTO clause in a SELECT statement to change the name and data type of some columns in the DSNTIAUL format](#)

In this example, the INTO clause of the SELECT statement is used to rename and reformat some of the columns from the DSN81010.EMP table.

[Example: Using an HFS file when unloading LOB data](#)

When you unload a table that contains LOB data, specify DSNTYPE(HFS) in the TEMPLATE statement, and specify a name expression that corresponds to an HFS file.

[Example: Using temporal tables](#)

These examples show how you can unload reports with a period-specification clause in the SELECT statement or without the clause.

[Example: Using timestamp precision](#)

These examples show how you can use timestamp precision.

[Example: Maximizing resources during sort operations](#)

In this example, part of the SYSIBM.SYSCOPY table is unloaded, and the output data is sorted. Because the WHERE clause filter ratio is low, MAX_EXPECTED_ROWS is specified so that only the necessary resources (work space) are used to process the sort operation.

Example: Using the INTO clause in a SELECT statement to change the name and data type of some columns in the DSNTIAUL format

In this example, the INTO clause of the SELECT statement is used to rename and reformat some of the columns from the DSN81010.EMP table.

The following column definitions are for the DSN81010.EMP table:

```
EMPNO      CHAR(6) NOT NULL,
FIRSTNME   VARCHAR(12) NOT NULL,
MIDINIT    CHAR(1) NOT NULL,
LASTNAME   VARCHAR(15) NOT NULL,
WORKDEPT   CHAR(3),
PHONENO    CHAR(4),
HIREDATE   DATE,
JOB        CHAR(8),
EDLEVEL    SMALLINT,
SEX        CHAR(1),
BIRTHDATE  DATE,
SALARY     DECIMAL(9, 2),
BONUS     DECIMAL(9, 2),
COMM      DECIMAL(9, 2)
```

When you specify the INTO clause, the SYSIN performs the following conversions:

- The PHONENO column is converted from CHAR(4) to SMALLINT.
- The HIREDATE column is converted from DATE to DATE EXTERNAL on 15 characters.
- The EDEVEL column is converted from SMALLINT to SMALLINT EXTERNAL on the default length of six characters.
- The SALARY, BONUS, and COMM columns are converted from DEC(9,2) to DECIMAL ZONED on nine, seven, and seven characters, respectively.

The LOAD SYSIN that is generated in the SYSPUNCH file contains a reload statement into the IBMUSER.EMP_BIS table with modified column names for the EMPNO and PHONENO columns.

```
UNLOAD TABLESPACE
DB2 NO QUIESCE YES
SELECT *
INTO TABLE IBMUSER.EMP_BIS
EMPLOYEE_NUMBER
,
,
,
,PHONE_NUMBER SMALLINT
,HIREDATE DATE EXTERNAL(15)
,
,EDLEVEL SMALLINT EXTERNAL
,
,
,SALARY DEC ZONED(9,2)
,BONUS DEC ZONED(7,2)
,COMM DEC ZONED(7,2)
FROM DSN81010.EMP
OUTDDN OUT
FORMAT DSNTIAUL LOADDN SYSPUNCH
```

The following example shows the SYSPUNCH file:

```
LOAD DATA
LOG NO REPLACE
EBCDIC CCSID(0037)

INTO TABLE IBMUSER.EMP_BIS
(
EMPLOYEE_NUMBER
POSITION ( 1 ) CHAR ( 6 )
,
```

```

FIRSTNME
  POSITION ( 7 )          VARCHAR
MIDINIT
  POSITION ( 21 )         CHAR ( 1 )
LASTNAME
  POSITION ( 22 )         VARCHAR
WORKDEPT
  POSITION ( 39 )         CHAR ( 3 )
  NULLIF( 42 ) = '?'
PHONE_NUMBER
  POSITION ( 43 )         SMALLINT
  NULLIF( 45 ) = '?'
HIREDATE_DEC
  POSITION ( 46 )         DATE EXTERNAL ( 15 )
  NULLIF( 61 ) = '?'
JOB
  POSITION ( 62 )         CHAR ( 8 )
  NULLIF( 70 ) = '?'
EDLEVEL
  POSITION ( 71 )         INTEGER EXTERNAL ( 6 )
  NULLIF( 77 ) = '?'
SEX
  POSITION ( 78 )         CHAR ( 1 )
  NULLIF( 79 ) = '?'
BIRTHDATE
  POSITION ( 80 )         DATE EXTERNAL ( 10 )
  NULLIF( 90 ) = '?'
SALARY
  POSITION ( 91 : 99 )    DECIMAL ZONED
  NULLIF( 100 ) = '?'
BONUS
  POSITION ( 101 : 107 )  DECIMAL ZONED
  NULLIF( 108 ) = '?'
COMM
  POSITION ( 109 : 115 )  DECIMAL ZONED
  NULLIF( 116 ) = '?'
)

```

Related reference

[Example: Creating a sequential data set in USER format](#)

In this example, a sequential data set is created in USER format from the PERSONAL table.

[Example: Creating a sequential data set in DSNTIAUL format](#)

In this example, a sequential data set is created in DSNTIAUL format from the columns of the PERSONAL table. The format of the PERSOBIS table is used.

[Example: Creating a sequential data set that is compatible with the Db2 LOAD utility](#)

In this example, a sequential data set that is compatible with the Db2 LOAD utility is created.

[Example: Using TEMPLATESET when processing multiple UNLOAD and SELECT statements](#)

In this example, the TEMPLATESET option is used with user-defined variables in a TEMPLATE DSN expression.

[Example: Using LISTDEF and TEMPLATE statements](#)

In this example, LISTDEF and TEMPLATE statements are used to generate the logical unload of all the tables that are included in the table spaces that match the generic name DBTEST.*.

[Example: Using the REFORMAT clause to unload LOB columns with a LOB file reference](#)

In this example, the REFORMAT clause is used to unload data from tables that contain one or more LOB columns.

[Example: Using an HFS file when unloading LOB data](#)

When you unload a table that contains LOB data, specify DSNTYPE(HFS) in the TEMPLATE statement, and specify a name expression that corresponds to an HFS file.

Example: Using temporal tables

These examples show how you can unload reports with a period-specification clause in the SELECT statement or without the clause.

Example: Using timestamp precision

These examples show how you can use timestamp precision.

Example: Maximizing resources during sort operations

In this example, part of the SYSIBM.SYSCOPY table is unloaded, and the output data is sorted. Because the WHERE clause filter ratio is low, MAX_EXPECTED_ROWS is specified so that only the necessary resources (work space) are used to process the sort operation.

Example: Using an HFS file when unloading LOB data

When you unload a table that contains LOB data, specify DSNTYPE(HFS) in the TEMPLATE statement, and specify a name expression that corresponds to an HFS file.

In this example, an HFS file for the LOB column is used when you unload the TBNAME01 table. The LOB file references are created in the existing /u/test/ directory with a file name that contains the record number, which is created because the :RECNUM keyword is specified.

```
TEMPLATE OUTTMPLT
DSN '/u/test/N&NUM.'
DSNTYPE HFS

UNLOAD TABLESPACE
DB2 NO
QUIESCE YES

OPTIONS
TEMPLATESET (NUM=:RECNUM)

SELECT COL_LOB
INTO COLOB VARCHAR(44) CLOBF OUTTMPLT
FROM userid.TBNAME01
OUTDDN (SYSREC01)
```

Related reference

Example: Creating a sequential data set in USER format

In this example, a sequential data set is created in USER format from the PERSONAL table.

Example: Creating a sequential data set in DSNTIAUL format

In this example, a sequential data set is created in DSNTIAUL format from the columns of the PERSONAL table. The format of the PERSOBIS table is used.

Example: Creating a sequential data set that is compatible with the Db2 LOAD utility

In this example, a sequential data set that is compatible with the Db2 LOAD utility is created.

Example: Using TEMPLATESET when processing multiple UNLOAD and SELECT statements

In this example, the TEMPLATESET option is used with user-defined variables in a TEMPLATE DSN expression.

Example: Using LISTDEF and TEMPLATE statements

In this example, LISTDEF and TEMPLATE statements are used to generate the logical unload of all the tables that are included in the table spaces that match the generic name DBTEST.*.

Example: Using the REFORMAT clause to unload LOB columns with a LOB file reference

In this example, the REFORMAT clause is used to unload data from tables that contain one or more LOB columns.

Example: Using the INTO clause in a SELECT statement to change the name and data type of some columns in the DSNTIAUL format

In this example, the INTO clause of the SELECT statement is used to rename and reformat some of the columns from the DSN81010.EMP table.

Example: Using temporal tables

These examples show how you can unload reports with a period-specification clause in the SELECT statement or without the clause.

Example: Using timestamp precision

These examples show how you can use timestamp precision.

Example: Maximizing resources during sort operations

In this example, part of the SYSIBM.SYSCOPY table is unloaded, and the output data is sorted. Because the WHERE clause filter ratio is low, MAX_EXPECTED_ROWS is specified so that only the necessary resources (work space) are used to process the sort operation.

Example: Using temporal tables

These examples show how you can unload reports with a period-specification clause in the SELECT statement or without the clause.

These examples unload reports about business activity that is based on business time columns with the following definitions. The definitions are excerpts from the CREATE TABLE statement.

- , C_BUS_START DATE NOT NULL
- , C_BUS_END DATE NOT NULL
- , PERIOD BUSINESS_TIME(C_BUS_START, C_BUS_END)

A SELECT statement with a period-specification clause

```
UNLOAD TABLESPACE
DB2 FORCE
SELECT C_INT_NN,
       'BUSINESS STARTED ON',
       C_BUS_START,
       'AND ENDED ON',
       C_BUS_END
FROM HPUDOC.TBDZAAPVT201
FOR BUSINESS_TIME
AS OF '2010-04-30'
OUTDDN(DB2FRC)
FORMAT DELIMITED SEP ' '
```

A SELECT statement without a period-specification clause

```
UNLOAD TABLESPACE
DB2 NO
SELECT C_INT_NN,
       'BUSINESS STARTED ON',
       C_BUS_START,
       'AND ENDED ON',
       C_BUS_END
FROM HPUDOC.TBDZAAPVT201
OUTDDN(DB2NO)
FORMAT DELIMITED SEP ' '      None
```

This report produces the following DB2NO file output data:

```
1 BUSINESS STARTED ON 2000-01-01 AND ENDED ON 2010-01-01
2 BUSINESS STARTED ON 2000-01-02 AND ENDED ON 2010-01-02
```

Related reference

Example: Creating a sequential data set in USER format

In this example, a sequential data set is created in USER format from the PERSONAL table.

Example: Creating a sequential data set in DSNTIAUL format

In this example, a sequential data set is created in DSNTIAUL format from the columns of the PERSONAL table. The format of the PERSOBIS table is used.

Example: Creating a sequential data set that is compatible with the Db2 LOAD utility

In this example, a sequential data set that is compatible with the Db2 LOAD utility is created.

Example: Using `TEMPLATESET` when processing multiple `UNLOAD` and `SELECT` statements

In this example, the `TEMPLATESET` option is used with user-defined variables in a `TEMPLATE` DSN expression.

Example: Using `LISTDEF` and `TEMPLATE` statements

In this example, `LISTDEF` and `TEMPLATE` statements are used to generate the logical unload of all the tables that are included in the table spaces that match the generic name `DBTEST.*`.

Example: Using the `REFORMAT` clause to unload LOB columns with a LOB file reference

In this example, the `REFORMAT` clause is used to unload data from tables that contain one or more LOB columns.

Example: Using the `INTO` clause in a `SELECT` statement to change the name and data type of some columns in the `DSNTIAUL` format

In this example, the `INTO` clause of the `SELECT` statement is used to rename and reformat some of the columns from the `DSN81010.EMP` table.

Example: Using an HFS file when unloading LOB data

When you unload a table that contains LOB data, specify `DSNTYPE(HFS)` in the `TEMPLATE` statement, and specify a name expression that corresponds to an HFS file.

Example: Using timestamp precision

These examples show how you can use timestamp precision.

Example: Maximizing resources during sort operations

In this example, part of the `SYSIBM.SYSCOPY` table is unloaded, and the output data is sorted. Because the `WHERE` clause filter ratio is low, `MAX_EXPECTED_ROWS` is specified so that only the necessary resources (work space) are used to process the sort operation.

Example: Using timestamp precision

These examples show how you can use timestamp precision.

In the following example, three columns with various timestamp precision are unloaded. `C_TMSTP_n` is defined as `TIMESTAMP(n)`. The output format is `TIMESTAMP_B`.

```
UNLOAD TABLESPACE
DB2 NO
SELECT
    C_TMSTP_0,
    C_TMSTP_6,
    C_TMSTP_12
FROM HPUDOC.TBDZAAPT98101
OUTDDN(TMSTMPB)
FORMAT DSNTIAUL
OPTIONS REFORMAT (TYPE TIMESTAMP INTO TIMESTAMP_B)
```

This example produces the following output data:

```
2005-06-01-07.31.06 2 005-06-01-07.31.06.123456 2005-06-01-07.31.06.123456789012
```

In the following example, three columns with various timestamp precision are unloaded. `C_TMSTP_n` defined as `TIMESTAMP(n)`. Only the `C_TMSTP_12` column is unloaded with the `TIMESTAMP_B` output format.

```
UNLOAD TABLESPACE
DB2 NO
SELECT
    C_TMSTP_0,
    C_TMSTP_6,
    C_TMSTP_12
FROM HPUDOC.TBDZAAPT98101
OUTDDN(OUTPUT)
FORMAT DSNTIAUL
OPTIONS REFORMAT (TYPE TIMESTAMP(12) INTO TIMESTAMP_B)
```

This example produces the following output data:

Related reference

[Example: Creating a sequential data set in USER format](#)

In this example, a sequential data set is created in USER format from the PERSONAL table.

[Example: Creating a sequential data set in DSNTIAUL format](#)

In this example, a sequential data set is created in DSNTIAUL format from the columns of the PERSONAL table. The format of the PERSOBIS table is used.

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In this example, a sequential data set that is compatible with the Db2 LOAD utility is created.

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In this example, the TEMPLATESET option is used with user-defined variables in a TEMPLATE DSN expression.

[Example: Using LISTDEF and TEMPLATE statements](#)

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In this example, the REFORMAT clause is used to unload data from tables that contain one or more LOB columns.

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In this example, the INTO clause of the SELECT statement is used to rename and reformat some of the columns from the DSN81010.EMP table.

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When you unload a table that contains LOB data, specify DSNTYPE(HFS) in the TEMPLATE statement, and specify a name expression that corresponds to an HFS file.

[Example: Using temporal tables](#)

These examples show how you can unload reports with a period-specification clause in the SELECT statement or without the clause.

[Example: Maximizing resources during sort operations](#)

In this example, part of the SYSIBM.SYSCOPY table is unloaded, and the output data is sorted. Because the WHERE clause filter ratio is low, MAX_EXPECTED_ROWS is specified so that only the necessary resources (work space) are used to process the sort operation.

Example: Maximizing resources during sort operations

In this example, part of the SYSIBM.SYSCOPY table is unloaded, and the output data is sorted. Because the WHERE clause filter ratio is low, MAX_EXPECTED_ROWS is specified so that only the necessary resources (work space) are used to process the sort operation.

```
UNLOAD TABLESPACE
SELECT ICDATE
FROM SYSIBM.SYSCOPY
WHERE ICDATE > '110420'
ORDER BY DBNAME, TSNAME
OUTDDN(OUTPUT)
MAX_EXPECTED_ROWS 2000
FORMAT DSNTIAUL
LOADDDN SYSPUNCH
```

Related reference

[Example: Creating a sequential data set in USER format](#)

In this example, a sequential data set is created in USER format from the PERSONAL table.

[Example: Creating a sequential data set in DSNTIAUL format](#)

In this example, a sequential data set is created in DSNTIAUL format from the columns of the PERSONAL table. The format of the PERSOBIS table is used.

Example: Creating a sequential data set that is compatible with the Db2 LOAD utility

In this example, a sequential data set that is compatible with the Db2 LOAD utility is created.

Example: Using TEMPLATESET when processing multiple UNLOAD and SELECT statements

In this example, the TEMPLATESET option is used with user-defined variables in a TEMPLATE DSN expression.

Example: Using LISTDEF and TEMPLATE statements

In this example, LISTDEF and TEMPLATE statements are used to generate the logical unload of all the tables that are included in the table spaces that match the generic name DBTEST.*.

Example: Using the REFORMAT clause to unload LOB columns with a LOB file reference

In this example, the REFORMAT clause is used to unload data from tables that contain one or more LOB columns.

Example: Using the INTO clause in a SELECT statement to change the name and data type of some columns in the DSNTIAUL format

In this example, the INTO clause of the SELECT statement is used to rename and reformat some of the columns from the DSN81010.EMP table.

Example: Using an HFS file when unloading LOB data

When you unload a table that contains LOB data, specify DSNTYPE(HFS) in the TEMPLATE statement, and specify a name expression that corresponds to an HFS file.

Example: Using temporal tables

These examples show how you can unload reports with a period-specification clause in the SELECT statement or without the clause.

Example: Using timestamp precision

These examples show how you can use timestamp precision.

The SYSPRINT data set

The SYSPRINT data set contains detailed information about the unloaded objects.

Important: in order to get the whole content of the SYSPRINT data set, ensure your allocation parameters for SYSPRINT comply with the requirements (see [“User-allocated ddnames” on page 97](#) for details).

The following examples show a SYSPRINT data set that corresponds to a table space with one table, a SYSPRINT data set that corresponds to a partitioned table space with one table, and a report that is generated when output files are written on tapes.

A SYSPRINT data set that corresponds to a table space with one table

The following example shows a SYSPRINT data set that corresponds to the unloaded DBINFDM.TSSCA table space, which contains a single table that is named *user.TBSCA*. This table contains 5002578 rows. If the return code is 0, no action is required. If the return code is not 0, look in the SYSPRINT for warning and error messages.

```
INZU224I IBM DB2 HIGH PERFORMANCE UNLOAD V4.1
INZI175I PROCESSING SYSIN AS EBCDIC.
-----1-----2-----3-----4-----5-----6-----7-----8
000001 UNLOAD TABLESPACE DBINFDM.TSSCA
000002 DB2 NO LOCK NO QUIESCE YES
000003 SELECT * FROM TBSCA
000004 OUTDDN (SYSREC00 )
000005 FORMAT DSNTIAUL
000006 LOADDN SYSPUNCH

DSNU000I   DSNUGUTC - OUTPUT START FOR UTILITY, UTILID = DB2UNLOAD
DSNU050I   DSNUGUTC - QUIESCE TABLESPACE DBINFDM.TSSCA
DSNU477I   -DZ7M DSNUQUIA - QUIESCE SUCCESSFUL FOR TABLESPACE DBINFDM.TSSCA
DSNU474I   -DZ7M DSNUQUIA - QUIESCE AT RBA 0014C98DF148 AND AT LRSN 0014C98DF148
DSNU475I   DSNUQUIB - QUIESCE UTILITY COMPLETE, ELAPSED TIME= 00:00:00
```

```

DSNU010I   DSNUGBAC - UTILITY EXECUTION COMPLETE, HIGHEST RETURN CODE=0
INZU180I  UTPRINT DD CARD IN JCL IS NOT USED WHEN VUX020/SORTCLAS IS SPECIFIED IN THE
          PARM LIB OR WHEN SORTCLASS IS SPECIFIED IN SYSIN.

```

```

-----
INZU281I - UNLOAD STARTING AT POS(1, 1)

```

```

INZU277I - PROCESSING UNLOAD 00001 FROM TABLESPACE DBINFDM.TSSCA
INZU279I - SELECT STATEMENTS USING SINGLE TABLE SPECIFICATION
INZU280I - SELECT 00001 STARTING AT POS(3, 1)
INZU282I  OUTPUT DDNAME=SYSREC00
INZX090  SYSREC00 : 5002578 RECORDS WRITTEN

```

```

- TABLESPACE      DBINFDM.TSSCA - DB2 HIGH PERFORMANCE UNLOAD - STATISTICS - 10/20/06
* CREATOR.TABLE          *          OBID *      ROWS READ *      ROWS KEPT * TS PG READ *
*-----*-----*-----*-----*-----*-----*-----*
* IBMUSER.TBSCA          *          345 *      5002578 *      5002578 *          *
*-----*-----*-----*-----*-----*-----*-----*
* TOTAL UNLOAD STATISTICS ....*          *      5002578 *      5002578 *      201103 *
* INVALID ROWS.....*          *          0
* NUMBER OF PAGES IN ERROR....*          *          0

```

```

INZU222I  SYSREC00, TOTAL NUMBER OF RECORDS WRITTEN 5002578
INZU260I  GENERATING LOAD STATEMENT FOR SELECT STARTING AT POS(3, 1)

```

A SYSPRINT data set that corresponds to a partitioned table space with one table

The following example shows a SYSPRINT data set that corresponds to the DBDM7M.TSTEST16 partitioned table space, which has six partitions and contains a single table that is named IBMUSER.TSTEST16. This table contains 1500000 rows. The ORDER CLUSTER clause unloads the data in the order of the clustering index. A template allocates a separate file per partition.

```

INZI175I PROCESSING SYSIN AS EBCDIC.
-----1-----2-----3-----4-----5-----6-----7-----8
000001 TEMPLATE DDNOUT DSN IBMUSER.&DB..&TS..P&PART..T&TIME. UNIT WORK
000002 UNLOAD TABLESPACE
000003 DB2 NO LOCK NO QUIESCE NO
000004 SELECT * FROM TSTEST16 ORDER CLUSTER
000005 OUTDDN (DDNOUT )
000006 FORMAT DSNTIAUL
000007 LOADDDN SYSPUNCH

```

```

INZU180I UTPRINT DD CARD IN JCL IS NOT USED WHEN VUX020/SORTCLAS IS SPECIFIED IN THE
          PARM LIB OR WHEN SORTCLASS IS SPECIFIED IN SYSIN.

```

```

-----
INZU281I - UNLOAD STARTING AT POS(2, 1)

```

```

INZU277I - PROCESSING UNLOAD 00001 FROM TABLESPACE DBDM7M.TSTEST16
INZU279I - SELECT STATEMENTS USING SINGLE TABLE SPECIFICATION
INZU280I - SELECT 00001 STARTING AT POS(4, 1)
INZI329I - DATASET ALLOCATED FOR PARTITION 00001. TEMPLATE= DDNOUT
          DDNAME=SYS00000
          DSN=IBMUSER.DBDM7M.TSTEST16.P00001.T170258
INZI329I - DATASET ALLOCATED FOR PARTITION 00002. TEMPLATE= DDNOUT
          DDNAME=SYS00001
          DSN=IBMUSER.DBDM7M.TSTEST16.P00002.T170258
INZI329I - DATASET ALLOCATED FOR PARTITION 00003. TEMPLATE= DDNOUT
          DDNAME=SYS00002
          DSN=IBMUSER.DBDM7M.TSTEST16.P00003.T170258
INZI329I - DATASET ALLOCATED FOR PARTITION 00004. TEMPLATE= DDNOUT
          DDNAME=SYS00003
          DSN=IBMUSER.DBDM7M.TSTEST16.P00004.T170258
INZI329I - DATASET ALLOCATED FOR PARTITION 00005. TEMPLATE= DDNOUT
          DDNAME=SYS00004
          DSN=IBMUSER.DBDM7M.TSTEST16.P00005.T170258
INZI329I - DATASET ALLOCATED FOR PARTITION 00006. TEMPLATE= DDNOUT
          DDNAME=SYS00005
          DSN=IBMUSER.DBDM7M.TSTEST16.P00006.T170258
INZU221I PARALLELISM ACTIVATED FOR PARTITION PROCESSING.
          MAXIMUM DEGREE OF PARALLELISM IS SET TO 9
INZX090  SYS00003 : 250020 RECORDS WRITTEN
INZX090  SYS00002 : 249990 RECORDS WRITTEN
INZX090  SYS00004 : 249990 RECORDS WRITTEN
INZX090  SYS00000 : 249990 RECORDS WRITTEN
INZX090  SYS00005 : 250020 RECORDS WRITTEN
INZX090  SYS00001 : 249990 RECORDS WRITTEN

```

```

- TABLESPACE      DBDM7M.TSTEST16 - DB2 HIGH PERFORMANCE UNLOAD - STATISTICS - 10/20/06
* CREATOR.TABLE          * PART/IXSC *      ROWS READ *      ROWS KEPT * TS PG READ * IX ROWS READ *
*-----*-----*-----*-----*-----*-----*-----*
* IBMUSER.TSTEST16      *      1/100% *      249990 *      249990 *      7578 *      249990 *
* OBID=302              *      2/100% *      249990 *      249990 *      7578 *      249990 *
*                       *      3/100% *      249990 *      249990 *      7578 *      249990 *

```

```

*          *      4/100% *      250020 *      250020 *      7579 *      250020 *
*          *      5/100% *      249990 *      249990 *      7578 *      249990 *
*          *      6/100% *      250020 *      250020 *      7579 *      250020 *
*-----*-----*-----*-----*-----*-----*-----*
* TOTAL UNLOAD STATISTICS . . . * 6/100% *      1500000 *      1500000 *      45470 *      1500000 *
* INVALID ROWS . . . . . *
* NUMBER OF PAGES IN ERROR . . . *
INZU222I SYS00000, TOTAL NUMBER OF RECORDS WRITTEN 249990
INZU222I SYS00001, TOTAL NUMBER OF RECORDS WRITTEN 249990
INZU222I SYS00002, TOTAL NUMBER OF RECORDS WRITTEN 249990
INZU222I SYS00003, TOTAL NUMBER OF RECORDS WRITTEN 250020
INZU222I SYS00004, TOTAL NUMBER OF RECORDS WRITTEN 249990
INZU222I SYS00005, TOTAL NUMBER OF RECORDS WRITTEN 250020
INZU260I GENERATING LOAD STATEMENT FOR SELECT STARTING AT POS(4, 1)

```

The following information is shown in the data set:

CREATOR.TABLE

Indicates the name of the table that has been unloaded. For partitioned table spaces, the OBID is displayed under the table name.

OBID/PART NO./IXSC

OBID

Indicates the OBID value for each table in a non-partitioned table space.

PART NO./PART

Indicates the partition number for a partitioned table space. The OBID of the unloaded table is indicated under the table name in the CREATOR.NAME column. The value on the TOTAL UNLOAD STATISTICS line contains the total number of partitions in the table space. The number of partitions in the table space can differ from the number of partitions that are unloaded when PART is used in the UNLOAD command or PARTLEVEL is used in a LISDEF.

IXSC

Indicates the percentage of rows that were located in the correct order based on the clustering index when an index scan is used. This column is displayed only if an ORDER BY corresponds to the order of the clustering index or if an ORDER CLUSTER clause has been coded.

ROWS READ

Indicates the total number of rows that were read. The number on the TOTAL UNLOAD STATISTICS line can be greater than the number of rows that were read for a single table. For example, for a multi-table table space, the total number of rows that were read also includes the rows of the tables that were dropped. For a partitioned table space, each line corresponds to the number of rows that were read for the partition, and the total corresponds to the total number of rows that were read for the table space.

ROW KEPT

Indicates the total number of rows that could be successfully preprocessed before the subsequent phases of the process, i.e. the logical selection phase when a WHERE clause is specified, the user exit (OUTEXIT option) phase when requested, the formatting phase and the writing into the output dataset phase. If this number is less than the corresponding ROWS READ value, refer to the messages reporting errors at the record level and the summary message INZU447E.

TS PG READ

Indicates the number of pages that were read for each partition and the total for all the selected partitions on the TOTAL UNLOAD STATISTICS line for partitioned table spaces. For nonpartitioned table spaces, only the value on the TOTAL UNLOAD STATISTICS line is displayed for the complete table space.

IX ROWS READ

Indicates the number of records that were read from the clustering index for each partition and the total number of records on the TOTAL UNLOAD STATISTICS line. This column is displayed only when the index scan is used.

TOTAL UNLOAD STATISTICS

Shows total number of rows that were processed.

Report when output files are written on tapes

The following example shows a generated report when output files are written on tapes. Information about files that span across several volumes is documented only in the section that is related to the last volume that the files have been written on. This type of report is displayed only if TAPEREPORT YES is specified, or if the value of the VZM11/TAPERPT parameter is YES.

```
- TAPE SUMMARY - STATISTICS - 08/20/10
* VOLUME = TAP040
*-----*
* DSN = MZLFRD.AEST.DBTLS00.RP1XS9FN      * FILESEQ = 00000001 *
* DSN = MZLFRD.AEST.DBTLS00.RP1XS9G4      * FILESEQ = 00000002 *
* DSN = MZLFRD.AEST.DBTLS00.RP1XS9HB      * FILESEQ = 00000003 *
* DSN = MZLFRD.AEST.DBTLS00.RP1XS9IA      * FILESEQ = 00000004 *
* DSN = MZLFRD.AEST.DBTLS00.RP1XS9J0      * FILESEQ = 00000005 *
* DSN = MZLFRD.AEST.DBTLS00.RP1XS9KA      * FILESEQ = 00000006 *
* DSN = MZLFRD.AEST.DBTLS00.RP1XS9KL      * FILESEQ = 00000007 *
* DSN = MZLFRD.AEST.DBTLS00.RP1XS9LC      * FILESEQ = 00000008 *
* DSN = MZLFRD.AEST.DBTLS00.RP1XS9LM      * FILESEQ = 00000009 *
* . . .
*-----*
* VOLUME = TAP030
*-----*
* DSN = MZLFRD.AEST.DBTLS00.RP1XTCCI      * FILESEQ = 00000177 *
* DSN = MZLFRD.AEST.DBTLS00.RP1XTCDQ      * FILESEQ = 00000178 *
* DSN = MZLFRD.AEST.DBTLS00.RP1XTCD1      * FILESEQ = 00000179 *
* DSN = MZLFRD.AEST.DBTLS00.RP1XTCEH      * FILESEQ = 00000180 *
```

Chapter 6. Db2 HPU Tools

This section describes Db2 HPU related tools to be run in batch mode that provide features that are not part of the main purpose of Db2 HPU that is to unload data.

Topics:

- [“Required privileges for running Db2 HPU Tools” on page 257](#)
- [“JCL for running Db2 HPU Tools” on page 257](#)
- [“Display Db2 HPU activity” on page 258](#)
- [“RESTART feature” on page 88](#)
- [“Ddname allocation” on page 97](#)
- [“Db2 HPU syntax” on page 100](#)
- [“The SYSPRINT data set” on page 252](#)

Required privileges for running Db2 HPU Tools

You must have specific user-authority privileges to run Db2 HPU Tools.

To run the Db2 HPU Tools, you only need to have the privilege to execute the INZTOOLS load module.

JCL for running Db2 HPU Tools

Db2 HPU Tools EXEC statement

The format of the EXEC statement for Db2 HPU Tools is described below : EXEC PGM=INZTOOLS[,PARM='subsystem-name/group-attachment-name']

The EXEC statement contains the following parameters. The content in the PARM field must be enclosed by single quotation marks (!).

subsystem-name/group-attachment-name

This parameter is optional. It specifies the name of the Db2 subsystem. In a non-data-sharing environment, this value is the name of a Db2 subsystem. In a SYSPLEX data-sharing environment, this value must be the Db2 group attachment name. The name must be one of the SSID listed on the Tool Customizer "Associate Db2 Entry for Product". When it is specified, the requested tool filters information to the specified Db2 sub-system.

Db2 HPU Tools Ddname allocation

Db2 HPU Tools uses datasets allocated under the following you must allocate certain ddnames in the Db2 HPU Tools JCL.

To allocate ddnames, specify the following DD statements in your Db2 HPU Tools JCL. Some of these DD statements are required and some are optional:

STEPLIB or JOBLIB

To use Db2 HPU Tools, the job must have access to the Db2 HPU LOADLIB and the Language Environment SCEERUN and SCEERUN2 libraries. Make sure that any library allocated under the STEPLIB ddname is APF authorized. You can give HPU Tools access to these libraries by specifying a JOBLIB DD statement, a STEPLIB DD statement, or by including the library names in the LINKLIST. These DD statements are optional when Db2 HPU libraries access is done through the LINKLIST, otherwise they are mandatory.

SYSIN

This data set contains commands for Db2 HPU Tools. This DD statement is mandatory.

SYSPRINT

This ddname specifies the data set that receives the report from Db2 HPU Tools. This DD statement is optional, in that last case it will be automatically allocated with SYSOUT=* characteristic.

SYSTEM

This ddname is optional. It receives the additional diagnostic information from running Db2 HPU. This DD statement is optional, it will be automatically allocated by the system if necessary.

SYSABEND

This ddname is optional. Because the INZTOOLS module runs in key 7, the standard dump mechanism does not apply. If an abend occurs, a dump is produced by using the SNAP macro in the SYSABEND ddname, if this ddname is allocated in the JCL. The VZM009 parameter defines a list of system codes, such as system codes for X37 abends, for which dumps are not produced.

Other dump ddnames, such as SYSUDUMP and SYSMDUMP, are not used by Db2 HPU Tools.

This DD statement is optional.

INFPLIB

It connects Db2 HPU Tools to the PARMLIB that contains the INZUTIL member.

This DD statement is optional, if the INZPARM member was customized and submitted during installation, you can omit this ddname.

Display Db2 HPU activity

Db2 HPU Tools offers the capability to display a report about the progress of all or part of the current activity of Db2 HPU on the LPAR where it is run.

Display Db2 HPU activity overview

The report written to the SYSPRINT dataset contains:

- The list of all Db2 HPU jobs which are currently running,
- For each table and single unload process in progress the number of unloaded records.

The scope of the display activity may be limited to a specific Db2 subsystem or to all the members of a datasharing group by specifying the desired Db2 identifier in the PARM attribute of the EXEC statement. Other filters may be specified using the Display Db2 HPU activity syntax.

Enabling the Display HPU activity feature

The DISPLAY UTILITY feature is allowed if the following conditions are fulfilled:

- the VUU095/ENBDISP parmlib parameter is set to YES
- Db2 HPU is run under key 7

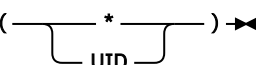
If the VUU095/ENBDISP is set to NO, the DISPLAY request terminates with a return code 8 and the message INZU611E is issued.

The activity of Db2 HPU steps not run under key 7 is not reported by the Display Db2 HPU activity feature. For a complete/exhaustive coverage of the Db2 HPU activity, make sure every Db2 HPU unload is run in key 7. To do so Db2 HPU should be invoked by an EXEC statement with PGM=INZUTILB.

Display HPU activity feature syntax

The following syntax diagram describes the DISPLAY UTILITY syntax:

Display UTILITY

➤ DISPLAY UTILITY — (— ) ➤

UID

Specify to limit the Db2 HPU activity report to the Db2 HPU job with the specified UID.

Display HPU activity report

The DISPLAY feature allows Db2 HPU to produce a report regarding the progress of the Db2 HPU steps involved in unloading data. The report is written into the SYSPRINT dataset.

Example of report generated by a DISPLAY request:

```
INZU600I DISPLAY HPU ACTIVITY AT 2020/12/02.15:49:12 FOR ANY SSID/GRID FOR ANY UID
INZU601I SUMMARY OF CURRENT HPU ACTIVITY FOR ANY SSID/GRID
SINGLE UNLOADS IN ACTIVE STEP
-----
TOTAL      JOBID    JOBNAME  STEPNAME  SSID UID                START TIME          ACTION
          DONE     RUNNING  PENDING
-----
          JOB09691 EPROI54  PRODJT   DZCA PLJCDC          2020/12/02.15:31:12 UNKNOWN
--
          JOB09692 00EIKU8  PRODST   DZCA PLUMC          2020/12/02.15:32:12 UNLOADING
5         1         2         2
          JOB09782 UUEJHY   STEPFR   DZBA UIDCT          2020/12/02.15:45:10 UNLOADING
1         0         1         0
          JOB09785 UJHEU87  KJU457   DB1A UIDFRD          2020/12/02.15:48:10 UNLOADING
1         0         1         0
          JOB09786 TIIIOL9  STEPFR5  DB1A UIDFRD2        2020/12/02.15:48:11 UNLOADING
1         0         1         0
          JOB09801 EPROI55  PRODJT   DZCA PLFRD          2020/12/02.15:48:12 ANALYZING
--
          --         --         --

INZU602I DETAILS OF HPU ACTIVITY FOR JOBID: JOB09691 JOBNAME: EPROI54 STEPNAME: PRODJT
STARTED AT: 2020/12/02.15:31:12
SSID: DZCA UID: PLJCDC USER: MZLJCD
NO DATA AVAILABLE DUE TO NO RESPONSE RECEIVED FROM THE HPU JOB JOB09691

INZU602I DETAILS OF HPU ACTIVITY FOR JOBID: JOB09692 JOBNAME: 00EIKU8 STEPNAME: PRODST
STARTED AT: 2020/12/02.15:32:12
SSID: DZCA UID: PLUMC USER: MZLMC
UNLOAD  SELECT  DBNAME  TSNAME  PART UNLOADED ROWS STARTED AT
-----
2         1         DBLS00  TS001   ----          158788 2020/12/02.15:35:05
3         1         DBTLS00 TS002   ----          54548 2020/12/02.15:36:05

INZU602I DETAILS OF HPU ACTIVITY FOR JOBID: JOB09682 JOBNAME: UUEJHY STEPNAME: STEPFR
STARTED AT: 2020/12/02.15:45:10
SSID: DZBA UID: UIDCT USER: MZLCT
UNLOAD  SELECT  DBNAME  TSNAME  PART UNLOADED ROWS STARTED AT
-----
1         1         DBTLS00 TSRT8   ----          54558 2020/12/02.15:45:14
1         2         DBENG10 TSZE5   ----          5458002 2020/12/02.15:45:15

INZU602I DETAILS OF HPU ACTIVITY FOR JOBID: JOB09685 JOBNAME: UJHEU87 STEPNAME: KJU457
STARTED AT: 2020/12/02.15:48:10
GRID: DB1A UID: UIDFRD USER: MZLFRD
UNLOAD  SELECT  DBNAME  TSNAME  PART UNLOADED ROWS STARTED AT
-----
1         1         DBROP   TS542   2          548885 2020/12/02.15:48:14
1         1         DBROP   TS542   4          554487
2020/12/02.15:48:14

INZU602I DETAILS OF HPU ACTIVITY FOR JOBID: JOB09686 JOBNAME: TIIIOL9 STEPNAME: STEPFR5
STARTED AT: 2020/12/02.15:48:11
GRID: DB1A UID: UIDFRD2 USER: MZLFRD
UNLOAD  SELECT  DBNAME  TSNAME  PART UNLOADED ROWS STARTED AT
-----
1         1         *SQL*   *MODE*  ****          22885 2020/12/02.15:48:12

INZU602I DETAILS OF HPU ACTIVITY FOR JOBID: JOB09801 JOBNAME: EPROI55 STEPNAME: PRODJT
STARTED AT: 2020/12/02.15:48:12 SSID: DZCA UID: PLFRD USER: MZLFRD
NO DATA AVAILABLE DUE TO INITIALIZATION PROCESS NOT COMPLETED

INZU610I DISPLAY HPU ACTIVITY - NORMAL COMPLETION
```


Chapter 7. Db2 HPU interactive component

The Db2 HPU interactive component can be used to generate the Db2 HPU batch utility job. Although using the interactive application is not required, it can be useful for inexperienced users in generating the batch utility job.

You can use either the Db2 Administration Tool or the Db2 Tools Launchpad to start the Db2 HPU interactive component.

Db2 HPU interactive component primary commands

Primary commands are used with the Db2 HPU interactive component.

Command	Description
COLUMNS	Displays the SELECT Columns panel. For more information, see “Selecting columns for the SELECT statement” on page 285.
COPYDDN	Displays the COPYDDN File Parameters panel. This panel is used to specify parameters for the image copy file. This command is available only if a table space was selected. For more information, see “Specifying COPYDDN file parameters” on page 270.
FORMAT	Displays the SELECT Format panel, which is used to specify the output format for the SELECT statement. For more information, see page “Specifying the format of the SELECT statement” on page 281.
FUSER	Displays the Select User Format panel. For more information, see “Displaying and modifying the USER format of the SELECT statement” on page 288. The FUSER command (Select user format) command is available only if you select option 4 in the FORMAT field on the SELECT Format panel, as shown in Figure 35 on page 281.
GENERAL	Displays the General Options panel. This panel is used to specify general options for a Db2 HPU member. For more information, see “Specifying general options” on page 266 for more information.
JCL	Displays the JCL panel, which is used to generate JCL. This JCL can either be modified under the editor screen, saved, or directly submitted. The JCL command is available only if a table space was selected. For more information, see “Generating JCL to run a Db2 HPU job” on page 296.

Command	Description
LOADDDN	Displays the LOADDDN File panel. For more information, see “Displaying and modifying LOADDDN file parameters” on page 295.
OPTIONS	Displays the SELECT Statement Option panels, which are used to specify values for columns of type DATE, TIME, or TIMESTAMP. For more information, see “Specifying options for the SELECT statement” on page 273.
ORDERBY	Displays the SELECT Order By panel. For more information, see “Sorting columns of a SELECT statement” on page 287.
OUTDDN	Displays the OUTDDN File panel. For more information, see “Displaying the list of OUTDDN files” on page 292.
PART	Displays the Partition List panel, which is used to select partitions that are to be unloaded. This command is available only if a partitioned table space was selected. For more information, see “Including and excluding partitions” on page 268.
SELECT	Displays the SELECT Statement List panel. For more information, see “Updating the list of SELECT statements” on page 275.
SELECTALL	Selects all columns.
UNLDDN	Displays the UNLDDN File Parameters panel, which is used to specify parameters for the allocation of the data set that contains the data of unloaded table spaces or partitions. For more information, see “Specifying UNLOAD file parameters” on page 271.
WHERE	Displays the ISPF edit panel so you can enter an SQL statement.

Related tasks

[Specifying the format of the SELECT statement](#)

The **SELECT Format** panels are used to specify the output format for a SELECT statement.

[Selecting columns for the SELECT statement](#)

The **SELECT Columns** panel is used to select columns for the SELECT statement.

[Sorting columns of a SELECT statement](#)

The **SELECT ORDER BY** panel is used to specify the order in which each column in the SELECT statement is processed for the output data set and whether to sort the column in ascending or descending order.

[Displaying and modifying the USER format of the SELECT statement](#)

The **Select user format** panels are used to update the USER formats.

[Displaying the list of OUTDDN files](#)

The OUTDDN list panel is used to display the list of OUTDDN files.

[Displaying and modifying LOADDDN file parameters](#)

The LOADDDN file panel is used to display and modify LOADDDN file parameters.

[Generating JCL to run a Db2 HPU job](#)

You can generate JCL, edit JCL, submit JCL, save JCL, and enter job card parameters for a Db2 HPU job by invoking the JCL command.

Starting the Db2 HPU interactive component in stand-alone mode

You can start Db2 HPU interactive component in stand-alone mode without using the Db2 Administration Tool or the Db2 Tools Launchpad.

Procedure

Use one of the following methods:

- Run the INZHPU procedure that is located in the SINZCLST library. When you run the INZHPU procedure in stand-alone mode, do not pass an argument.
- Issue this command:

```
EXEC 'HINZnnn.SINZCLST(INZHPU) '
```

In this example, HINZnnn.SINZCLST is the name of the library that contains the INZHPU procedure. You can also associate this command with an option in a menu.

Restriction: The TSO user ID that runs this command requires a minimum REGION of 4096K.

- Issue this command:

```
TSO INZHPU
```

Requirement: To use this method, you must have installed INZHPU as a TSO command.

Related tasks

Optional: Creating a TSO command for the Db2 HPU interactive component

You can make the Db2 HPU interactive component available as a TSO command.

Starting the Db2 HPU interactive component by using the Db2 Administration Tool

The Db2 HPU interactive component can be started by using the Db2 Administration Tool.

Procedure

Specify the **HPU** line command on the **Db2 Admin** panel.

Db2 HPU interactive component can be started from either the **Table Spaces** panel or from the **Tables, Views, and Aliases** panel.

If you invoke the **HPU** command from the **Tables, Views, and Aliases** panel, the **SELECT Format** panel is displayed. For more information about the **SELECT Format** panel, see [“Specifying the format of the SELECT statement”](#) on page 281.

```

IDB2 Admin ----- DSN1 Table Spaces ----- Row 1 of 269
Command ==> Scroll ==> CSR

Valid line commands are:
T - Tables D - Database A - Auth G - Storage group ICS - Image copy status
DIS - Display database STA - Start database STO - Stop database X - Indexes
? - Show all line commands

Select Name Owner DB Name BP L E S I C Ntable N Active Segsz T L
-----*-----*-----*-----*-----*-----*-----*-----*-----*-----*
HPU SYSCOPY SYSIBM DSND06 BP0 A N A N N 1 0 0 Y
SYSDBASE SYSIBM DSND06 BP0 A N A N N 14 0 0 Y
SYSDBAUT SYSIBM DSND06 BP0 A N A N N 2 0 0 Y
SYSDDF SYSIBM DSND06 BP0 P N A N N 7 0 4 Y
SYSGPAUT SYSIBM DSND06 BP0 A N A N N 1 0 0 Y
SYSGROUP SYSIBM DSND06 BP0 A N A N N 2 0 0 Y
SYSOBJ SYSIBM DSND06 BP0 P N A N N 8 0 4 Y
SYSPKAGE SYSIBM DSND06 BP0 A N A N N 8 0 4 Y
SYSPLAN SYSIBM DSND06 BP0 A N A N N 5 0 0 Y
SYSSTATS SYSIBM DSND06 BP0 A N A N N 6 0 4 Y
SYSSTR SYSIBM DSND06 BP0 A N A N N 4 0 4 Y
SYSUSER SYSIBM DSND06 BP0 A N A N N 1 0 0 Y
SYSVIEWS SYSIBM DSND06 BP0 A N A N N 4 0 0 Y

```

Figure 16. Db2 Administration Table Spaces panel

If you invoke the **HPU** command from the **Table Spaces** panel, the **General Options** panel is displayed. See “[Specifying general options](#)” on page 266 for more information about the **General Options** panel.

```

DB2 Admin ----- DSN1 Tables, Views, and Aliases ----- Row 1 of 705
Command ==> Scroll ==> CSR

Valid line commands are:
C - Columns A - Auth L - List X - Indexes S - Table space D - Database
V - Views T - Tables P - Plans Y - Synonyms SEL - Select prototyping
? - Show all line commands

Sel Name Owner T DB Name TS Name Cols Rows Checks
-----*-----*-----*-----*-----*-----*-----*-----*-----*
HPU SYSCOPY SYSIBM T DSND06 SYSCOPY 22 -1 0
SYSFIELDS SYSIBM T DSND06 SYSDBASE 13 -1 0
SYSTABLESPACE SYSIBM T DSND06 SYSDBASE 37 -1 2
SYSTABLES SYSIBM T DSND06 SYSDBASE 43 -1 4
SYSTABLEPART SYSIBM T DSND06 SYSDBASE 33 -1 0
SYSTABAUTH SYSIBM T DSND06 SYSDBASE 29 -1 0
SYSSYNONYMS SYSIBM T DSND06 SYSDBASE 7 -1 0
SYSRELS SYSIBM T DSND06 SYSDBASE 13 -1 0
SYSLINKS SYSIBM T DSND06 SYSDBASE 12 -1 0
SYSKEYS SYSIBM T DSND06 SYSDBASE 7 -1 0
SYSINDEXPART SYSIBM T DSND06 SYSDBASE 26 -1 0
SYSINDEXES SYSIBM T DSND06 SYSDBASE 38 -1 7
SYSFOREIGNKEYS SYSIBM T DSND06 SYSDBASE 7 -1 à

```

Figure 17. Db2 Admin Tables, Views and Aliases panel

Related tasks

[Specifying the format of the SELECT statement](#)

The **SELECT Format** panels are used to specify the output format for a SELECT statement.

[Specifying general options](#)

You can use the **General Options** panel to specify Db2 HPU general options.

Starting Db2 HPU interactive component by using the Db2 Tools Launchpad

The Db2 HPU interactive component can be started by using the Db2 Tools Launchpad.

Procedure

1. Specify the **S** line command on the **Db2 Tools Launchpad** panel, as shown in the following example. Press Enter.

```
----- DB2 Tools Launchpad ----- Row 1 of 8
Command ==>                               Scroll ==> CSR
Select the DB2 tool you wish to launch or enter its code in the command line.
Sel Code  Tool Name                               Rel  Prog No.
-----
--- ----- ADMINISTRATION TOOLS -----
ADM  DB2 Administration Tool                     710  5697-L90
--- ----- APPLICATION MANAGEMENT TOOLS -----
s  HPU  High Performance Unload                   520  5655-HP5
--- ----- PERFORMANCE MANAGEMENT TOOLS -----
      No table entries in this category
--- -- RECOVERY AND REPLICATION MANAGEMENT TOOLS -- --
      No table entries in this category
***** Bottom of data *****
```

Figure 18. Db2 Tools Launchpad panel

The **DB2 System** panel is displayed, as shown in the following figure:

```
INZ0005 ----- DB2 System ----- 11:44
Command ==>

Enter :
*DB2 system name . . _____ (mandatory field)

( PF3 to exit )
```

Figure 19. Db2 subsystem name panel

2. Specify a Db2 subsystem name, and press Enter.

The **Database And Tablespace Selection** panel is displayed, as shown in the following figure:

```

INZ0010 ----- DZ7M - Database And Table Space Selection ----- Row 1 of 15
Command ==>                                         Scroll ==> CSR

Commands: CANCEL   SELECT

Line commands: S - Select a table space

Generic:
Database . . . DBDM7M%                               Table space . . . @(#) 02 1.39@(#)

                                                                    ( PF3 to exit )

Select  DB Name  TS Name
-----  -
.       DBDM7M  DSNRSTAT
.       DBDM7M  SEAVDT
.       DBDM7M  TBMASKCH
.       DBDM7M  TSFLOAT
.       DBDM7M  TSJCD16A
.       DBDM7M  TSMASK
.       DBDM7M  TSPART1
.       DBDM7M  TSPAR10
.       DBDM7M  TSPAR100
.       DBDM7M  TSPAR250
.       DBDM7M  TSPAR254
.       DBDM7M  TSSCA
.       DBDM7M  TSSCA2
.       DBDM7M  TS3401A
.       DBDM7M  TS3474A
***** Bottom of data *****

```

Figure 20. Database And Tablespace Selection panel

3. Use one of the following methods to select table spaces:

- Issue the SELECT primary command to select one or more tables.
- Issue the Select line command to select one table space. When you use the Select line command, the General options panel is displayed, which is used to specify parameters for the table space that you selected.
- Specify the name of a database in the **Database ==>** field and the name a table space in the **Tablespace ==>** field.

Results

If you specify non-generic criteria and you do not include a percent sign (%) when table spaces are listed by generic names, a percent sign is automatically added to the end of the field.

Related tasks

Selecting tables

The **Table List** panel is used to create SELECT statements.

Specifying general options

You can use the **General Options** panel to specify Db2 HPU general options.

Procedure

1. Specify the **HPU** command on the **Db2 Admin** panel or after you specify a Db2 subsystem and table space.

The **General Options** panel is displayed, as shown in the following figure:

```

INZA10          ----- General Options ----- 11:46
Command ==>

Commands : PART   COPYDDN   OPTIONS   SELECT   UNLDDN   JCL

DB2 system name . : DZ7M      Object name . : DBDM7M   . TSEXT

Utility ID . . . HPU
Part . . . . . * _____ (L - list, * - all, nnn - partition number)
                0      partition(s) selected from 0      total partitions

DB2 . . . . . -          (Y - Yes, N - No, F - Force)
LOCK . . . . . -          (Y - Yes, N - No)
QUIESCE . . . . -          (Y - Yes, N - No)
UNLMAXROWS . . . -----
UNLFREQROWS . . . -----

                                     ( PF3 to exit)

```

Figure 21. General Options panel

2. Specify values for each of the following fields:

Utility ID

Specify the prefix that is used to build the unique Utility Identifier for the Db2 HPU job. The maximum length of the prefix is 11 bytes. This parameter is required.

Part

Specify information about the partitions of a table space.

L

Indicates that several partitions were selected by using the **PART** command. The **L** option is not used to display the list of partitions.

Selects all partitions of a table space.

nnn

Indicates the number of a single partition of the table space.

DB2

Specify whether a given request can or must be processed through Db2.

No

The SELECT statements must be processed directly by Db2 HPU. If a SELECT statement is not supported by HPU, an error is generated and the program stops.

Attention: The entire SYSIN file is parsed before any unload command is processed.

Yes

If the SELECT statement is too complex to be handled directly by the product, Db2 is called to extract the rows.

Force

DB2 must be used to extract the requested rows. This process is useful when the SELECT statement uses a filtering predicate that is efficiently processed through SQL and when the filtering factor is high.

Restriction: DB2 FORCE cannot be used when attempting to unload from an image copy. Attempting to use DB2 FORCE to unload from an image copy results in an error and the program stops.

LOCK

Specify the lock mode of the table space.

Yes

The table space is accessed in read only mode when the Db2 HPU job is running.

No

The table space is processed without changing its access mode.

QUIESCE

Specify the processing of the QUIESCE command.

Yes

A QUIESCE command is processed if the table space is not in the COPY pending status; otherwise, processing of the QUIESCE command is stopped and restarted.

No

The table space is processed without a QUIESCE command.

Attention: Db2 HPU operates on the physical VSAM data set level that is outside of Db2. If you run Db2 HPU on a table where a row was just inserted, it is possible that the unloaded data might not contain the row that was inserted. The unloaded data does not show the row because Db2 might not have externalized the data to DASD yet. This situation can happen when you use Db2 HPU without issuing a QUIESCE (or STOP) on the object. Be careful when using QUIESCE NO.

UNLMAXROWS

Specify the maximum number of rows to be extracted for the physical unload. If the process involves a partitioned table space treated partition-by-partition, the limit applies to each partition.

UNLFREQROWS

Specify the sampling frequency for the physical unload. One row out of every n rows is. The value n is the argument of UNLFREQROWS.

PF3

Press PF3 to end the current unload JCL setup process. The following figure shows the **Confirm to leave the current Unload** panel. Specify Y to cancel the unload JCL setup process or N to continue.

```
+----- Confirm to leave the current Unload -----+
| INZP060                               Enter required field |
| You will lose your current unload description.             |
| Do you want to leave this unload? _ (Y - Yes, N - No)     |
+-----+-----+-----+-----+-----+-----+-----+
```

Figure 22. Confirm to leave the current Unload panel

What to do next

Specify a primary command in the command field to issue the request and generate the output, or press Enter to access the next panel.

Related reference

[Db2 HPU interactive component primary commands](#)

Primary commands are used with the Db2 HPU interactive component.

Including and excluding partitions

The **Partition List** panel is used to include or exclude one or more partitions for a Db2 HPU job.

Procedure

1. Specify the **PART** command on the **General Options** panel and press Enter.
The **Partition List** panel is displayed, as shown in the following figure:

```

INZA201 ----- DZ7M DBDM7M . TSTEST16 - Partition List ----- Row 1 of 7
Command ==>                                         Scroll ==> CSR

Commands : GENERAL    COPYDDN    OPTIONS    SELECT    UNLDDN    JCL

Line commands: S - Select partition, U - Unselect, Z - Zoom

                                                    ( PF3 to exit)

S Part  Selected High value of partition
-----
- ALL   YES
- 0001   8333
- 0002  16666
- 0003  24999
- 0004  33333
- 0005  41666
- 0006  99999
***** Bottom of data *****

```

Figure 23. Partition List panel

The **Partition List** panel contains the following columns.

S

Use this column to specify the partitions to be selected or deselected. Enter a selection code in this column.

Part

This column contains the available partitions.

To select a partition, specify the S selection code beside a partition number.

To deselect a partition, specify the U selection code beside a partition number.

To select all partitions, specify the S selection code beside **ALL** in the Part column.

Requirement: You must select at least one partition.

Selected

YES indicates that the partition was selected.

High value of partition

Displays the first 57 characters of the LIMITKEY column of the SYSIBM.SYSTABLEPART table.

2. Specify the appropriate line command.

You can specify the following line commands on the **Partition List** panel:

S

Select one or more partitions.

U

Undo the selection of one or more partitions.

Z

Displays the **Zoom Partition** panel, as shown in the following figure. Select this option when the value of the High value of partition column is too high to display in the field. The **Zoom Partition** panel shows the partition number, indicates if it was selected, and displays the entire value for the partition.

```

INZA21 ----- DZ7M DBDM7M . TSTEST16 - Zoom Partition ----- 11:48
Command ==>

Partition . . . . . : 0002
Selected . . . . . :
High value of partition . : 16666

```

Figure 24. Zoom Partition panel

Press PF3 to return to the **Partition List** panel.

What to do next

Specify a primary command in the command field to issue the request and generate the output, or press Enter to access the next panel.

Related reference

Db2 HPU interactive component primary commands

Primary commands are used with the Db2 HPU interactive component.

Specifying COPYDDN file parameters

The **COPYDDN File Parameters** panel is used to specify file parameters for the image copy file.

Procedure

1. Specify the **COPYDDN** command on the **General Options** panel.

The **COPYDDN File Parameters** panel is displayed, as shown in the following figure:

```
INZA30 ----- DZ7M DBDM7M . TSTEST16 - COPYDDN File Parameters ----- 11:49
Command ==>

Commands :  GENERAL      PART      OPTIONS      SELECT      UNLDDN      JCL

COPYDDN . . . . . N_      (N - No, nn number, L - Last ic, or DDN)
              (nn is the nth previous version)

If DDN option, please fill the input data set below :

IC . . . . . _          (N - Non-inline, I - Inline, C - Check)
Data set name

-----
Disposition . . . . . _      (S - Shr, O - Old)
Generic unit . . . . . _____ (*)
Volume serial . . . . . _____ - _____ - _____ - _____ (*)

for tape unit
Label . . . . . _____
(*) Used if ImageCopy data set is not cataloged

( PF3 to exit)
```

Figure 25. COPYDDN File Parameters panel

2. Specify values for each of the following fields:

COPYDDN

Displays the **COPYDDN File Parameters** panel, which is used to specify parameters for the image copy file. This command is available only if a table space was selected.

No

No image copy is used as source.

nn

The number of the last (most recent) full image copy to be used as source.

Last ic

Process the unload job by using the last valid registered full image copy on the object. This option is equivalent to a value of -1 for *nn*.

DDN

Process the unload by using the information that is provided on this panel.

IC

Specify the image copy type.

Non-inline

Indicates that the copy is not inline.

Inline

If the ddname points to an Inline Copy (that is a copy share level change), you must specify Inline. Failure to do so can result in duplicate or missing lines in the output, or failure of the job during the unload process itself.

Check

Check must be specified if the copy is Inline or is not known.

Data Set Name

Specify the name of the image copy data set. The following variables can be used, during the generation of the JCL, a substitution occurs.

- &DBNAME: this variable is replaced by the database name that contains the unloaded tablespace.
- &TSNAME: this variable is replaced by the name of the unloaded tablespace.
- &SPACE: this variable is replaced by the name of the unloaded tablespace. &SPACE is a synonym of &TSNAME.
- &ZUSER: this variable is replaced by the user name used to connect, where the interactive menu is running.
- &DB2: this variable is replaced by the SSID where the generated JCL will run.
- &PART: this variable is replaced by the partition number:
 - 000: when the unloaded tablespace is not partitioned or when ALL is specified as partition number on the panel you select the partition
 - nnnn: 4 digits for the partition number

For partitioned table spaces, to define one input file for each partition, use the &PART variable in the generic data set name, which allows Db2 HPU to process in parallel.

If Db2 HPU was requested to perform processing in parallel for partitioned table spaces, you must specify this processing for all files.

Disp

The disposition of the image copy data set. Enter SHR if the image copy data set is to be shared.

Generic unit

Specify the DASD unit name.

Volume serial

Specify the volume serial number. Use an asterisk (*) when the image copy data set is not cataloged.

for tape unit/Label

Specify the label sequence number when the data set resides on tape.

What to do next

Specify a primary command in the command field to issue the request and generate the output, or press Enter to access the next panel.

Related reference

[Db2 HPU interactive component primary commands](#)

Primary commands are used with the Db2 HPU interactive component.

Specifying UNLOAD file parameters

The **UNLDDN File Parameters** panel is used to specify parameters for allocating the data set that contains the data of the unloaded table spaces or partitions.

Procedure

1. Specify the **UNLDDN** command on the **General Options** panel.

The **UNLDDN File Parameters** panel is displayed, as shown in the following figure:

```

INZA40 ----- DZ7M DBDM7M . TSTEST16 - UNLDDN File Parameters ----- 11:49
Command ==>

Commands : GENERAL PART COPYDDN OPTIONS SELECT JCL

          Data set with physical UNLOAD of table space or partition

Data set name
-----
Disposition . . . . . ( _ , _ , _ ) (New/Old/Mod) (Del/Keep/Catlg)
Generic unit . . . . . -----
Volume serial . . . . . -----
Space units . . . . . ----- (BLKS, TRKS, CYLS) -----
Primary quantity . . . . . -----
Secondary quantity . . . . . -----
Record format . . . . . (F, FB, V, VB)
Record length . . . . . -----
Block size . . . . . -----

SMS
Data class . . . . . -----
Management class . . . . . -----
Storage class . . . . . -----

for tape unit
Label . . . . . -----

( PF3 to exit)

```

Figure 26. Unload File Parameters panel

2. Specify values for each of the following fields:

Data Set Name

Specify the name of the data set that will contain the data of an unloaded table space or partition.

For partitioned table spaces, to define one input file for each partition, use the &PART variable in the generic data set name, which allows Db2 HPU to process in parallel.

If Db2 HPU was requested to perform a processing in parallel for partitioned table spaces, you *must* specify this processing for all files.

Disposition

Specify the disposition of the data set.

New/Old/Mod

Specify the disposition to use as the first parameter.

Del/Keep/Catlg

Specify the disposition to use as the second and third parameters.

Generic unit

Specify a generic unit if DISP=NEW or if the file is not cataloged.

Volume serial

Specify one to five volumes.

Space Units

Specify the volume allocation unit (BLKS, TRKS, or CYLS).

Primary quantity

Specify the primary allocation for the data set.

Secondary quantity

Specify the secondary allocation for the data set.

Record format

Specify the format of the records as F, FB, V, or VB.

Record length

Specify the length of the records. The value that you enter must be less than or equal to 32760.

Block size

Specify the block size if FB or VB is specified for FORMAT. The BLKSIZE value must be less than or equal to 32760 and must be a multiple of LRECL (+4 if V or VB).

SMS

Specify the Data Class, Management Class, and Storage Class SMS parameters for allocation of data sets that are managed by SMS. The values that are entered for these parameters will be specified in the DD statement that is generated in the JCL.

for tape unit Label

Specify the tape sequence number if the file will be written to tape.

What to do next

Specify a primary command in the command field to issue the request and generate the output, or press Enter to access the next panel.

Related reference

[Db2 HPU interactive component primary commands](#)

Primary commands are used with the Db2 HPU interactive component.

Specifying options for the SELECT statement

The **SELECT Statement Option** panels are used to specify options for a SELECT statement.

Procedure

1. Specify the **OPTIONS** command on the **General Options** panel.

The **SELECT Statement Option** panel (1 of 2) is displayed, as shown in the following figure:

```
INZA501 ---- DZ7M DBDM7M . TSTEST16 - SELECT Statement Option ----- 11:49
Command ==>

Commands      :  GENERAL      PART      COPYDDN      SELECT      UNLDDN      JCL

Others options :  LOADOPT

NULL . . . . . _ (0 - Off)
or
when NULL . . . . . __ (enter one character or an hexadecimal value)*
and when not NULL . . __ (enter one character or an hexadecimal value)*

NULLID . . . . . _ (Y - Yes, N - No)
NULLPOS . . . . . _ (A - After, B - Before)
PIC sign . . . . . _ (sign or P)
  position . . . . . _ (L - Lead, T - Trail)
  decimal . . . . . _ (, or .)
  mask . . . . . ____ (enter ? for the list of authorized
values)
*(case sensitive)

( PF3 to exit, Enter : "Option" 2/2)
```

Figure 27. SELECT Statement Option panel (1 of 2)

2. Specify values for each of the following fields:

Other options: LoadOPT

Specify LoadOPT to display an ISPF edit panel that you use to enter load options.

NULL

Specify whether the null character is to be generated in the output file.

or when NULL

Specify the character to be used for columns with NULL value.

not NULL

Specify the character to be used for columns that have a value other than NULL.

NULLID

Specify whether the output file will contain NULL indicators. This option is considered only for FORMAT USER.

NULLPOS

Specify the position of the NULL indicator. It can be specified before or after the data field. This option is considered only for the USER format or it if specified at the select level.

PIC sign

Specify the numeric data display format. The default value is a minus sign (-).

+

The plus sign (+) is used for positive values, and the minus sign (-) is used for negative values.

-

The minus sign (-) is used for negative values; positive values are preceded by blanks.

P

The padding character is used for positive values; negative values are identified by a minus sign (-).

PIC position

Specify the position of the sign. The default is Lead.

Lead

The sign is placed before the numeric value.

Trail

The sign is placed after the numeric value.

PIC decimal

Specify the decimal separator. The default value is a period (.).

.

A period is written as the decimal separator.

,

A comma is written as the decimal separator.

PIC mask

This optional parameter is used to define the mask. Enter a question mark (?) to display the list of authorized types. See [“Selecting mask formats” on page 301](#) for more information.

3. Press Enter.

The second **SELECT Statement Option** panel is displayed, as shown in the following figure:

```

INZA502 ---- DZ7M DBDM7M . TSTEST16 - SELECT Statement Option ----- 11:49
Command ==>>

Commands      : GENERAL      PART      COPYDDN      SELECT      UNLDDN      JCL

Others options : LOADOPT

DATE . . . . .-----
(enter ? for the list of authorized values)
DATEDELIM . . __          (enter one character or an hexadecimal value)*

TIME . . . . .-----
(enter ? for the list of authorized values)
TIMEDELIM . . __          (enter one character or an hexadecimal value)*

TIMESTAMP . . .-----
(enter ? for the list of authorized values)
LENGTHBYTE . . _          (Y - Yes, N - No)
LENGTH . . . . _          (R - Real, M - Max)

*(case sensitive)

                                     ( PF3 to return to "Option" 1/2)

```

Figure 28. SELECT Statement Option panel (2 of 2)

4. Specify the values that you want for each of the following fields:

DATE

Specify the available type to encode dates in FORMAT USER. Specify a question mark (?) to display the list of authorized types.

DATEDELIM

Specify the default delimiter that is to be used in external date representation.

TIME

Specify the type to encode times in FORMAT USER. Specify a question mark (?) to display the list of authorized types.

TIMEDELIM

Specify the default delimiter that is to be used in external time representations.

TIMESTAMP

Specify the type to encode timestamps in FORMAT USER. Specify a question mark (?) to display the list of authorized types.

LENGTHBYTE

Specify whether you want the two length bytes for variable-length columns in an options block written to the output data set.

LENGTH

Specify whether the real or maximum length is used for variable-length fields in an options block.

Real

The length of the field does not change (value of the two length bytes). The default value is Real.

Max

The output field is padded to its maximum length with binary zeros.

The LENGTH keyword is valid only for variable-length fields.

What to do next

Specify a primary command in the command field to issue the request and generate the output, or press Enter to access the next panel.

Related tasks

[Selecting date formats](#)

The **Type Values - DATE** panel is used to select a date format.

[Selecting time formats](#)

The **Type Values - TIME** panel is used to select a time format.

[Selecting timestamp formats](#)

The **Type Values - TIMESTAMP** panel is used to select a timestamp format.

Related reference

[Db2 HPU interactive component primary commands](#)

Primary commands are used with the Db2 HPU interactive component.

Updating the list of SELECT statements

The SELECT statement list panel is used to update the SELECT statements of a Db2 HPU job.

Procedure

1. Specify the **SELECT** command.

The **SELECT Statement List** panel is displayed, as shown in the following figure.

```

INZA601 ----- DZ7M DBDM7M . TSTEST16 - SELECT Statement List Row 1 to 3 of 3
Command ==> Scroll ==> CSR

Commands : GENERAL PART COPYDDN OPTIONS UNLDDN JCL

Line commands: E - Edit, D - Delete, C - Copy

New Select statement ? . . . . . (Y - Yes)
Use interactives panels : . Y (Y - Yes, N - No, default is Yes)
or
Use a line command on this table of select statements already created.

                                                                    ( PF3 to exit)

Select Select description          Inter. Creator Table or view
-----
select 01                          Y   IBMUSER TSTEST16
IBMUSER .TSTEST16                   Y   IBMUSER TSTEST16
IBMUSER .ZZZZZZZZz                  Y   IBMUSER TSTEST16
***** Bottom of data *****

```

Figure 29. SELECT Statement List panel

New Select statement ?

Specify Y and press Enter to create a SELECT statement.

If the table space contains several tables, the **Table List** panel, as shown in [Figure 32 on page 279](#), is displayed. If the table space contains only one table, the **SELECT Format** panel, as shown in the following figure, is displayed.

Interactive Select

Y

Specify Y to display the **SELECT Format** panel, as shown in the following figure. You can access all the primary commands from this panel.

N

If you specify N, the first limited **SELECT Format** panel is displayed. The commands on this panel are limited; only FORMAT, OUTDDN, LOADDN, and JCL are available. You can use the EDIT command to access ISPF edit mode where you can enter the entire SELECT statement and cut and paste a SYSIN.

```

INZB101E --- DZ7M          .                - SELECT Format ----- 14:51
Command ==>

Commands : EDIT   OUTDDN   LOADDN   JCL

SELECT Description . . . . .

FORMAT . . . . . 1 (1 - DSNTIAUL, 2 - DELIMITED, 3 - VARIABLE,
                  4 - USER, 5 - EXTERNAL)
  DSNTIAUL STRICT . . . . . (Y - Yes, N - No)
  DELIMITED SEP . . . . . (enter one character or an hexadecimal value)*
  DELIM . . . . . (enter one character or an hexadecimal value)*
  NULL DELIM . . . . . (Y -Yes, N - No)
  VARIABLE . . . . . (E - End, A - All )
  LIKE creator . . . . .
    table . . . . .

*(case sensitive)

                                                                    ( PF3 to return to "Select List", Enter : "Format" 2/2)

```

Figure 30. SELECT Format panel (1 of 2)

Press Enter to access the second limited **SELECT Format** panel, as shown in the following figure.

```

INZB102E --- DZ7M                               - SELECT Format ----- 14:52
Command ==>

Commands :  EDIT      OUTDDN      LOADDDN      JCL

ORIGINOBID . . . . . (Hexadecimal value)
             or . . . . . (Decimal value)

OUTMAXROWS . . . . .
OUTFREQROWS . . . . .

SCHEME . . . . . (E - EbcDic, A - Ascii, S - aSis, U - Unicode)
CCSID SBCS . . . . .
      MIXED . . . . .
      DBCS . . . . .

OUTEXIT exitname . .
        in . . . . . (1 - ASM, 2 - C, 3 - COBOL2)
                               ( PF3 to return to "Format" 1/2)

```

Figure 31. SELECT Format panel (2 of 2)

The default value is Y.

Selection codes

You can select only one line. Specify one of the following codes:

S

Use the S selection code to select a statement. The SELECT description panel is displayed for further processing.

D

Use the D selection code to delete a SELECT statement. A confirmation panel is displayed.

C

Use the C selection code to copy a statement to a new statement that has the same characteristics and contents as the original statement.

The options you select determine the subsequent panels that are displayed. The following columns are on the **SELECT Statement List** panel:

S

Use this column to enter a selection code.

Select description

This column contains the description of the SELECT statement.

Inter. (Interactive)

Y

The SELECT statement is created by done using interactive panels.

N

The SELECT statement is written in freestyle.

Creator

This column contains the name of the creator of the SELECT statement.

Table or view

This column indicates the name of the table or view.

2. Press PF3 to end the current unload JCL set-up.

What to do next

Specify a primary command in the command field to issue the request and generate the output, or press Enter to access the next panel.

Related tasks

[Selecting tables](#)

The **Table List** panel is used to create SELECT statements.

Related reference

Db2 HPU interactive component primary commands

Primary commands are used with the Db2 HPU interactive component.

Selecting tables

The **Table List** panel is used to create SELECT statements.

Before you begin

If you Specify non-generic criteria and you do not include a percent sign (%) when listing tables by generic names, a percent sign is automatically added to the end of the field.

About this task

The **Table List** panel is displayed when you have selected a table space and you Specify the **SELECT** command on the **Database and Tablespace Selection** panel or when you use the **SELECT Statement List** panel to create a new SELECT statement and there are several tables in the table space that you selected.

To select a table:

Procedure

Use the S selection code to select one or more tables, and press PF3 to access the **SELECT Statement List** panel so you can create SELECT statements.

- a) If you select only one table, the **Table List** panel is displayed, as shown in the following figure:

```

INZA61 ----- DZ7M          .          - Table List -- Row 1 to 31 of 85
Command ==>                               Scroll ==> CSR

Line Commands: S - Select table

Generic: Creator . . . . IBMUSER% > (case
sensitive)
      Table or view . .
-----
;_ > (case sensitive)

Select one or more tables (or views) and press PF3 to create SELECTs

Select Creator  Table or view      Database Table space Type
-----
IBMUSER  DSN_FUNCTION_TABLE  DBDM7M  DSNRFUNC  T
IBMUSER  DSN_STATEMNT_TABLE  DBDM7M  DSNRSTAT  T
IBMUSER  LCLRC                DBDM7M  LCLRC     T
IBMUSER  TBMASKCHAR           DBDM7M  TBMASKCH  T
IBMUSER  TESTTH1              DBDM7M  TESTTHC   T
IBMUSER  TESTTH2              DBDM7M  TESTTHC   T
IBMUSER  TESTTH3              DBDM7M  TESTTHC   T
IBMUSER  TESTTH01            DBDM7M  TESTTH01  T
IBMUSER  TSDEC              DBDM7M  TSDEC     T
IBMUSER  TBEXT              DBDM7M  TSEXT     T
IBMUSER  TBFLOAT            DBDM7M  TSFLOAT   T
IBMUSER  TBID3121            DBDM7M  TSID3121  T
IBMUSER  TBID3610            DBDM7M  TSID3610  T
IBMUSER  EMP_PHOTO_RESUME   DBDM7M  TSLOBTH1  T
IBMUSER  TBMASK             DBDM7M  TSMASK    T
IBMUSER  TSPART1            DBDM7M  TSPART1   T
IBMUSER  TBPART10           DBDM7M  TSPAR10   T
IBMUSER  TBPART100          DBDM7M  TSPAR100  T
IBMUSER  TBPART250          DBDM7M  TSPAR250  T
IBMUSER  TBPART254          DBDM7M  TSPAR254  T
IBMUSER  TBPB5930           DBDM7M  TSPB5930  T
IBMUSER  TBSCA              DBDM7M  TSSCA     T
IBMUSER  TBSCA2             DBDM7M  TSSCA2    T
IBMUSER  TBSIM01            DBDM7M  TSSIM01   T
IBMUSER  VUESIM01           DBDM7M  TSSIM01   V
IBMUSER  TSTEST16           DBDM7M  TSTEST16  T
IBMUSER  TB2739             DBDM7M  TS2739    T
IBMUSER  TS2904             DBDM7M  TS2904    T
IBMUSER  TS2904B            DBDM7M  TS2904B   T
IBMUSER  TS2922             DBDM7M  TS2922    T
IBMUSER  TB2934             DBDM7M  TS2934    T

+----- UGCREA+0 -----+
| ISPEXPND                               Line 1 of 2 |
| Command ==>                             Scroll ==> PAGE |
| IBMUSER%                               |
|-----|
|-----|
|-----|
|-----|
|-----|
+-----+

```

Figure 32. Table List panel

The **Table List** panel contains the following columns:

S

The selection code; enter one or more selection codes in this column.

Creator

This column contains the name of the creator of the table.

Table or view

This column contains the name of the table or of the view.

Database

This column contains the name of the database.

Table space

This column contains the name of the table space.

Type

This column contains the type (table or view).

b) If several tables are selected, the **SELECT Statement List** panel is displayed.

```
INZA601 ----- DZ7M DBDM7M . TSTEST16 - SELECT Statement List Row 1 to 3 of 3
Command ==>> Scroll ==>> CSR

Commands : GENERAL PART COPYDDN OPTIONS UNLDDN JCL

Line commands: E - Edit, D - Delete, C - Copy

New Select statement ? . . . . _ (Y - Yes)
Use interactives panels . . _ (Y - Yes, N - No, default is Yes)
or
Use a line command on this table of select statements already created.

                                                                    ( PF3 to exit)

Select Select description          Inter. Creator Table or view
-----
select 01                          Y   IBMUSER TSTEST16
IBMUSER .TSTEST16                  Y   IBMUSER TSTEST16
IBMUSER .ZZZZZZZZz                 Y   IBMUSER TSTEST16
***** Bottom of data *****
```

Figure 33. *SELECT Statement List panel*

What to do next

Press PF3 to exit this panel.

Related tasks

[Selecting time formats](#)

The **Type Values - TIME** panel is used to select a time format.

[Updating the list of SELECT statements](#)

The SELECT statement list panel is used to update the SELECT statements of a Db2 HPU job.

[Starting Db2 HPU interactive component by using the Db2 Tools Launchpad](#)

The Db2 HPU interactive component can be started by using the Db2 Tools Launchpad.

Processing long names

Db2 HPU accepts long names for tables and columns. You can view and update the names by using the **Complete table name** panel.

Procedure

1. Position the cursor on the corresponding field, and press PF5. PF5 is available only when a table name is either displayed or can be entered on the panel; therefore, this option is not available on every panel.

The **Complete table name** panel is displayed, as shown in the following figure:


```

INZP041 ----- *** Complete table name *** ----- 11:50
Command ==>

Short name : DEPARTMENT_PHONE_N
Long name  : DEPARTMENT_PHONE_NUMBER

```

Figure 34. Complete table name panel

2. Press PF3 to save your modifications, or issue the CANCEL command to cancel.

Specifying the format of the SELECT statement

The **SELECT Format** panels are used to specify the output format for a SELECT statement.

Procedure

1. Specify the **FORMAT** command to display the first **SELECT Format** panel.

```

INZB101I --- DZ7M IBMUSER . TBEXT                - SELECT Format ----- 11:56
Command ==>

Commands :  COLUMNS    WHERE    ORDERBY    OUTDDN    FUSER    LOADDN    JCL
Other Option :  PART

SELECT Description . . IBMUSER .TBEXT
-----
PART . . . . . * (L - List, * - ALL, nnnn - partition number)
FORMAT . . . . . 1 (1 - DSNTIAUL, 2 - DELIMITED, 3 - VARIABLE,
                  4 - USER, 5 - EXTERNAL)
DSNTIAUL STRICT . . . _ (Y - Yes, N - No)
DELIMITED SEP . . . _ (enter one character or an hexadecimal value)*
  DELIM . . . _ (enter one character or an hexadecimal value)*
  NULL DELIM. _ (Y -Yes, N - No)
VARIABLE. . . . . _ (E - End, A - All )
LIKE creator . . . . .
  table . . . . .

*(case sensitive)
( PF3 to return to "Select List", Enter : "Format" 2/2)

```

Figure 35. SELECT Format panel (1 of 2)

2. Specify the values for the following fields in the first **SELECT Format** panel:

Other Option : PART

Use the PART option to access the **Partition Selection** panels to select a partition for the current SELECT statement. This SELECT format (list of partitions) panel is displayed when you specify PART in the **Other Option** field.

Use this **SELECT format** panel to select one or more of the displayed partitions.

```

INZB12 ----- DZ7M IBMUSER . TSTEST16          - SELECT Format -- Row 2 of 14
Command ==>                                         Scroll ==> CSR

Line comands: S - Select partition, U - Unselect, Z - Zoom

SELECT Description . . IBMUSER .TSTEST16
                                                    ( PF3 to return to "Format")

S Part  Selected High value of partition
-----
- ALL   YES
- 0001      8333
- 0002     16666
- 0003     24999
- 0004     33333
- 0005     41666
- 0006     99999
***** Bottom of data *****

```

Figure 36. SELECT Format (partition list) panel

The selection codes for the **Partition List** panel are:

- S**
Specify S next to any partition you want to select.
- U**
Specify U next to any partition to undo its selection.
- Z**
Specify Z next to any partition to zoom in on a partition and to display on a single panel all information concerning that partition. An example is shown in [Figure 24 on page 269](#).

Requirement: You must select at least one partition.

The columns on the **SELECT format (partition list)** panel are:

S
Use this column to specify the partitions to be selected or deselected. Enter a selection code in this column.

Part
This column indicates the available partitions. Only the partitions that were selected on the Partition list panel, [Figure 23 on page 269](#), are displayed in this panel.

To select all partitions, specify the S selection code beside **ALL** in the Part column.

To select a partition, specify the S beside a partition number.

To deselect a partition, specify the U selection code beside a partition number.

Requirement: You must select at least one partition.

Selected
If YES is specified, the partition was selected. This field is displayed after you select a partition and press Enter.

High value of partition
Shows the first 57 characters of the LIMITKEY column of the SYSIBM.SYSTABLEPART table.

Use the PF3 key to return to the first **SELECT format** panel, as shown in [Figure 35 on page 281](#).

SELECT Description
Type a short description of the SELECT statement. The description is displayed in the Select description column of the **SELECT Statement List** panel, as shown in [Figure 29 on page 276](#).

PART
Specify the following information about the partitions of a table space:

L

Indicates that several partitions have been selected by using the **PART** command. Selection code **L** is not used to display the list of partitions.

Selects all partitions of a table space.

nnn

Indicates the number of a single partition of the table space.

FORMAT

Specify the format of the output file:

1 : DSNTIAUL

Specifies that the file that is produced must be in the format required by DSNTIAUL.

2 : DELIMITED

Specifies that the output file can be processed by your personal computer.

3 : VARIABLE

Specifies that the output file must be compatible with the Db2 LOAD utility.

4 : USER

Specifies that there is output in USER format.

DSNTIAUL STRICT

Yes

Specify Yes to obtain constant chains (if any are present in the SELECT statements) in variable format (VARCHAR). You can use only DSNTIAUL STRICT when you select option 1, FORMAT DSNTIAUL.

No

Specify No if you do not want to obtain constant chains in variable format.

DELIMITED

Specify that the format of the output data set is a comma-separated value file which corresponds to a .csv file that can be processed by your personal computer. You can specify only DELIMITED when you select option 2, FORMAT DELIMITED.

SEP

Use this field to specify the character to be used to separate fields in the output data set.

DELIM

Enter the delimiter character to be used to enclose CHAR, VARCHAR, GRAPHIC, and VARGRAPHIC fields in the output data set.

NULL DELIM

Yes

Specifies that the delimiter character will be used at the beginning and the end of a field containing nulls.

No

Specifies that the delimiter character will not be used at the beginning and the end of a field that contains nulls.

VARIABLE

You can specify only VARIABLE when you select option 3, FORMAT VARIABLE. If you select option 3, you must enter a value in this field.

END

Specify that the characteristics and the sequence of fields of the generated file are the same as the selected columns.

ALL

Specify that the variable columns are to be written according to their lengths.

LIKE creator

Specify the user ID of the creator. You can specify only LIKE creator when you select option 1, FORMAT DSNTIAUL or option 3, FORMAT VARIABLE.

LIKE table

Specify either the short or long table name that indicates the format to be used when creating the output file. You can specify only LIKE table when you select option 1, FORMAT DSNTIAUL or option 3, FORMAT VARIABLE.

- Press Enter to display the second **SELECT format** panel or press PF3 to return to the Select List.

The second **SELECT format** panel is displayed, as shown in the following figure:

```

INZB102I --- DZ7M IBMUSER . TSTEST16          - SELECT Format ----- 11:59
Command ==>>

Commands :  COLUMNS   WHERE     ORDERBY   OUTDDN   FUSER   LOADDN   JCL

Other Option :  PART

ORIGINOBID . . . . . ____ (Hexadecimal value)
              or . . . . . ____ (Decimal value)

OUTMAXROWS . . . . . _____
OUTFREQROWS . . . . . _____

SCHEME . . . . . _ (E - EbcDic, A - Ascii, S - aSis, U - Unicode)
CCSID SBCS . . . . . _____
      MIXED . . . . . _____
      DBCS . . . . . _____

OUTEXIT exitname . . _____
      in . . . . . _ (1 - ASM, 2 - C, 3 - COBOL2)

                                     ( PF3 to return to "Format" 1/2)

```

Figure 37. SELECT format panel (2 of 2)

- Specify the following values for the second SELECT format panel:

ORIGINOBID

Specify a value if the OBID table in the image copy is not equal to the OBID read in the catalog. A discrepancy can occur, for example, for an image copy of a table that was dropped and re-created with a new OBID.

OBID is the hexadecimal value of the OBID of the table in the image copy.

Use the appropriate line to enter a hexadecimal or a decimal value for ORIGINOBID.

OUTMAXROWS

Specify the maximum number of rows to select.

OUTFREQROWS

Specify the unload sampling frequency. One row out of every *n* rows is written into the OUTDDN data set.

SCHEME

This parameter is optional; use it to specify the format in which the data is unloaded.

- E**
EBCDIC
- A**
ASCII
- S**
ASIS
- U**
Unicode

CCSID

Specify as many as three valid optional code character set identifiers for the unloaded data: SBCS, MIXED, and DBCS values. If any of the fields are omitted or are specified as 0, the corresponding CCSID is assumed to be the same as the installation default CCSID.

You can load the FIELDPROC and EDITPROC directly from the DSNEXIT that is specified in the PARMLIB without allocating it in STEPLIB.

Attention: If the TRANSLAT parameter in the PARMLIB is set to inhibit data conversion, you can specify a conversion parameter (ASCII, EBCDIC, ASIS, or CCSID) in the SYSIN to override this inhibition.

If the unload format that is specified either in the SYSIN or in the PARMLIB by using the UNLSCHEM parameter is not identical to the system's EBCDIC format, all constants that are specified in SYSIN will be translated to the unload format.

OUTEXIT *exitname* in *exit_language*

Use this field to specify the name and the language of the exit that handles the rows during the unload processing.

ASM

Assembler language (default)

C

C language

COBOL2

COBOL/2 language

5. Press Enter to accept the values, or press PF3 key to return to the first **SELECT format** panel.

Related reference

[Db2 HPU interactive component primary commands](#)

Primary commands are used with the Db2 HPU interactive component.

Selecting columns for the SELECT statement

The **SELECT Columns** panel is used to select columns for the SELECT statement.

Procedure

Specify the **COLUMNS** command.

The **SELECT Columns** panel is displayed, as shown in the following figure:

```

INZB201 ---- DZ7M IBMUSER . TSTEST16          - SELECT Columns Row 1 from 5
Command ==>                                     Scroll ==> CSR

Commands :  FORMAT      WHERE      ORDERBY   OUTDDN    FUSER     LOADDN    JCL

Other Option:  SELECTALL

Line commands: E - Edit, D - Delete

SELECT Description . . IBMUSER .TSTEST16
                                                    ( PF3 to return to "Select List")

Pos in <----- Columns description ----->
Sel Select Name/Value/Expr.  Trunc L/C/E Type      Length Scale Pos in table
-----
- 1 COL1                      C  INTEGER  <=== NEW          1
- 2 COL2                      C  CHAR      50                2
- 3 AAAAAAAA                  L  CHAR      15                0
- 4 COL4                      C  VARCHAR   50                4
- 5 COL3                      C  CHAR      50                3
***** Bottom of data *****

```

Figure 38. SELECT Columns panel

The **SELECT columns** panel contains the following fields. You can edit the **SELECT Description**, **Sel**, and **Pos in Select** fields.

SELECT Description

Type a short description of the SELECT statement. The description is displayed in the Select description column of the **SELECT Statement List** panel, as shown in [Figure 29 on page 276](#).

Sel

Specify one of the following options:

E

Edits the line. When you select **E**, the **Edit Expression** panel is displayed, as shown in the following figure. Use the **Edit Expression** panel to display the literal or the expression of a SELECT statement.

```

INZB21 ---- DZ7M IBMUSER . TSTEST16          - Edit Expression ----- 12:00
Command ==>                                     Scroll ==> CSR

Column Type . . . L          (L - Literal, E - Expression)
Pos in Select . . 3
Type . . . . . CHAR         (? will display a list of authorized values)
Length . . . . . 15
Scale . . . . .
Value . . . . . AAAAAAAA

                                                    ( PF3 to return to "Select Columns")

```

Figure 39. Edit Expression panel

Use the PF3 key to return to the **SELECT columns** panel.

D

Deletes the line.

Pos in Select

Specify the position of the column in the SELECT statement.

Name/Value/Expr.

Indicates the name of the column, the beginning of the literal value, or the expression.

Trunc

Indicates that the literal or column name is truncated on this panel.

L/C/E

Indicates that the line is related to a literal (L), to a column (C), or to an expression (E).

Type

Indicates the type of the column or the literal.

Length

Indicates the length of the column or the literal.

Scale

Indicates the decimal part of the column or the literal.

Pos in table

Indicates the position of the column in the table. Literals are indicated by a 0 in this column.

Related reference

[Db2 HPU interactive component primary commands](#)

Primary commands are used with the Db2 HPU interactive component.

Sorting columns of a SELECT statement

The **SELECT ORDER BY** panel is used to specify the order in which each column in the SELECT statement is processed for the output data set and whether to sort the column in ascending or descending order.

Procedure

Specify the **ORDER BY** command.

The **SELECT Order By** panel is displayed, as shown in the following figure:

```

INZB40 ---- DZ7M IBMUSER . TSTEST16          - SELECT Order By Row 1 from 5
Command ==>                                     Scroll ==> CSR

Commands :  FORMAT      COLUMNS    WHERE      OUTDDN    FUSER     LOADDN    JCL
            *

Line commands: D - Delete column from the Order-By clause.

SELECT Description . . IBMUSER .TSTEST16
                                     ( PF3 to return to "Select List")

      <----- Columns description -----> Pos in Pos in
Select Name      Type      Length Scale Select Order (A/D)
-----
-   COL4         VARCHAR    50      4   1   A
-   COL2         CHAR       50      2   2   D
-   COL1         INTEGER    50      1   3   A
-   COL3         CHAR       50      5   4   -
***** Bottom of data *****

```

Figure 40. SELECT Order By panel

The **SELECT ORDER BY** panel contains the following fields. You can edit the **SELECT description**, **Select**, **Pos in order**, and **(A/D)** fields.

SELECT Description

Type a short description of the SELECT statement. The description is displayed in the Select description column of the **SELECT Statement List** panel, as shown in [Figure 29 on page 276](#).

Select

Specify D in this column to delete the column.

Name

Indicates the name of the column.

Type

Indicates the type of the column.

Length

Indicates the total length of the column. This field is only applicable for the CHAR, VARCHAR, LONGVAR, DECIMAL, FLOAT, GRAPHIC, VARG, and LONGVARG column types.

Scale

Indicates the length of the decimal part of the column. This field is authorized for columns of type DECIMAL.

Pos in Select

Indicates the position of the column in the SELECT statement.

Pos in Order

Specify the position of the column in creating the output data set.

A/D

Specify either A to sort in ascending order or D to sort in descending order.

Related reference

[Db2 HPU interactive component primary commands](#)

Primary commands are used with the Db2 HPU interactive component.

Displaying and modifying the USER format of the SELECT statement

The **Select user format** panels are used to update the USER formats.

Procedure

1. Specify the **FUSER** command.

The first **Select User Format** panel is displayed, as shown in the following figure:

```
INZB501 -- DZ7M IBMUSER . TSTEST16          - Select User Forma Row 1 from 5
Command ==>                               Scroll ==> CSR

Commands :  FORMAT      COLUMNS  WHERE    ORDERBY  OUTDDN   LOADDN   JCL
           *           *          *       *
Line commands: Z - Zoom

SELECT Description . . IBMUSER .TSTEST16
                                     ( PF3 to return to "Select List")

<----- Columns description -----> <----- Field description ----->
                                     (PF11) -->
S Name          Type      Length Scale Type          Length Scale Pad Just
-----
- COL1          INTEGER
- COL2          CHAR        50
- AAAAAAAAA    CHAR        15
- COL4          VARCHAR    50
- COL3          CHAR        50
***** Bottom of data *****
```

Figure 41. Select User Format panel (1 of 4)

The following fields are available on all four **Select User Format** panels. You can edit the **SELECT description** and the **S** fields.

SELECT Description

Type a short description of the SELECT statement. The description is displayed in the Select description column of the **SELECT Statement List** panel.

S

Specify the Z line command in this column to specify the columns that you want to zoom. The zoom function displays two panels that contain all the information about a single column. The following figure shows the first **User Format Zoom** panel:

```

INZB51 ---- DZ7M IBMUSER . TSTEST16          - User Format Zoom ----- 12:02
Command ==>

Columns description
Name . . . . : COL2                          Pos in table . . : 2
Type . . . . : CHAR                          50           Pos in Select . . : 2
Null/def . . : N                             WD           Pos in ORDER BY . : 2          D

Field description
TYPE . . . . . ( ? will display a list of authorized values)
  Length . . . . .
  Scale . . . . .
PADDING . . . . . (one character or an hexadecimal value)*
JUST . . . . . (R - Right, L - Left)
DELIM . . . . . (one character or an hexadecimal value)*
LENGTHBYTE . . . . . (Y - Yes, N - No)
LENGTH . . . . . (R - Real, M - Max)
CCSID . . . . . (number, UTF8, UTF16)

*(case sensitive)
( PF3 to return to "User Format", Enter : "Zoom Panel" 2/2 )

```

Figure 42. User Format Zoom panel (1 of 2)

Use the PF3 key to return to the **Select User Format** panel, or press Enter to display the second **User Format Zoom** panel, as shown in the following figure:

```

INZB52 ---- DZ7M IBMUSER . TSTEST16          - User Format Zoom ----- 12:03
Command ==>

Columns description
Name . . . . : COL2                          Pos in table . . : 2
Type . . . . : CHAR                          50           Pos in Select . . : 2
Null/def . . : N                             WD           Pos in ORDER BY . : 2          D

Field description
PIC sign . . . . . (sign, P - Padded)
  position . . . . . (L - Lead, T - Trail)
  decimal . . . . . (, or .)
  mask . . . . . (enter ? for the list of authorized values)

NULL . . . . . (0 - Off ) (NULL Off overrides NULLID)
  or when NULL . . . . . (one character or hexadecimal value)*
  not NULL . . . . . (one character or hexadecimal value)*

NULLID . . . . . (Y - Yes, N - No)

*(case sensitive)
( PF3 to return to "Zoom Panel" 1/2 )

```

Figure 43. User Format Zoom panel (2 of 2)

Use the PF3 key to return to the **Select User Format** panel.

Name

Indicates the name of the column.

Type

Indicates the type of the column.

Len.

Indicates the length of the column.

Scale

Indicates the decimal part of the column.

2. Edit any of the following fields on the first panel and press Enter.

Type

Specify the type of the column after the conversion.

Len.

Specify the total length of the column. This field is authorized for columns of type CHAR, DECIMAL, ..., and its value must be less than the value shown in Length.

Scale

Specify the length of the decimal part of the column. This field is authorized for columns of type DECIMAL, ..., and its value must be less than the value shown in Length.

Pad

Specify the padding character in hexadecimal.

Just

Specify L for left justification or R for right justification.

The second **Select User Format** panel is displayed, as shown in the following figure:

```

INZB502 -- DZ7M IBMUSER . TSTEST16          - Select User Forma Row 1 from 5
Command ===>                               Scroll ===> CSR

Commands :  FORMAT      COLUMNS    WHERE      ORDERBY    OUTDDN    LOADDN    JCL
           *           *           *           *

Line commands: Z - Zoom

SELECT Description . . IBMUSER .TSTEST16
                                     ( PF3 to return to "Select List")

<----- Columns description -----> <---- Field description -->
<-- (PF10) (PF11) -->
S Name          Type      Length Scale Nul/def Delim Lengthbyte Length
-----
- COL1          INTEGER
- COL2          CHAR        50      N  WD   ---      -      -
- AAAAAAAA     CHAR        15      N  ---      -      -
- COL4          VARCHAR    50      Y  WD   ---      -      -
- COL3          CHAR        50      N  WD   ---      -      -
***** Bottom of data *****

```

Figure 44. Select User Format panel (2 of 4)

The following field is available only on the second **Select User Format** panel. You cannot edit this field.

Nul/def

Indicates the Null option of the column.

N

The Null is not authorized.

Y

The Null is authorized.

WD

With Default.

3. Edit any of the following fields on the second **Select User Format** panel and press Enter.

Delim

Specify the delimiter character at the beginning and the end of a field.

Lengthbyte

Specify the length byte.

Length

Specify whether the real or maximum length is to be used for fields of variable length.

The third **Select User Format** panel is displayed, as shown in the following figure:

```

INZB503 -- DZ7M IBMUSER . TSTEST16          - Select User Forma Row 1 from 5
Command ==>>>                               Scroll ==>> CSR

Commands :  FORMAT      COLUMNS    WHERE      ORDERBY    OUTDDN     LOADDN     JCL
           *           *           *           *

Line commands: Z - Zoom

SELECT Description . . IBMUSER .TSTEST16
-----
                                ( PF3 to return to "Select List")

<----- Columns description -----> <----- Field description ----->
<-- (PF10)                          (PF11) -->
S Name                                Sign Pos Dec Mask CCSID
-----
- COL1                                -   -   -   -   -
- COL2                                -   -   -   -   -
- AAAAAAAA                            -   -   -   -   -
- COL4                                -   -   -   -   -
- COL3                                -   -   -   -   -
***** Bottom of data *****

```

Figure 45. Select User Format panel (3 of 4)

4. Edit any of the following fields on the third **Select User Format** panel and press Enter.

Sign

Specify the numeric data display format.

Pos

Specify the position of the sign.

Dec

Specify the decimal separator.

Mask

Specify the mask value.

CCSID

You can specify up to three optional identifiers of the code character set code for the unloaded data: SBCS, MIXED, and DBCS values. If any field is omitted or is specified as 0, the corresponding CCSID is assumed to be the same as the installation default CCSID.

You can load the FIELDPROC and EDITPROC directly from the DSNEXIT that is specified in the PARMLIB without allocating it in STEPLIB.

Attention: If the TRANSLAT parameter in the PARMLIB is set to inhibit data conversion, you can specify a conversion parameter (ASCII, EBCDIC, ASIS, or CCSID) in the SYSIN to override this inhibition.

If the unload format that is specified either in the SYSIN or in the PARMLIB by using the UNLSCHEM parameter is not identical to the EBCDIC format of the system, all constants that are specified in SYSIN are translated to the unload format.

The fourth **Select User Format** panel is displayed, as shown in the following figure:

```

INZB504 -- DZ7M IBMUSER . TSTEST16          - Select User Forma Row 1 from 5
Command ==>>>                               Scroll ==>> CSR

Commands :  FORMAT      COLUMNS  WHERE      ORDERBY   OUTDDN    LOADDN    JCL
           *           *           *           *

Line commands: Z - Zoom

SELECT Description . . IBMUSER .TSTEST16
                                     ( PF3 to return to "Select List")

<----- Columns description -----> <----- Field description ----->
<-- (PF10)>
S Name          Type      Length Scale Null When Null Not Null Null ID
-----
- COL1          INTEGER
- COL2          CHAR       50      -      --      --      -
- AAAAAAAAAA    CHAR       15      -      --      --      -
- COL4          VARCHAR    50      -      --      --      -
- COL3          CHAR       50      -      --      --      -
***** Bottom of data *****

```

Figure 46. Select User Format panel (4 of 4)

5. Edit any of the following fields on the fourth **Select User Format** panel, and press Enter.

Null

Specify whether the null character is to be generated in the output file.

Not Null

Specify the character to be used for columns having a value other than Null.

Null ID

Specify whether the output file will contain Null indicators. This option is available only for the USER format or, if specified, at the SELECT level.

Related reference

Db2 HPU interactive component primary commands

Primary commands are used with the Db2 HPU interactive component.

Displaying the list of OUTDDN files

The OUTDDN list panel is used to display the list of OUTDDN files.

Procedure

1. Specify the **OUTDDN** command.

The **OUTDDN List** panel is displayed, as shown in the following figure:

```

INZB601I ---- DZ7M IBMUSER . TSTEST16          - OUTDDN List ---- Row 1 of 2
Command ==>                                     Scroll ==> CSR

Commands :  FORMAT      COLUMNS    WHERE      ORDERBY    FUSER      LOADDN     JCL
           *           *           *           *

Line commands: E - Edit, D - Delete, C - Copy

SELECT Description . . IBMUSER .TSTEST16

Select a data set or enter a new data set name :

                                           ( PF3 to return to "Select List")

S Data set name                               Disposition
-----
- IBMUSER.UNLOAD01                            <=== NEW
- IBMUSER.UNLOAD02                            ( N , C , D )
                                           ( N , C , D )

***** Bottom of data *****

```

Figure 47. OUTDDN List panel

You can use the following selection codes on the **OUTDDN List** panel:

The **OUTDDN List** panel contains the following fields:

S

Use this column to specify the partitions to be selected or deselected. You can enter one of the following selection codes in this column:

S

Use the S selection code to specify values for output data sets.

D

Deletes a file.

C

Copies a file to a new file.

Data Set Name

Indicates the name of the OUTDDN data set. The following variables can be used, during the generation of the JCL, a substitution occurs.

- &DBNAME: this variable is replaced by the database name that contains the unloaded tablespace.
- &TSNAME: this variable is replaced by the name of the unloaded tablespace.
- &SPACE: this variable is replaced by the name of the unloaded tablespace. &SPACE is a synonym of &TSNAME.
- &ZUSER: this variable is replaced by the user name used to connect, where the interactive menu is running.
- &DB2: this variable is replaced by the SSID where the generated JCL will run.
- &PART: this variable is replaced by the partition number:
 - 000: when the unloaded tablespace is not partitioned or
 - nnnn: 4 digits for the partition number
- &CREATOR: this variable is replaced by the owner of the table specified in the SELECT.
- &TBNAME: this variable is replaced by the owner of the table specified in the SELECT. This variable can be used only if the name of the table has at most 8 characters. When above, an ISPF message is issued.

Indicates the name of the data set that will contain the result of the SELECT statement.

For partitioned table spaces, to define one output file for each partition, use the &PART variable in the generic data set name, which allows Db2 HPU to process in parallel.

If Db2 HPU was requested to perform parallel processing for partitioned table spaces, you must specify this processing for all files.

Disp

Indicates the disposition of the OUTDDN files.

New/Old/Mod

Indicates the disposition to use as the first parameter.

Del/Keep/Catlg

Indicates the disposition to use as the second and third parameters.

2. Specify the **S** selection code in the **S** field.

The **OUTDDN File** panel is displayed, as shown in the following figure:

```

INZB61 ----- DZ7M IBMUSER . TSTEST16          - OUTDDN File ----- 12:04
Command ==>

                                Data set with formatted result of SELECT

Data set name IBMUSER.UNLOAD03
Disposition . . . . . ( _ , _ , _ ) (New/Old/Mod) (Del/Keep/Catlg)
Generic unit . . . . . -----
Volume serial . . . . . ----- - ----- - ----- - -----
Space units . . . . . ----- (BLKS, TRKS, CYLS)
Primary quantity . . . . . -----
Secondary quantity . . . . . -----
Record format . . . . . -- (F, FB, V, VB)
Record length . . . . . -----
Block size . . . . . -----

SMS
Data class . . . . . -----
Management class . . . . . -----
Storage class . . . . . -----

for tape unit
Label . . . . . -----

                                ( PF3 to return to "OUTDDN List")

```

Figure 48. OUTDDN File panel

3. Edit the following fields:

Data Set Name

For partitioned table spaces, to define one output file for each partition, use the &PART variable in the generic data set name, which allows Db2 HPU to process in parallel.

If Db2 HPU was requested to perform a processing in parallel for partitioned table spaces, you *must* specify this processing for all files.

Disposition

Specify whether the OUTDDN data set is shared.

New/Old/Mod

Specify the disposition to use as the first parameter.

Del/Keep/Catlg

Specify the disposition to use as the second and third parameters.

Generic unit

Specify the DASD unit name.

Volume serial

Specify the volume serial number.

Space units

Specify the volume allocation unit (BLKS, TRKS, or CYLS).

Primary quantity

Specify the primary allocation for the data set.

Secondary quantity

Specify the secondary allocation for the data set.

Record format

Specify the format of the records as F, FB, V, or VB.

Record length

Specify the length of the records with a value less than or equal to 32760.

Block size

If FB or VB was specified in the FORMAT field, you must specify the block size. The BLKSIZE value must be less than or equal to 32760 and it must be a multiple of LRECL (+4 if V or VB).

SMS

Specify the Data Class, Management Class, and Storage Class parameters for allocation data sets that are managed by SMS. The values that are entered for these parameters are in the DD statement that is generated in the JCL.

for tape unit/Label

Specify the tape sequence number if the file is to be written to tape.

Related reference

[Db2 HPU interactive component primary commands](#)

Primary commands are used with the Db2 HPU interactive component.

Displaying and modifying LOADDDN file parameters

The LOADDDN file panel is used to display and modify LOADDDN file parameters.

Procedure

1. Specify the **LOADDDN** command.

The **LOADDDN File** panel is displayed, as shown in the following figure:

```

INZB70I ----- DZ7M IBMUSER . TSTEST16          - LOADDDN File ----- 12:05
Command ==>>>

Commands :  FORMAT      COLUMNS    WHERE      ORDERBY    OUTDDN     FUSER      JCL
            *           *           *           *           *
Other Option :  LOADOPT

                          Generated SYSIN LOAD data set

SELECT Description . . IBMUSER .TSTEST16
SYSOUT class . . . . . _
or
Data set name
Member name for PDS . . -----
Disposition . . . . . ( _ , _ , _ ) (New/Old/Mod) (Del/Keep/Catlg)
Generic unit . . . . . -----
Volume serial . . . . . ----- - ----- - ----- - -----
for tape unit
Label . . . . . -----

                                     ( PF3 to return to "SELECT List")

```

Figure 49. LOADDDN File panel

2. Edit the following fields:

Other options: LoadOPT

Specify LoadOPT to display an ISPF edit panel that you use to enter load options.

SELECT Description

Specify a short description of the SELECT statement. The description is displayed in the Select description column of the **SELECT Statement List** panel.

SYSOUT class or Data Set Name

Specify the SYSOUT class or the data set name for the LOADDDN file. If you enter a value in both fields, the value entered in the SYSOUT class field is used.

When entering a Data Set Name, the following variables can be used, during the generation of the JCL, a substitution occurs.

- &DBNAME: this variable is replaced by the database name that contains the unloaded tablespace.
- &TSNAME: this variable is replaced by the name of the unloaded tablespace.
- &SPACE: this variable is replaced by the name of the unloaded tablespace. &SPACE is a synonym of &TSNAME.
- &ZUSER: this variable is replaced by the user name used to connect, where the interactive menu is running.
- &DB2: this variable is replaced by the SSID where the generated JCL will run.
- &PART: this variable is replaced by the partition number :
 - 000: when the unloaded tablespace is not partitioned or
 - nnnn: 4 digits for the partition number
- &CREATOR: this variable is replaced by the owner of the table specified in the SELECT.
- &TBNAME : this variable is replaced by the owner of the table specified in the SELECT. This variable can be used only if the name of the table has at most 8 characters. When above, an ISPF message is issued.

Member name for PDS

Specify the PDS member name.

Disp

Specify the disposition and whether the LOADDDN data set is to be shared.

Generic unit

Specify the DASD unit name.

Volume serial

Specify the volume serial number.

for tape unit Label

Specify the tape sequence number, if the file will be written to tape.

Related reference

[Db2 HPU interactive component primary commands](#)

Primary commands are used with the Db2 HPU interactive component.

Generating JCL to run a Db2 HPU job

You can generate JCL, edit JCL, submit JCL, save JCL, and enter job card parameters for a Db2 HPU job by invoking the JCL command.

About this task**Before submitting a JCL**

The typical use of HPU assumes that the SCEERUN and SCEERUN2 Language Environment libraries are available through the linklist. If this condition is not fulfilled in your environment, the Db2 HPU job generated by the interactive component will fail. To avoid this, make these libraries available to Db2 HPU before you run the JCL. To do so, consider adding a JOBLIB control card in the user jobcards that can be specified through the "JCL/JobCard" option.

Procedure

1. Specify the **JCL** command.

The **EDIT, SUBmit, SaveJCL, JobCard** window is displayed when you enter the JCL command.

```
INZA10          ----- General Options ----- 12:05
Command ==>

Commands : PART   COPYDDN   OPTIONS   SELECT   UNLDDN   JCL
                *
                +-----+
DB2 system name . : DZ7M      Object name . : DBDM7M   . T | EDIT
                                                | SUBmit
                                                | SaveJCL
                                                | JobCard
                +-----+

Utility ID . . . . HPU
Part . . . . . *   (L - list, * - all, nnn - partition number)
0             partition(s) selected from 6 total partitions

DB2 . . . . . (Y - Yes, N - No, F - Force)
LOCK . . . . . (Y - Yes, N - No)
QUIESCE . . . . (Y - Yes, N - No)
UNLMAXROWS . . .
UNLREQROWS . . .

                                     ( PF3 to exit)
```

Figure 50. **EDIT, SUBmit, SaveJCL, JobCard** window

2. Position the cursor beside one of the following options and press Enter.

EDIT

Select this option to generate and edit JCL. An ISPF edit session is opened on the generated JCL. You can review it, modify it, and resubmit it.

SUBmit

Select this option to generate and submit JCL. The job is generated and submitted.

SaveJCL

Select this option to generate and save JCL.

JobCard

Select this option to update the job card that is used to generate JCL.

Related tasks

Saving JCL into a file

You can save the generated JCL into a file.

Updating the job card

This option is used to update the job card that is used for JCL generation.

Related reference

Db2 HPU interactive component primary commands

Primary commands are used with the Db2 HPU interactive component.

Saving JCL into a file

You can save the generated JCL into a file.

About this task

To save generated JCL into a file:

Procedure

1. Specify the **JCL** command.
2. Select the **SAVE JCL** option on the **EDIT, SUBmit, SaveJCL, JobCard** window. The **SAVE JCL** panel is displayed, as shown in the following figure:

```

INZA10          ----- General Options ----- 12:06
C +----- Save JCL -----+
| INZP055
| Command ==>
|
| Dsname . .
| Member . .
+-----+
Utility ID . . . HPU
Part . . . . . * (L - list, * - all, nnn - partition number)
                  0 partition(s) selected from 6 total partitions

DB2 . . . . . (Y - Yes, N - No, F - Force)
LOCK . . . . . (Y - Yes, N - No)
QUIESCE . . . . (Y - Yes, N - No)
UNLMAXROWS . .
UNLFREQROWS . .

                                     ( PF3 to exit)

```

Figure 51. SAVE JCL panel

3. Edit the following fields:

DS name

Specify the name of an existing PDS where you want to save the JCL. If the name is entered between single quotation marks, the TSO prefix is not added.

Member

Specify the member name. If this member exists, it is by the new one.

Related tasks

Generating JCL to run a Db2 HPU job

You can generate JCL, edit JCL, submit JCL, save JCL, and enter job card parameters for a Db2 HPU job by invoking the JCL command.

Updating the job card

This option is used to update the job card that is used for JCL generation.

Procedure

1. Specify the **JCL** command.
2. Select the JobCard option on the **EDIT, SUBmit, SaveJCL, JobCard** window. The **User Job Card** panel is displayed, as shown in the following figure:

```

INZP057 ----- User Job Card ----- 12:06
Command ==>

Enter below the JOB card for the runs:

. . . -----
. . . -----
. . . -----
. . . -----

Enter the other parameters for the EXEC card:

REGION (MEG) . . --
TIME (MIN) . . -----

```

Figure 52. User Job Card panel

3. Edit the following fields:

Enter below the JOB card for the runs:

Specify 1 - 4 lines for the job card. The syntax is identical to the standard job card syntax.

REGION (MEG)

Specify the maximum memory size (in MB) for the unload step.

TIME (MIN)

Specify the CPU time consumption limit (in minutes) for the unload step.

Related tasks

[Generating JCL to run a Db2 HPU job](#)

You can generate JCL, edit JCL, submit JCL, save JCL, and enter job card parameters for a Db2 HPU job by invoking the JCL command.

Selecting date formats

The **Type Values - DATE** panel is used to select a date format.

About this task

To select a date format:

Procedure

1. Specify a question mark (?) in the **DATE** field of a previous **SELECT Statement Option** panel.

The **Type Values - DATE** panel is displayed, as shown in the following figure:

```
INZP006 ----- Type Values ----- Row 45 of 111
Command ==>                               Scroll ==> CSR

Line commands: any character - Select

Input format : ULCTYPE

Select one format and press Enter to validate or PF3 to cancel

S Name          Description          Default
-----
. DATE_A        MM-DD-YYYY (USA with DELIM = '/')
. DATE_B        MM-DD-YY
. DATE_C        YYYY-MM-DD (ISO and JIS)          Y
. DATE_D        YY-MM-DD
. DATE_E        DD-MM-YYYY (EUR with DELIM = '.')
. DATE_F        DD-MM-YY
. DATE_G        YYYY-DDD
. DATE_H        YY-DDD
. DATE_I        MMDDYYYY
. DATE_J        MMDDYY
. DATE_K        YYYYMMDD
. DATE_L        YYMMDD
. DATE_M        DDMMYYYY
. DATE_N        DDMMYY
. DATE_O        YYYYDDD
. DATE_P        YYDDD
. DATE_DB2      DATE in the DB2 default output format
. DATE          DATE in the internal DB2 format in 4 bytes
***** Bottom of data *****
```

Figure 53. Type Values - DATE panel

2. Specify the S selection code to select the date format.

Related tasks

[Specifying options for the SELECT statement](#)

The **SELECT Statement Option** panels are used to specify options for a SELECT statement.

[Selecting timestamp formats](#)

The **Type Values - TIMESTAMP** panel is used to select a timestamp format.

Selecting time formats

The **Type Values - TIME** panel is used to select a time format.

Procedure

1. Specify a question mark (?) in the **TIME** field of a previous **SELECT Statement Option** panel.
The **Type Values - TIME** panel is displayed, as shown in the following figure:

```
INZP006 ----- Type Values ----- Row 62 of 111
Command ==>                               Scroll ==> CSR

Line commands: any character - Select

Input format : ULCTYPE

Select one format and press Enter to validate or PF3 to cancel

S Name          Description          Default
-----
. TIME_A        HH.MM.SS (ISO and EUR, and JIS with DELIM ='::')  Y
. TIME_B        HH.MM
. TIME_C        HH.MM AM (USA with DELIM ='::')
. TIME_D        HHMMSS
. TIME_E        HHMM
. TIME_DB2      TIME in the DB2 default output format
. TIME          TIME in the internal DB2 format in 3 bytes
***** Bottom of data *****
```

Figure 54. Type Values - TIME panel

2. Specify the S selection code to select the time format.

Related tasks

[Specifying options for the SELECT statement](#)

The **SELECT Statement Option** panels are used to specify options for a SELECT statement.

[Selecting tables](#)

The **Table List** panel is used to create SELECT statements.

Related reference

[TIME format types](#)

Use the TIME format type to specify the output data format.

Selecting timestamp formats

The **Type Values - TIMESTAMP** panel is used to select a timestamp format.

Procedure

1. Specify a question mark (?) in the **TIMESTAMP** field of a previous **SELECT Statement Option** panel.
The **Type Values - TIMESTAMP** panel is displayed, as shown in the following figure:

```

INZP006 ----- Type Values ----- Row 68 of 111
Command ==>>>                               Scroll ==>> CSR

Line commands: any character - Select

Input format : ULCTYPE

Select one format and press Enter to validate or PF3 to cancel

S Name                Description                Default
-----
. DATE_A              MM-DD-YYYY
. DATE_B              MM-DD-YY
. DATE_C              YYYY-MM-DD
. DATE_D              YY-MM-DD
. DATE_E              DD-MM-YYYY
. DATE_F              DD-MM-YY
. DATE_G              YYYY-DDD
. DATE_H              YY-DDD
. DATE_I              MMDDYYYY
. DATE_J              MMDDYY
. DATE_K              YYYYMMDD
. DATE_L              YYMMDD
. DATE_M              DDMMYYYY
. DATE_N              DDMMYY
. DATE_O              YYYYDDD
. DATE_P              YYDDD
. DATE                DATE in the internal DB2 format in 4 bytes
. TIME_A              HH.MM.SS
. TIME_B              HH.MM
. TIME_C              HH.MM AM
. TIME_D              HHMMSS
. TIME_E              HHMM
. TIME                TIME in the internal DB2 format in 3 bytes
. TIMESTAMP_A         YYYY-MM-DD-HH.MM.SS
. TIMESTAMP_B         YYYY-MM-DD-HH.MM.SS.NNNNNN      Y
. TIMESTAMP_C         YYYYMMDDHHMMSS
. TIMESTAMP_D         YYMMDDHHMMSS
. TIMESTAMP_E         YYYYMMDDHHMMSSNNNNNN
. TIMESTAMP_F         YYMMDDHHMMSSNNNNNN
. TIMESTAMP_G         YYYY-MM-DD HH:MM:SS.NNN
. TIMESTAMP           TIMESTAMP in the internal DB2 format in 10 bytes
***** Bottom of data *****

```

Figure 55. Type values - *TIMESTAMP* panel

2. Use the S selection code to select the timestamp format.

Related tasks

[Specifying options for the SELECT statement](#)

The **SELECT Statement Option** panels are used to specify options for a SELECT statement.

[Selecting date formats](#)

The **Type Values - DATE** panel is used to select a date format.

Related reference

[TIMESTAMP format types](#)

Use the **TIMESTAMP** format type to specify the output data format.

Selecting mask formats

The **Type Values - MASK** panel is used to select a mask format.

Procedure

Specify a question mark (?) in the **MASK** field of a previous **SELECT Statement Option** panel.

The **Type Values - MASK** panel is displayed, as shown in the following figure:

```

INZP006 ----- Type Values ----- Row 99 of 111
Command ==>                               Scroll ==> CSR

Line commands: any character - Select

Input format : ULCTYPE

Select one format and press Enter to validate or PF3 to cancel

S Name          Description          Default
-----
. *.*           Unnecessary 0 will not be added
. *.0           Decimal part will be padded with 0
. *.Z           As *.0 plus the decimal point is always printed
. 0.*           A digit must be present prior the decimal point
. 0.0           The int. part is present and dec. one is padded
. 0.Z           As 0.0 plus the decimal point is always printed
. 00.*          The integer part will be padded with 0
. 00.0          The integer and decimal parts are padded with 0
. 00.Z          As 00.0 plus the decimal point is always printed
***** Bottom of data *****

```

Figure 56. Type values - MASK panel

Chapter 8. Db2 HPU user exit

The Db2 HPU user exit is used to customize the output data set that is created by a SELECT statement.

The exit can be written in any of the following languages:

- Assembler
- C
- COBOL/2

The Db2 HPU exit must reside in an authorized library and is loaded dynamically during Db2 HPU operation. This library must be in either the LINKLIST or in an authorized JOBLIB or STEPLIB.

For exits that are written in COBOL/2 and C, the STEPLIB, JOBLIB, or LINKLIST should also point to the LE/370 run-time libraries.

You do not need to modify Db2 HPU syntax to use the exit. Instead, specify the exit by using the OUTEXIT parameter. If this parameter is not present, Db2 HPU will not call the exit.

The Db2 HPU exit accesses the Db2 row in EXTERNAL format before application of the USER format. The exit can inspect, modify, or discard Db2 rows. However, the exit cannot modify the maximum length of variable-length columns for the unloaded tables.

The following topics provide additional information:

- [“Register use” on page 303](#)
- [“Parameter block” on page 303](#)
- [“Sample Assembler user exit” on page 305](#)
- [“Sample COBOL/2 user exit” on page 307](#)

Related reference

[SELECT block syntax and description](#)

The SELECT statement specifies that a logical unload is to be done and indicates the parameters that are associated with the unload job. The SELECT block is a part of the UNLOAD block.

Register use

Db2 HPU communicates with the USER exit through registers 1 and 15. When the USER exit is called, register 1 contains the address of a parameter block, as described by the EXTPLST DSECT in the sample member INFEXIT. Register 15 contains the return code of the exit.

Related concepts

[Parameter block](#)

When the USER exit is called, register 1 contains the address of a parameter block.

Related reference

[Sample Assembler user exit](#)

This sample user exit is provided in member INZEXIT (SINZSAMP library). It is written in Assembler.

[Sample COBOL/2 user exit](#)

This sample user exit is written in COBOL/2.

Parameter block

When the USER exit is called, register 1 contains the address of a parameter block.

The parameter block that is pointed to by register 1 contains the following parameters:

Parameter 1 (offset 0)

A function code (one binary word), which is one of the following values:

- **Function code 0 (process)**

A function code of 0 indicates that all parameters are set, and that the data pointed to by the SQLDA can be checked and modified by the exit. The values of the columns are in EXTERNAL format, that is, they are not in Db2 internal format. For variable-length columns, the length can be changed, but must not be greater than the maximum length (field SQLLEN in the SQLDA).

This function is not called if the initialization function returned a nonzero value.

When the function code is 0, the return codes have the following meanings:

Return code	Description
0	The row pointed to by the SQLDA is to be written to the output data set. A USER format can be used to modify the data after the exit is called.
4	This row is not to be written to the output data set.
8	The utility will stop.

- **Function code 1 (initialization)**

A function code of 1 indicates that the exit was called before the table space was scanned and no data was available. The address of the SQLDA has a 0 value, and parameters 3, 4, and 5 are set. Parameter 6 contains the address of an 840-byte ready-to-use work area, which can be modified by the Exit if needed.

When the function code is 1, the return codes have the following meanings:

Return code	Description
0	The exit must be called (function code 0) for this SELECT.
4	The exit must not be called for this SELECT.
8	The utility must be stopped.

- **Function code 2 (end)**

A function code of 2 indicates that only parameters 1, 5, or 6 should be used. The exit can, for example, deallocate the work area that was allocated during the initialization function.

This function is called only if the initialization function return code was 0.

When the function code is 2, *any value* of the return code is accepted.

Parameter 2 (offset 4)

The address of the SQLDA, which describes the selected columns and points to the data

Parameter 3 (offset 8)

The address of a table name

Parameter 4 (offset 16)

The address of the SSID

Parameter 5 (offset 12)

The user number, as shown in the example in [“Sample Assembler user exit” on page 305](#) (one binary word)

Parameter 6 (offset 52)

The address of a work area. An 840-byte ready-to-use work area is allocated by the calling function, and the address is provided by this parameter. The Exit function can overwrite this address with the work area address that is allocated during initialization, which is then unallocated at the end of the process.

Parameter 7 (offset 28)

The address of two varchar fields which point to the creator and table name.

Related concepts

Register use

Db2 HPU communicates with the USER exit through registers 1 and 15. When the USER exit is called, register 1 contains the address of a parameter block, as described by the EXTPLST DSECT in the sample member INFEXIT. Register 15 contains the return code of the exit.

Related reference

Sample Assembler user exit

This sample user exit is provided in member INZEXIT (SINZSAMP library). It is written in Assembler.

Sample COBOL/2 user exit

This sample user exit is written in COBOL/2.

Sample Assembler user exit

This sample user exit is provided in member INZEXIT (SINZSAMP library). It is written in Assembler.

```
*****
*
* MEMBER : INZEXIT
*
*****
* 5655-AA1
* (C) COPYRIGHT INFOTEL 1996, 2023 ALL RIGHTS RESERVED.
*
*****
* THIS MEMBER IS CALLED 3 TIMES DURING THE UNLOADING OF A TABLE.
* R1 CONTAINS THE ADDRESS OF A PARAMETER BLOCK AS DESCRIBED BY
* THE EXTPLST DSECT.
*
* THE MOST IMPORTANT FIELD IS THE POINTER TO THE SQLDA OF THE
* PROCESSED TABLE WHICH GIVES DATAS IN EXTERNAL FORMAT.
*
* FUNCTION 0 :
* PROCESS OF THE DB2 ROW
* RETURN CODES :
* 0 : ROW TO BE WRITTEN IN THE OUTPUT FILE
* 4 : ROW DISCARDED
*
* FUNCTION 1 :
* INITIALIZATION OF THE EXIT
* RETURN CODES :
* 0 : EXIT ACTIVE FOR THIS SELECT STATEMENT
* 4 : DESACTIVATION OF THE EXIT FOR THIS SELECT
*
* FUNCTION 2 :
* TERMINATION OF THE EXIT
* RETURN CODES NOT USED
*
*****
R0 EQU 0
R1 EQU 1
R2 EQU 2
R3 EQU 3
R4 EQU 4
R5 EQU 5
R6 EQU 6
R7 EQU 7
R8 EQU 8
R9 EQU 9
R10 EQU 10
R11 EQU 11
R12 EQU 12
R13 EQU 13
R14 EQU 14
R15 EQU 15
*
* SQLDA DESCRIPTION
*
SQLDA DSECT
```

SQLDAID	DS	CL8	ID
SQLDABC	DS	F	BYTE COUNT
SQLN	DS	H	NUMBER OF COLUMNS
SQLD	DS	H	NUMBER OF SELECTED COLUMNS
SQLVAR	DS	0F	BEGIN COLUMNS
SQLDSIZ	EQU	*-SQLDA	SIZE OF FIXED PART

*

SQLVARN	DSECT		COLUMN
SQLTYPE	DS	H	TYPE
SQLLEN	DS	0H	LENGTH
SQLPRCSN	DS	X	DEC PRECISION
SQLSCALE	DS	X	DEC SCALE
SQLDATA	DS	A	ADDRESS OF DATA
SQLIND	DS	A	ADDRESS NULL FIELD INDICATOR
SQLNAME	DS	H,CL30	SIZE AND COLUMN NAME
SQLVSIZ	EQU	*-SQLVARN	

*

EXTXPLST	DSECT		PARAMETERS PASSED TO THE EXIT
EXTXFUNC	DS	F	FUNCTION (0 PROCESS, 1 INIT, 2 TERM)
EXTXASQL	DS	A	ADDRESS OF SQLDA
EXTXATBN	DS	A	ADDRESS OF TABLE IDENTIFICATOR

*

			CREATOR(8) / TABLENAME(18)
	DS	H	RESERVED
EXTXNREF	DS	H	REFERENCE NUMBERID
EXTXASSI	DS	A	ADDRESS OF SSID(4)
EXTXAUSR	DS	A	ADDRESS OF USER(8)
EXTXATID	DS	A	ADDRESS OF UTILITY ID(16)
EXTXATB	DS	A	ADDRESS OF TABLE IDENTIFICATOR
	DS	5F	RESERVED
EXTXAUWA	DS	A	ADDRESS OF WORKAREA
	DS	4F	FIELDS RESERVED FOR THE EXIT
EXTXAMSG	DS	A	ADDRESSE OF MESSAGE
EXTXLMMSG	DS	F	LENGTH OF MESSAGE
EXTXUMSG	DS	CL100	EXIT MESSAGE AREA
EXTXUWA	DS	0F	EXIT WORK AREA
	ORG	EXTXPLST+1024	END OF LIST

*

GETM	DSECT		
SAVE	DS	18F	LOCAL SAVEAREA
TBCREATL	DS	H	CREATOR LENGTH
TBCREAT	DS	CL160	TABLE CREATOR
TBNAMEL	DS	H	TABLE NAME LENGTH
TBNAME	DS	CL160	TABLE NAME
WORK	DS	CL444	WORKAREA
GETML	EQU	*-GETM	LENGTH

*

INZEXIT	CSECT		
STM	R14,R12,12(R13)		SAVE CALLERS REGISTERS
LR	R12,R15		R12=BASE REGISTER
USING	INZEXIT,R12		ESTABLISH ADDRESSABILITY
LR	R10,R1		GET PARAMETERS
USING	EXTXPLST,R10		"
L	R11,EXTXAUWA		R11=WORKAREA ADDRESS
USING	GETM,R11		WORKAREA ADDRESSABILITY
ST	R13,4(,R11)		SAVE CALLERS SAVE AREA ADDRESS
L	R2,EXTXFUNC		GET FUNCTION
SLL	R2,2		* 4 FOR DISPATCHING
B	**4(R2)		
B	PROCESS		FUNCTION 0
B	INIT		FUNCTION 1
B	TERM		FUNCTION 2

*

INIT	EQU	*	
*			
*	A READY-TO-USE WORKAREA OF 840 BYTES IS ALLOCATED BY THE CALLING		
*	FUNCTION. IF MORE SPACE IS NEEDED, A LARGER AREA SHOULD BE		
*	ALLOCATED HERE.		
*	EXAMPLE:		
*	GETMAIN R,LV=GETML		GET A WORKAREA
*	ST R1,EXTXAUWA		SAVE GETMAIN ADDRESS
*	LR R11,R1		
*			
	ST R11,8(R13)		GIVE CALLER MY SAVE AREA ADDRESS
	ST R13,4(R11)		SAVE CALLERS SAVE AREA ADDRESS
	L R3,EXTXATB		ADDRESS OF TABLE IDENTIFICATOR

```

L      R1,0 (R3)      TABLE CREATOR VARCHAR
LH     R2,0( R1)      LENGTH
STH    R2, TBCREATL   STORE LENGTH
BCTR   R2, 0          FOR EXECUTE
EX     R2, MVCOWNER   COPY OWNER

L      R1,4 (R3)      TABLE NAME VARCHAR
LH     R2,0(R1)       LENGTH
STH    R2,TBNAMEL     STORE LENGTH
BCTR   R2,0           FOR EXECUTE
EX     R2,MVCNAME     COPY TABLE NAME
*
B      RC0

MVCOWNER MVC TBCREAT, 2(R1)
MVCNAME  MVC TBNAME, 2(R1)
*
PROCESS EQU *
L      R3,EXTXASQL    GET SQLDA ADDRESS
USING  SQLDA,R3
LA     R4,SQLDSIZ(,R3) PASS FIXED AREA
USING  SQLVARN,R4
XR     R5,R5          GET NUMBER OF COLUMNS
LH     R5,SQLN
LOOP   EQU *
*
*      PROCESS OF THE TABLE COLUMNS
*
LA     R4,SQLVSIZ(,R4)
BCT    R5,LOOP        NEXT COLUMN
B      RC0            END PROCESS OK
*
TERM   EQU *
*
*      IF A WORKING AREA WAS ALLOCATED, IT SHOULD BE FREED HERE
*      EXAMPLE:
L      R1,EXTXAUWA    FREE WORKAREA
FREEMAIN R,A=(R1),LV=GETML
*
B      RC0            END TERMINATION OK
*
RC0    EQU *
LA     R15,0
B      RETURN
RC4    EQU *
LA     R15,4
B      RETURN
*
RETURN EQU *
L      R13,SAVE+4
L      R14,12(R13)
LM     R0,R12,20(R13)
BSM    0,R14
LTOrg
END

```

Related concepts

Register use

Db2 HPU communicates with the USER exit through registers 1 and 15. When the USER exit is called, register 1 contains the address of a parameter block, as described by the EXTXPST DSECT in the sample member INFEXIT. Register 15 contains the return code of the exit.

Parameter block

When the USER exit is called, register 1 contains the address of a parameter block.

Related reference

Sample COBOL/2 user exit

This sample user exit is written in COBOL/2.

Sample COBOL/2 user exit

This sample user exit is written in COBOL/2.

```

*-----
  IDENTIFICATION DIVISION.
*-----

```

```

PROGRAM-ID.    INFEXIT0.
ENVIRONMENT DIVISION.
DATA DIVISION.
WORKING-STORAGE SECTION.
*
LINKAGE SECTION.

01 EXITPARMS.
  02 EXIT-FUNCTION-CODE          PIC S9(9) BINARY.
     88 PROCESS-CALL            VALUE ZERO.
     88 INITIALIZE-CALL         VALUE 1.
     88 CLEANUP-CALL            VALUE 2.
  02 EXIT-SQLDA-POINTER         POINTER.
  02 FILLER                      POINTER.
  02 FILLER                      PIC XX.
  02 EXIT-REFERENCE-NUM         PIC S9(4) BINARY.
  02 EXIT-SSID-POINTER          POINTER.
  02 EXIT-USERID-POINTER        POINTER.
  02 EXIT-UTILID-POINTER        POINTER.
  02 EXIT-TBNAME-POINTER        POINTER.
  02 FILLER                      PIC X(20).
  02 EXIT-WORKAREA-POINTER      POINTER.
  02 FILLER                      PIC X(16).
  02 EXIT-USERMSG-POINTER       POINTER.
  02 EXIT-MESSAGE-SIZE          PIC S9(9) BINARY.
  02 EXIT-USER-MESSAGE          PIC X(100).

01 WORKAREA.
  02 WORKAREA-TBCREATOR         PIC X(8).
  02 WORKAREA-TBNAME            PIC X(18).
  02 FILLER                      PIC X(818).

01 TABLE-INFO-VARCHAR
  02 TABLE-CREATOR-VARCHAR     POINTER.
  02 TABLE-NAME-VARCHAR        POINTER.

01 SSID                          PIC X(4).
01 USERID                        PIC X(8).
01 UTILID                        PIC X(16).

01 SQLDA.
  02 SQLDAX                      PIC X(8).
  02 SQLDABC                     PIC S9(8) COMP.
  02 SQLN                        PIC S9(4) COMP.
  02 SQLD                        PIC S9(4) COMP.
  02 SQLVAR OCCURS 1 TO 300 DEPENDING ON SQLN INDEXED BY I.
     03 SQLTYPE                  PIC S9(4) COMP.
     03 SQLLEN                   PIC S9(4) COMP.
     03 SQLDATA                  POINTER.
     03 SQLIND                   POINTER.
     03 SQLINDN REDEFINES SQLIND PIC S9(9) COMP.
     03 SQLNAME.
        04 SQLNAMEL              PIC S9(4) COMP.
        04 SQLNAMEC              PIC X(30).

*-----
PROCEDURE DIVISION USING EXITPARMS.
*-----
  EVALUATE TRUE
  WHEN INITIALIZE-CALL
  PERFORM
    SET ADDRESS OF TABLE-INFO TO EXIT-TBNAME-POINTER
    SET ADDRESS OF WORKAREA TO EXIT-WORKAREA-POINTER
    MOVE 'INITIALISATION OK' TO EXIT-USER-MESSAGE
    MOVE ZERO TO RETURN-CODE
  END-PERFORM
  WHEN PROCESS-CALL
  PERFORM
    SET ADDRESS OF SQLDA TO EXIT-SQLDA-POINTER
    MOVE 'PROCESS OK' TO EXIT-USER-MESSAGE
    MOVE ZERO TO RETURN-CODE
  END-PERFORM
  WHEN CLEANUP-CALL
  PERFORM
    MOVE LOW-VALUES TO WORKAREA
    MOVE 'CLEANUP OK' TO EXIT-USER-MESSAGE
    MOVE ZERO TO RETURN-CODE
  END-PERFORM
  WHEN ANY
  PERFORM
    MOVE 'INVALID FUNCTION CODE' TO EXIT-USER-MESSAGE
    MOVE 12 TO RETURN-CODE

```

```
END-PERFORM  
END-EVALUATE  
GOBACK.
```

Related concepts

Register use

Db2 HPU communicates with the USER exit through registers 1 and 15. When the USER exit is called, register 1 contains the address of a parameter block, as described by the EXTPLST DSECT in the sample member INFEXIT. Register 15 contains the return code of the exit.

Parameter block

When the USER exit is called, register 1 contains the address of a parameter block.

Related reference

Sample Assembler user exit

This sample user exit is provided in member INZEXIT (SINZSAMP library). It is written in Assembler.

Chapter 9. Troubleshooting

Use these topics to diagnose and correct problems that you experience with Db2 HPU.

Decreasing the amount of necessary memory

The memory resources that are needed to run an unload significantly depends on the Db2 HPU settings, the specific unload to be processed, and the parallelism degree that is used.

About this task

The amount of memory that is needed to unload data increases along with the degree of parallelism that is used. If an unload job runs out of memory, consider reducing the parallelism degree.

Procedure

For the following conditions that apply to your environment, reduce the parallelism degree by using the specified method:

Multiple table spaces

When multiple table spaces are used in a single UNLOAD statement, such as multiple SELECT statements or the use of LIST, split the unique UNLOAD statement that uses multiple table spaces into several UNLOAD statements that uses fewer table spaces. Splitting the UNLOAD statement will prevent too many tasks from being run in parallel.

You can split the UNLOAD statement without changing it by adding the PARALLELISM keyword to the command by setting VUX030 UTLPARAL *maximum_number*, where *maximum_number* is the maximum number of table spaces that you want to process in parallel.

For example, the following statement ensure that the necessary amount of memory is reduced as much as possible by setting the parallelism for table space processing to 1.

```
TEMPLATE OUTPUT DSN MYFILES.TEST.&TS..S&TMP.  
UNIT WORK SPACE(5,1) CYL  
LISTDEF LIST INCLUDE TABLESPACE MYDB.TS%  
UNLOAD TABLESPACE  
OPTIONS TEMPLATESET( TMP = :SELNUM )  
PARALLELISM ( , , 1)  
DB2 NO  
SELECT *  
FROM LIST(LIST)  
OUTDDN OUTPUT  
FORMAT DSNTIAUL
```

Partitioned table spaces

When partitioned table spaces are involved, you can reduce the number of partitions that are processed in parallel by using several methods.

- Limit the scope of a single UNLOAD statement by using the PART () option. To perform the same unload, you must use multiple UNLOAD statements instead of one. For example, the following example shows a single UNLOAD statement that can be replaced with multiple statements that use the PART () option.

```
UNLOAD TABLESPACE MYDB.PART128  
SELECT * FROM ME.MYTABLE  
OUTDDN(OUTPUT)
```

To reduce the amount of necessary memory, replace the previous statement with the statements that are shown in the following example:

```
UNLOAD TABLESPACE MYDB.PART128 PART(1:32)  
SELECT * FROM ME.MYTABLE  
OUTDDN(OUTPUT) ;
```

```
UNLOAD TABLESPACE MYDB.PART128 PART(33:64)
SELECT * FROM ME.MYTABLE
OUTDDN(OUTPUT) ;
UNLOAD TABLESPACE MYDB.PART128 PART(65:96)
SELECT * FROM ME.MYTABLE
OUTDDN(OUTPUT) ;
UNLOAD TABLESPACE MYDB.PART128 PART(97:128)
SELECT * FROM ME.MYTABLE
OUTDDN(OUTPUT) ;
```

- Add the MAXPART keyword to the UNLOAD statement or set the ULMAXPAR parameter. In this case, Db2 HPU splits the partitions to be processed into several groups, according to the maximum number of partitions that is specified by MAXPART or ULMAPAR. These groups of partitions are considered to be from different table spaces so they are allowed to be unloaded in parallel. To make sure the parallelism degree is actually reduced, the parallelism between table spaces must be set to 1 either by using the PARALLELISM(...,...,1) keyword or by setting the value of the VUX030 UTLPARAL parameter to 1, as shown in the following example.

```
UNLOAD TABLESPACE
MAXPART 16
PARALLELISM( , , 1)
DB2 NO
SELECT *
FROM ME.MYTABLE
OUTDDN (OUTP)
```

Also, consider using PARALLELISM(*maximum_number*,...,...) or VUX025 PARALLEL=*maximum_number* to limit partition parallelism to the value that you specify for *maximum_number*. For example, use the following UNLOAD statement to reduce the amount of memory that is needed to unload a table space with 128 partitions:

```
UNLOAD TABLESPACE
PARALLELISM(32, , 1)
DB2 NO
SELECT *
FROM ME.MYTABLE
OUTDDN (OUTP)
```

Tools Customizer troubleshooting

Use this information to diagnose and correct problems that you experience with Tools Customizer.

Gathering diagnostic information

Before you report a problem with Tools Customizer to IBM Software Support, you need to gather the appropriate diagnostic information.

Procedure

Provide the following information for all Tools Customizer problems:

- A clear description of the problem and the steps that are required to re-create the problem
- Relevant screen captures
- All messages that were issued as a result of the problem
- Product release number and the number of the last program temporary fix (PTF) that was installed
- The version of Db2 that you are using and the type and version of the operating system that you are using
- The Tools Customizer trace data set
- The Tools Customizer data store data set and the *high_level_qualifier*.SCCQTENU data set

Determining the trace data set name

You will need to identify the name of the trace data set if you cannot allocate the trace data set, the trace data set runs out of space, or IBM Software Support asks for it.

The name of the trace data set depends on the prefix setting in the TSO profile. To identify the name of the trace data set, you must know the prefix setting.

- If PREFIX is set, the name of the trace data set is *prefix*.CCQ.TRACE, where *prefix* is the TSO prefix that you specified in the profile.
- If NOPREFIX is set, the name of the trace data set is *user_ID*.CCQ.TRACE, where *user_ID* is your TSO user ID.

Gathering diagnostic information

Before you report a problem with Db2 HPU to IBM Software Support, you need to gather the appropriate diagnostic information.

Procedure

Provide the following information for all Db2 HPU problems:

- A clear description of the problem and the steps that are required to re-create the problem
- All messages that were issued as a result of the problem
- Product release number and the number of the last program temporary fix (PTF) that was installed
- The version of Db2 that you are using and the type and version of the operating system that you are using

For errors in batch processing, provide the following information:

- The complete job log
- Print output
- Provide the Db2 HPU settings applicable to the involved Db2 subsystem by either of the following ways:
 - through the automatical dump of the Db2 HPU parameters that is produced by Db2 HPU in case of error if the APAR PH12836 is applied
 - the output of the DISPLAY_PARMLIB feature available if the APAR PH01897 is applied
 - a copy of the INZUTIL and the INZDssid members from the parmlib designated by the INZI529I message, where ssid stands for the Db2 subsystem or group attach name on which the issue occurs.
- In case of abend, any dump spontaneously generated by the system or, if the problem can be recreated, the dump triggered after the following SLIP command has been issued:

```
SLIP SET,[ID=trapid,]JOBNAME=jobname,ACTION=SVCD,END
```

where:

- *trapid* is an optional identifier of your choice (the system assigns a unique identifier if the ID= parameter is not specified)
- *jobname* is the name of the job for which a dump is requested.

Make sure that the userids on behalf of which the Db2 HPU jobs are submitted are permitted to the IEAABD.DMPAKEY resource in the FACILITY class. Otherwise, in case of abend, the following message:

```
CEE3880I CEEDUMP HAS BEEN SUPPRESSED - PROGRAM IS RUNNING IN AN AUTHORIZED KEY.
```

can be issued by the Language Environment and the CEEDUMP, helpful for diagnosis, be missing.

Messages and codes

Use the information in these messages to help you diagnose and solve Tools Customizer and Db2 HPU problems.

These topics describe the user abend codes and messages that are issued by Db2 HPU and Tools Customizer.

Topics:

- [“Tools Customizer messages” on page 314](#)
- [“Db2 HPU user abend codes ” on page 385](#)
- [“Db2 HPU messages” on page 391](#)

Tools Customizer messages

Use the information in these messages to help you diagnose and solve Tools Customizer problems.

CCQB000I **The product parameter data was saved in the data store.**

Explanation:

Changes that were made to the product parameters were saved in the data store.

System action:

None.

User response:

No action is required.

CCQB001I **The DB2 parameter data was saved in the data store.**

Explanation:

Changes that were made to the Db2 parameters were saved in the data store.

System action:

None.

User response:

No action is required.

CCQB002I **The LPAR parameter data was saved in the data store.**

Explanation:

Changes that were made to the LPAR parameters were saved in the data store.

System action:

None.

User response:

No action is required.

CCQB003E **At least one step must be selected in a selected task. The selected task is *task_description*.**

Explanation:

When a task is selected, at least one step must be selected. A selected step is missing from the specified task.

System action:

Processing stops.

User response:

Select a step in the specified task or deselect the task.

CCQB004I **The required information to run the Discover EXEC was saved in the data store.**

Explanation:

The data store contains all the information that is required to run the Discover EXEC.

System action:

None.

User response:

No action is required.

CCQB005E **The conflicting values for the *parameter_name* parameter must be resolved before the information can be saved.**

Explanation:

Two values for one parameter conflict with each other, and they must be resolved to save the information.

System action:

Processing stops.

User response:

Resolve the conflicting values for the parameter.

CCQB006E **One row must be selected.**

Explanation:

One row in the table must be selected.

System action:

Processing stops.

User response:

Select one row.

CCQB007E **Only one row can be selected.**

Explanation:

Multiple rows in the table are selected, but only one row is allowed to be selected.

System action:

Processing stops.

User response:

Select only one row.

CCQC000I **The jobs have been customized on the selected DB2 entries.**

Explanation:

The jobs were customized on the Db2 entries that were selected.

System action:

None.

User response:

Press Enter to clear the message.

CCQC001W **The jobs were not generated on one or more of the selected DB2 entries. Press PF3 to check the Db2 entries that were not customized.**

Explanation:

The product was not customized on one or more of the Db2 entries that were selected.

System action:

None.

User response:

Press PF3 to see the Db2 entries on which the product was not customized. The status of these Db2 entries is Errors in Customization.

CCQC002I **The edit session was started automatically because values for required parameters are missing or must be verified.**

Explanation:

If product, LPAR parameters, or Db2 parameters are not defined or if parameter definitions must be verified, an editing session for the undefined or unverified parameters starts automatically.

System action:

None.

User response:

Define values for all required product, LPAR parameters, or Db2 parameters.

CCQC003W **The *template_name* template in the *library_name* metadata library does not contain any parameters.**

Explanation:

The specified template does not have parameters.

System action:

None.

User response:

No action is required.

CCQC004S **The value of the "type" attribute for the *template_name* template in the *library_name* metadata library does not match the value that was previously specified. The value is *value_name*, and the previously specified value is *value_name*.**

Explanation:

The value of the "type" attribute must match the value that was previously specified.

System action:

Processing stops.

User response:

See ["Gathering diagnostic information" on page 312](#). Contact IBM Software Support.

CCQC005S **The *template_name* template exceeds the number of allowed templates for a customization sequence. The template is in the *library_name* metadata library.**

Explanation:

The customization sequence can process only *number* templates. The specified template cannot be processed because the customization sequence already contains the maximum number of templates.

System action:

Processing stops.

User response:

See ["Gathering diagnostic information" on page 312](#). Contact IBM Software Support.

CCQC006E **The jobs could not be generated for the *group_attach_name* Db2 group attach name.**

Explanation:

The customization jobs could not be generated for the specified Db2 group attach name.

System action:

Processing stops.

User response:

See ["Gathering diagnostic information" on page 312](#). Contact IBM Software Support.

CCQC007E **The jobs could not be generated for the *subsystem_ID* Db2 subsystem.**

Explanation:

The customization jobs could not be generated for the specified Db2 subsystem.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQC008E **The jobs could not be generated for the *member_name* Db2 member.**

Explanation:
The customization jobs could not be generated for the specified Db2 member.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQC009S **The jobs were not generated for the DB2 entries.**

Explanation:
One or more errors occurred while customization jobs were being generated for the selected Db2 entries.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQC010S **The *template_name* template could not be accessed in the *library_name* metadata library.**

Explanation:
The specified template could not be accessed because the user does not have RACF[®] access to the data set, the data set has incorrect data characteristics, or the data set is not cataloged.

System action:
Processing stops.

User response:
Ensure that you have RACF access to the data set, that the characteristics are correct according to the specifications of the product that you are customizing, and that the data set is cataloged. If the problem persists, contact IBM Software Support.

CCQC011S **The *template_name* template could not be written to the *library_name* customization library.**

Explanation:
The specified template could not be accessed because the user does not have RACF access to the data set,

the data set has incorrect data characteristics, or the data set is not cataloged.

System action:
Processing stops.

User response:
Ensure that you have RACF access to the data set, that the characteristics are correct according to the specifications of the product that you are customizing, and that the data set is cataloged. If the problem persists, contact IBM Software Support.

CCQC012W **The job card was generated with default values because the JOB keyword was missing.**

Explanation:
Default values were used to generate the job card because the JOB keyword was not specified in the first line of the job card.

System action:
The job card was generated with default values.

User response:
No action is required. To generate the job card with your own values, add the JOB keyword in the first line of the job card.

CCQC013W **The job card was generated with the default value for the programmer name because the specified programmer name exceeded 20 characters.**

Explanation:
Default values were used to generate the job card because the specified programmer name contained too many characters.

System action:
The job card was generated with default values.

User response:
No action is required. To generate the job card with your own values, add a valid programmer name in the job card. A valid programmer name is 1 - 20 characters.

CCQC014W **The job card was generated with default values because the JOB keyword was not followed by a space.**

Explanation:
Default values were used to generate the job card because a space did not follow the JOB keyword.

System action:
The job card was generated with default values.

User response:

No action is required. To generate the job card with your own values, add a space after the JOB keyword in the job card.

CCQC015S **The *template_name* template in the *library_name* metadata library contains the following file-tailoring control statement: *statement_name*. This control statement is not valid in a *template_type* template.**

Explanation:

The *template_type* template cannot contain the specified type of file-tailoring control statement.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQC016S **The)DOT file-tailoring control statement exceeded the number of allowed occurrences for the *template_name* template in the *library_name* metadata library.**

Explanation:

The)DOT file-tailoring control statement can occur only a limited number of times in the specified template.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQC017S **The nested)DOT file-tailoring control statements exceeded the number of allowed occurrences in the *template_name* template in the *library_name* metadata library.**

Explanation:

Nested)DOT file-tailoring control statements can occur only *number* times.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQC018S **The *template_name* template in the *library_name* metadata library is not valid because it does not contain any data.**

Explanation:

The specified template is missing required data.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQC019S **The *template_name* template in the *library_name* metadata library is not valid because an)ENDDOT file-tailoring control statement is missing.**

Explanation:

A)ENDDOT file-tailoring control statement is required in the specified template.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQC021S **The *template_name* template in the *library_name* metadata library is not valid because the template must start with the *parameter_name* job card parameter.**

Explanation:

The specified template must start with the specified job card parameter.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQC022S **The parameters used in a)DOT file-tailoring control statement exceeded the number of allowed parameters in the *template_name* template. The template is in the *library_name* metadata library. The error occurs in)DOT section *section_number*.**

Explanation:

A)DOT file-tailoring control statement can contain only a limited number of parameters.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQC023S **The)DOT file-tailoring control statement must include the *table-name* table name in the**

***template_name* template. The template is in the *library_name* metadata library. The error occurs in)DOT section *section_number*.**

Explanation:

The)DOT file-tailoring control statement is missing a required table name.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312. Contact IBM Software Support.

CCQC024S **ISPF file tailoring failed for the *template_name* template in the *library_name* metadata library.**

Explanation:

An error occurred during ISPF file tailoring for the specified template.

System action:

Processing stops.

User response

Review the Tools Customizer-generated trace data set and the ISPF file tailoring trace data set. To create an ISPF file tailoring trace data set, complete the following steps:

1. Run Tools Customizer until the error is about to occur.
2. Specify the ISPFTTRC command, and press Enter.
3. Issue the Tools Customizer command that issues the error.
4. Specify the ISPFTTRC command, and press Enter. The ISPF file tailoring trace data set is created. It adheres the following naming convention: *TSO_ID*.ISPFT.TRACE, where *TSO_ID* is the TSO user ID that is being used.

If the problem persists, gather the following information and contact IBM Software Support.

- A screen capture of the Tools Customizer error. Ensure that the complete error message is displayed by pressing PF1.
- The Tools Customizer trace data set. It adheres to the following naming convention: *TSO_ID*.CCQ.TRACE, where *TSO_ID* is the TSO user ID that is running Tools Customizer.
- The ISPF file tailoring trace data set.

CCQC025I **Customized jobs do not exist because they have not been generated.**

Explanation:

The list of customized jobs cannot be displayed because the product has not been customized for any Db2 entries.

System action:

None.

User response:

Complete the steps to customize a product. Customized jobs are generated when all required product, LPAR parameters, and Db2 parameters are defined and at least one Db2 entry on which to customize the product has been selected.

CCQC026S **The value of the "customized" attribute for the *parameter_name* parameter in the *library_name* metadata library template does not match the value that was previously specified. The value is *value_name*, and the previously specified value is *value_name*.**

Explanation:

The value for the "customized" attribute for a parameter must match the value that was previously specified.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312. Contact IBM Software Support.

CCQC027S **The *job_name* customization job was not found in the *library_name* customization library.**

Explanation:

The selected customization job does not exist in the customization library.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312. Contact IBM Software Support.

CCQC028S **The *library_name* customization library was not found.**

Explanation:

The customization library does not exist.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312. Contact IBM Software Support.

CCQC029I **The customization jobs were generated for *Product_name*.**

Explanation:

The customization jobs were generated for the specific product.

System action:

None.

User response:

No action is required.

CCQC030S **The customization jobs cannot be generated because at least one DB2 entry must be associated with this product.**

Explanation:

The product that you are customizing requires at least one Db2 entry to be associated with it before customization jobs can be generated.

System action:

None.

User response:

Associate a Db2 entry with the product that you are customizing, and regenerate the jobs.

CCQC031I **The jobs were generated for the associated DB2 entries.**

Explanation:

The customization jobs were generated for the Db2 entries that are associated with the product.

System action:

None.

User response:

No action is required.

CCQC032S **The customization jobs were not generated for *Product_name*.**

Explanation:

A severe error occurred while the jobs were being generated for the specified product.

System action:

None.

User response:

See [“Gathering diagnostic information”](#) on page 312. Contact IBM Software Support.

CCQC033S **The *customization_library_name* has no customized jobs.**

Explanation:

The specified customization library cannot be browsed or edited because it is empty.

System action:

None.

User response:

Generate customization jobs for the specified library, and browse or edit the library again.

CCQC034S **The specified operation is not allowed.**

Explanation:

Issuing commands against customization jobs from the customization library from an ISPF browse or edit session that was started on the **Finish Product Customization** panel is restricted.

System action:

None.

User response:

To make changes to customization jobs, follow the steps for recustomization.

CCQC035E **Before you generate customization jobs, edit the product parameters to select one or more tasks or steps, and then issue the G line command or the GENERATEALL command again.**

Explanation:

One or more tasks or steps must be selected before customization jobs can be generated.

System action:

None.

User response:

Edit the product parameters to select one or more tasks or steps. Then, issue the G line command or the GENERATEALL command again.

CCQC036E **Before you exit the Product Parameters panel, you must select one or more tasks or steps to generate customization jobs or issue the CANCEL command.**

Explanation:

One or more tasks or steps must be selected to generate customization jobs or the CANCEL command must be issued before you can exit the **Product Parameters** panel.

System action:

None.

User response:

Select one or more tasks or steps, or issue the CANCEL command.

CCQC037W **The customization information was not found.**

Explanation:

To use the JOBLIST command, the customization jobs must be regenerated by using the GENERATEALL command or the G line command.

System action:

None.

User response:

Issue the GENERATEALL command or the G line command to generate the customization jobs.

CCQC038W **The customization information cannot be accessed because the *customization_member* customization member is being used.**

Explanation:

The customization member that was specified on NNN is currently being used.

System action:

None.

User response:

Determine why the customization member is in use, release it, and redo the work.

CCQC039I **The VERIFY/VERIFYOFF command is not active in Generate mode.**

Explanation:

The VERIFY/VERIFYOFF command is not active in Generate mode because all values saved in Generate mode must already have been verified.

System action:

None.

User response:

No action is required.

CCQD000W **The *member_name* environment index member is not valid. The PL/I XML parser issued the following exception warning code: *code_number*.**

Explanation:

While determining if the specified environment index member is valid, the PL/I XML parser issued an exception warning code.

System action:

Processing continues.

User response:

See the *Enterprise PL/I for z/OS Programming Guide* for more information about the warning.

CCQD001S **The *member_name* environment index member is not valid. The PL/I XML parser issued the following exception error code: *code_number*.**

Explanation:

While determining if the specified environment index member is valid, the PL/I XML parser issued an exception error code.

System action:

Processing continues.

User response:

See the *Enterprise PL/I for z/OS Programming Guide* for more information about the error.

CCQD002S **The XML structure of the *member_name* environment index member is not valid. The *element_name* element is unknown.**

Explanation:

The specified environment index member contains an unknown element.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312. Contact IBM Software Support.

CCQD003S **The XML structure of the *member_name* environment index member is not valid. Content is not allowed for the *element_name* element, but content was found.**

Explanation:

Content was found in an element that cannot contain content.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312. Contact IBM Software Support.

CCQD004S **The XML structure of the *member_name* environment index member is not valid. Content is required for the *element_name* element, but content was not found.**

Explanation:

The specified element does not contain required content.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312. Contact IBM Software Support.

CCQD005S **The XML structure of the *member_name* environment index member is not valid. The content length for the *element_name* element exceeds *maximum_number* characters.**

Explanation:

The specified element contains too many characters.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQD006S **The XML structure of the *member_name* environment index member is not valid. The *element_name* element cannot occur more than *maximum_number* times.**

Explanation:

The specified element occurs too many times in the environment index member.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQD007S **The XML structure of the *member_name* environment index member is not valid. The *element_name* element must occur at least *minimum_number* times.**

Explanation:

The specified element does not occur enough times in the environment index member.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQD008S **The XML structure of the *member_name* environment index member is not valid. The *attribute_name* attribute in the *element_name* element cannot occur more than *maximum_number* times.**

Explanation:

The specified attribute occurs too many times in the environment index member.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQD009S **The XML structure of the *member_name* environment index member is not valid. The *attribute_name* attribute in the *element_name* element must occur at least *minimum_number* times.**

Explanation:

The specified attribute does not occur enough times in the environment index member.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQD010S **The XML structure of the *member_name* environment index member is not valid. Content is not allowed for the *attribute_name* attribute in the *element_name* element, but content was found.**

Explanation:

Content was found in an attribute that cannot contain content. The name of the attribute and the name of the element that contains it are indicated in the message text.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQD011S **The XML structure of the *member_name* environment index member is not valid. Content is required for the *attribute_name* attribute in the *element_name* element, but content was not found.**

Explanation:

An attribute does not contain required content. The name of the attribute and the name of the element that contains it are indicated in the message text.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQD012S **The XML structure of the *member_name* environment index member is not valid. The content length for the**

***element_name* element exceeds *maximum_number* characters.**

Explanation:

An element contains too many characters. The name of the element and the maximum number of allowed characters are indicated in the message text.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQD013S **The XML structure of the *member_name* environment index member is not valid. The *attribute_name* attribute in the *element_name* element is unknown.**

Explanation:

The environment index member contains an unknown attribute. The name of the unknown attribute and the name of the element that contains it are indicated in the message text.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQD050S **The following LPAR serial number is duplicated in the environment index member: *serial_number*.**

Explanation:

The environment index member contains duplicate LPAR serial numbers. The duplicate serial number is indicated in the message text.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQD051S **The following DB2 serial number is duplicated in the environment index member: *serial_number*.**

Explanation:

The environment index member contains duplicate Db2 serial numbers. The duplicate serial number is indicated in the message text.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQD052S **The following Db2 group attach name is duplicated in the environment index member: *group_attach_name*.**

Explanation:

The environment index member contains duplicate group attach names.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQD053S **The reference to the following DB2 subsystem for a Db2 group attach name is duplicated in the environment index member: *subsystem_ID*.**

Explanation:

The environment index member contains duplicate references to a Db2 subsystem for a Db2 group attach name.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQD054S **The reference to the following DB2 subsystem for the *LPAR_name* LPAR is duplicated in the environment index member: *subsystem_ID*.**

Explanation:

The environment index member contains duplicate references to a Db2 subsystem for an LPAR. The duplicate subsystem ID is indicated in the message text.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQD055S **The following Db2 group attach name was not found in the environment index member: *group_attach_name*.**

Explanation:

A group attach name that is referenced by a Db2 member does not exist in the environment index member.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQD056S **The following LPAR was not found in the environment index member: *LPAR_name*.**

Explanation:
The LPAR does not exist in the environment index member.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQD057S **The following LPAR is duplicated in the environment index member: *LPAR_name*.**

Explanation:
The environment index member contains duplicate LPARs. The name of the duplicate LPAR name is indicated in the message text.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQD100W **The *member_name* product index member is not valid. The PL/I XML parser issued the following exception warning code: *code_number*.**

Explanation:
While determining if the product index member is valid, the PL/I XML parser issued the specified exception warning code.

System action:
Processing continues.

User response:
See the *Enterprise PL/I for z/OS Programming Guide* for more information about the specified exception warning code.

CCQD101S **The *member_name* product index member is not valid. The PL/I XML parser issued the following exception error code: *code_number*.**

Explanation:

While determining if the product index member is valid, the PL/I XML parser issued the specified exception error code.

System action:
Processing stops.

User response:
See the *Enterprise PL/I for z/OS Programming Guide* for more information about the specified exception error code. Ensure that the Tools Customizer data store data set DCB is the same as the sample SCCQSAMP(CCQCDATS) data set DCB.

CCQD102S **The XML structure of the *member_name* product index member is not valid. The *element_name* element is unknown.**

Explanation:
The specified product index member contains an unknown element.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQD103S **The XML structure of the *member_name* product index member is not valid. Content is not allowed for the *element_name* element, but content was found.**

Explanation:
Content was found for an element that cannot contain content.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQD104S **The XML structure of the *member_name* product index member is not valid. Content is required for the *element_name* element, but content was not found.**

Explanation:
The specified element does not contain required content.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQD105S **The XML structure of the *member_name* product index member is not valid. The content length for the *element_name* element exceeds *maximum_number* characters.**

Explanation:
The specified element contains too many characters.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQD106S **The XML structure of the *member_name* product index member is not valid. The *element_name* element cannot occur more than *maximum_number* times.**

Explanation:
The specified element occurs too many times in the product index member.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQD107S **The XML structure of the *member_name* product index member is not valid. The *element_name* element must occur at least *minimum_number* times.**

Explanation:
The specified element does not occur enough times in the product index member.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQD108S **The XML structure of the *member_name* product index member is not valid. The *attribute_name* attribute in the *element name* element cannot occur more than *maximum_number* times.**

Explanation:
An attribute occurs too many times. The name of the attribute and the element that contains it are indicated in the message text.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQD109S **The XML structure of the *member_name* product index member is not valid. The *attribute_name* attribute in the *element_name* element must occur at least *minimum_number* times.**

Explanation:
The specified attribute does not occur enough times in the product index member.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQD110S **The XML structure of the *member_name* product index member is not valid. Content is not allowed for the *attribute_name* attribute in the *element_name* element, but content was found.**

Explanation:
An attribute cannot contain content. The name of the attribute and the element that contains it are indicated in the message text.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQD111S **The XML structure of the *member_name* product index member is not valid. Content is required for the *attribute_name* attribute in the *element_name* element, but content was not found.**

Explanation:
An attribute requires content. The name of the attribute and the name of the element that contains it are indicated in the message text.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQD112S **The XML structure of the *member_name* product index member is not valid. The content length for the *element_name* element exceeds *maximum_number* characters.**

Explanation:

The specified element contains too many characters.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312. Contact IBM Software Support.

CCQD113S **The XML structure of the *member_name* product index member is not valid. The *attribute_name* attribute in the *element_name* element is unknown.**

Explanation:

The specified attribute in the product index member is unknown.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312. Contact IBM Software Support.

CCQD118S **The content of the *member_name* product index member is not valid. The *configuration_ID* configuration ID for the *configuration-name* configuration name is not unique.**

Explanation:

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312. Contact IBM Software Support.

CCQD120S **The content of the *member_name* product index member is not valid. The pack ID *pack_ID* that is referenced by product prefix *product_prefix* in the metadata library *library_name* could not be found.**

Explanation:

The specified pack ID could not be found in the metadata library.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312. Contact IBM Software Support.

CCQD121I **The specified pack contains the *component_name*, which was previously specified as a stand-alone product.**

Explanation:

The specified component of the pack was previously specified as a stand-alone product.

System action:

None.

User response:

No action is required.

CCQD122I **The specified component metadata library was previously specified as part of the *pack_name*.**

Explanation:

The specified metadata library for the component was previously specified as part of a pack.

System action:

None.

User response:

No action is required.

CCQD123E **The customization library name *library_name* is being used by another product or component. Specify another customization library qualifier on the Tools Customizer Settings panel.**

Explanation:

A different product or component is using the specified customization library.

System action:

None.

User response:

Specify another customization library qualifier on the **Tools Customizer Settings** panel.

CCQD124E **The customization library *library_name* is in use by another metadata library.**

Explanation:

A different product or component is using the specified customization library. Specify another metadata library in the **Workplace** panel.

System action:

None.

User response:

Specify another customization library qualifier in the **Tools Customizer Settings** panel.

CCQD300W **The *member_name* product environment member is not valid. The PL/I XML parser issued the following exception warning code: *code_number*.**

Explanation:

While determining if the product environment member is valid, the PL/I XML parser issued the specified exception warning code.

System action:

Processing continues.

User response:

See the *Enterprise PL/I for z/OS Programming Guide* for more information about the specified exception warning code.

CCQD301S **The *member_name* product environment member is not valid. The PL/I XML parser issued the following exception error code: *code_number*.**

Explanation:

While determining if the product environment member is valid, the PL/I XML parser issued the specified exception error code.

System action:

Processing stops.

User response:

See the *Enterprise PL/I for z/OS Programming Guide* for more information about the specified exception error code.

CCQD302S **The XML structure of the *member_name* product environment member is not valid. The *element_name* element is unknown.**

Explanation:

The specified product environment member contains an unknown element.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQD303S **The XML structure of the *member_name* product environment member is not valid. Content is not allowed for the *element_name* element, but content was found.**

Explanation:

Content was found for an element that cannot contain content.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQD304S **The XML structure of the *member_name* product environment member is not valid. Content is required for the *element_name* element, but content was not found.**

Explanation:

The specified element does not contain required content.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQD305S **The XML structure of the *member_name* product environment member is not valid. The content length for the *element_name* element exceeds *maximum_number* characters.**

Explanation:

The specified element contains too many characters.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQD306S **The XML structure of the *member_name* product environment member is not valid. The *element_name* element cannot occur more than *maximum_number* times.**

Explanation:

The specified element occurs too many times in the product environment member.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQD307S **The XML structure of the *member_name* product environment member is not valid. The *element_name* element must occur at least *minimum_number* times.**

Explanation:

The specified element does not occur enough times in the product environment member.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQD308S **The XML structure of the *member_name* product environment member is not valid. The *attribute_name* attribute in the *element name* element cannot occur more than *maximum_number* times.**

Explanation:

The specified attribute occurs too many times. The name of the attribute and the element that contains it are indicated in the message text.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQD309S **The XML structure of the *member_name* product environment member is not valid. The *attribute_name* attribute in the *element_name* element must occur at least *minimum_number* times.**

Explanation:

The specified attribute does not occur enough times in the product environment member.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQD310S **The XML structure of the *member_name* product environment member is not valid. Content is not allowed for the *attribute_name* attribute in the *element_name* element, but content was found.**

Explanation:

The specified attribute cannot contain content. The name of the attribute and the element that contains it are indicated in the message text.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQD311S **The XML structure of the *member_name* product environment member is not valid. Content is required for the *attribute_name* attribute in the *element_name* element, but content was not found.**

Explanation:

The specified attribute requires content. The name of the attribute and the name of the element that contains it are indicated in the message text.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQD312S **The XML structure of the *member_name* product environment member is not valid. The content length for the *element_name* element exceeds *maximum_number* characters.**

Explanation:

The specified element contains too many characters.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQD313S **The XML structure of the *member_name* product environment member is not valid. The *attribute_name* attribute in the *element_name* element is unknown.**

Explanation:

The specified attribute in the product environment member is unknown.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQD350I **The *subsystem_ID* Db2 subsystem is associated with this product.**

Explanation:

The specified Db2 subsystem was added and saved in the Tools Customizer data store for the product to be customized.

System action:

Processing continues.

User response:

No action is required.

CCQD351I **The *member_name* Db2 member for the *group_attach_name* Db2 group attach name is associated with this product.**

Explanation:

The specified Db2 member for the group attach name was added and saved in the Tools Customizer data store for the product to be customized.

System action:

Processing continues.

User response:

No action is required.

CCQD352I **The *group_attach_name* Db2 group attach name is associated with this product.**

Explanation:

The specified Db2 group attach name was added and saved in the Tools Customizer data store for the product to be customized.

System action:

Processing continues.

User response:

No action is required.

CCQD353E **The *subsystem_ID* Db2 subsystem is already associated with this product.**

Explanation:

The specified Db2 subsystem cannot be added for the product to be customized because it already exists in the product environment in the data store.

System action:

None.

User response:

Ensure that the Db2 subsystem is specified correctly. If the problem persists, contact IBM Software Support.

CCQD354E **The *member_name* Db2 member for the *group_attach_name* Db2**

group attach name is already associated with this product.

Explanation:

The specified Db2 member for the group attach name cannot be added for the product to be customized because it already exists in the product environment in the data store.

System action:

None.

User response:

Ensure that the Db2 group attach name is specified correctly. If the problem persists, contact IBM Software Support.

CCQD355E **The *group_attach_name* Db2 group attach name is already associated with this product.**

Explanation:

The specified Db2 group attach name cannot be added for the product to be customized because it already exists in the product environment in the data store.

System action:

Processing stops.

User response:

Ensure that the Db2 group attach name is specified correctly. If the problem persists, contact IBM Software Support.

CCQD356S **The *library_name* metadata library is already associated with the maximum number of allowed Db2 entries for this product.**

Explanation:

The specified metadata library cannot be associated with more Db2 entries because it is already associated with the number of Db2 entries that are allowed.

System action:

Processing stops.

User response:

Delete an associated Db2 entry, and associate the specified library with another Db2 entry again.

CCQD357I **The *subsystem_ID* Db2 subsystem is unassociated with this product.**

Explanation:

The specified Db2 SSID was unassociated with the product that you are customizing.

System action:

Processing continues.

User response:

No action is required.

CCQD358I **The *member_name* Db2 member for the *group_attach_name* Db2**

group attach name is unassociated with this product.

Explanation:

The specified Db2 member for the Db2 group attach name was unassociated with the product that you are customizing.

System action:

Processing continues.

User response:

No action is required.

CCQD359I **The *group_attach_name* Db2 group attach name is unassociated with this product.**

Explanation:

The specified Db2 group attach name was unassociated with the product that you are customizing.

System action:

Processing continues.

User response:

No action is required.

CCQD360S **The *library_name* metadata library is not associated with the specified Db2 subsystem *subsystem_ID*.**

Explanation:

The specified Db2 subsystem and metadata library are not associated with each other.

System action:

None.

User response:

Ensure that the Db2 subsystem and the metadata library are associated. If the problem persists, contact IBM Software Support.

CCQD361S **The *library_name* metadata library is not associated with the specified DB2 data sharing group member *member_name* for the *group_attach_name* Db2 group attach name.**

Explanation:

The specified Db2 data sharing group member for the group attach name and metadata library are not associated with each other.

System action:

None.

User response:

Ensure that the Db2 data sharing group member for the group attach name and the metadata library

are associated. If the problem persists, contact IBM Software Support.

CCQD362S **The *library_name* metadata library is not associated with the specified *group_attach_name* Db2 group attach name.**

Explanation:

The specified Db2 group attach name and metadata library are not associated with each other.

System action:

None.

User response:

Ensure that the Db2 group attach name and the metadata library are associated. If the problem persists, contact IBM Software Support.

CCQD400W **The customization parser issued the *code_number* warning code while it parsed the product customization member *member_name*. See the PL/I programming guide for more information about this XML parser continuable exception code.**

Explanation:

While determining if the specified member is valid, the PL/I XML parser issued an exception warning code.

System action:

Processing stops.

User response:

See the *Enterprise PL/I for z/OS Programming Guide* for more information about the warning.

CCQD401S **The customization parser issued the *code_number* error code while it parsed the product customization member *member_name*. See the PL/I programming guide for more information about this XML parser terminating exception code.**

Explanation:

While determining if the specified member is valid, the PL/I XML parser issued an exception error code.

System action:

Processing stops.

User response:

See the *Enterprise PL/I for z/OS Programming Guide* for more information about the error.

CCQD500W **The *data_set_name* data store data set was not found.**

Explanation:

Tools Customizer could not find the specified data store data set.

System action:

None.

User response:

No action is required.

CCQD501W **The *data_set_name* data store data set was not found, so it was created.**

Explanation:

Tools Customizer created the specified data set because it could not be found.

System action:

None.

User response:

No action is required.

CCQD502E **The *data_set_name* data store data set is not writable.**

Explanation:

Tools Customizer cannot write to the specified data set.

System action:

None.

User response:

Ensure that the data set is writable.

CCQD503E **The *data_set_name* data store data set could not be opened with the *disposition_type* disposition.**

Explanation:

Tools Customizer could not open the data set with the specified disposition.

System action:

Processing stops.

User response:

Ensure that you have WRITE authority access to this data set.

CCQD504E **The *data_set_name* data store data set could not be opened with the *option_name* option.**

Explanation:

Tools Customizer could not open the data set with the specified option.

System action:

Processing stops.

User response:

Ensure that you have WRITE authority access to this data set.

CCQD505E **The data store data set *data_set_name* already exists in a different volume.**

Explanation:

Tools Customizer could not create the specified data set because the specified data set already exists in a different volume. Data store data set names must be unique.

System action:

Processing stops.

User response:

Specify a different data store data set name.

CCQD510I **The DB2 SSID and Db2 group attach name were created.**

Explanation:

The Db2 SSID and Db2 group attach name were created and saved in the data store.

System action:

None.

User response:

No action is required.

CCQD511E **The DB2 entry already exists in the list of Db2 entries to be associated.**

Explanation:

The Db2 entry cannot be added because it already exists in the list of Db2 entries to be associated.

System action:

None.

User response:

Specify a different Db2 entry.

CCQD512S **An error occurred while a DB2 entry was being created.**

Explanation:

A severe error occurred while a Db2 entry was being created.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQD513E **The specified DB2 entry already exists and is associated with the current product on the Customizer Workplace panel.**

Explanation:

The Db2 entry cannot be added because it already exists, and it is already associated with the product to be customized.

System action:

None.

User response:

Press F3 to go to the **Customizer Workplace** panel to see the Db2 entry, or specify a different Db2 entry.

CCQD514E **A value is required for a DB2 subsystem, a Db2 group attach name, or both before they can be created.**

Explanation:

Required information is missing. A Db2 subsystem, a Db2 group attach name, or both must be specified.

System action:

None.

User response:

Specify a Db2 subsystem, a Db2 group attach name, or both.

CCQD515E **The specified DB2 entry already exists in the list of Db2 entries and is already associated with the current product.**

Explanation:

The Db2 entry has already been created and associated with the product that you want to customize.

System action:

None.

User response:

Specify a different Db2 entry.

CCQD516E **The specified DB2 entry already exists in the list of Db2 entries on the Associate DB2 Entry with Product panel but is not associated with the current product.**

Explanation:

The Db2 entry exists, but it must be associated with the product to be customized.

System action:

None.

User response:

On the **Customizer Workplace** panel, issue the ASSOCIATE command to associate the Db2 entry with the product.

CCQD517S **An error occurred while a DB2 entry was being copied.**

Explanation:

A severe error occurred while a Db2 entry was being copied

System action:

Processing stops.

User response:

See [“Gathering diagnostic information”](#) on page 312. Contact IBM Software Support.

CCQD518E **A value is required for a DB2 subsystem, a Db2 group attach name, or both before they can be copied.**

Explanation:

Required information is missing. A Db2 subsystem, a Db2 group attach name, or both must be specified.

System action:

None.

User response:

Specify a Db2 subsystem, a Db2 group attach name, or both.

CCQD519I **The DB2 entry was copied.**

Explanation:

The Db2 entry was copied and saved in the Tools Customizer data store.

System action:

None.

User response:

No action is required.

CCQD520S **The DB2 entry was copied to the list of Db2 entries but was not associated because the product is already associated with the allowed number of Db2 entries.**

Explanation:

The Db2 entry was not completely copied because a product can be associated with only 1200 Db2 entries.

System action:

Processing stops.

User response:

Remove a Db2 entry from the list, and copy the specified Db2 entry again.

CCQD521E **Line_command is not a valid line command.**

Explanation:

The specified line command is not valid. Valid line commands are on the panel.

System action:

Processing stops.

User response:

Specify a valid line command.

CCQD522E **The subsystem_ID Db2 subsystem ID occurs more than once in the list. Each row must be unique.**

Explanation:

The specified Db2 subsystem ID can be used only once.

System action:

Processing stops.

User response:

Specify a different Db2 subsystem ID.

CCQD523E **The *group_attach_name* Db2 group attach name occurs more than once in the list. Each row must be unique.**

Explanation:

The specified Db2 group attach name can be used only once.

System action:

Processing stops.

User response:

Specify a different Db2 group attach name.

CCQD524E **The *member_name* Db2 member for the Db2 group attach name occurs more than once in the list. Each row must be unique.**

Explanation:

The specified Db2 member for the Db2 group attach name can be used only once.

System action:

Processing stops.

User response:

Specify a different Db2 member for the Db2 group attach name.

CCQD525I **The DB2 entries were created.**

User response:

No action is required.

CCQD526E **The *subsystem_ID* Db2 subsystem ID occurs more than once in the list. Each Db2 subsystem ID must be unique.**

Explanation:

The specified Db2 subsystem ID can be used only once.

System action:

Processing stops.

User response:

Specify a different Db2 subsystem ID.

CCQD527I **DB2 group attach names cannot be created during the copy process.**

Explanation:

The ability to create Db2 group attach names is not available during the copy process.

System action:

None.

User response:

Create Db2 group attach names by issuing the CREATE command on the **Customizer Workplace** panel.

CCQD528E **The *metadata_library* metadata library is already associated with *number* Db2 entries. The maximum number of associated Db2 entries for this metadata library is 256.**

Explanation:

A metadata library can be associated with a maximum of 256 Db2 entries. The specified metadata library is already associated with 256.

System action:

Processing stops.

User response:

Remove an existing association between the specified metadata library and a Db2 entry, and associate the specified the metadata library with another entry.

CCQD529I **At least one row is required.**

CCQD560E **The *subsystem_ID* Db2 subsystem already exists and is associated with the current product on the Customizer Workplace panel.**

Explanation:

The specified Db2 subsystem exists and is associated with the product that you are customizing.

System action:

None.

User response:

Specify another Db2 subsystem.

CCQD561E **The *member_name* Db2 member for the *group_attach_name* Db2 group attach name already exists and is associated with the current product on the Customizer Workplace panel.**

Explanation:

The specified Db2 data sharing group for the Db2 group attach namer exists and is associated with the product that you are customizing.

System action:

None.

User response:

Specify another Db2 subsystem.

CCQD562E **The *group_attach_name* Db2 group attach name already exists and is associated with the current**

product on the Customizer Workplace panel.

Explanation:

The specified Db2 group attach name exists and is associated with the product that you are customizing. The subsystem is in the table on the **Customizer Workplace** panel.

System action:

None.

User response:

Specify another Db2 group attach name.

CCQD563E

A value is required for a DB2 subsystem, a Db2 group attach name, or both before they can be created.

Explanation:

A Db2 subsystem, a Db2 group attach name, or both are not specified so one or both of them cannot be created.

System action:

None.

User response:

Specify a value for the Db2 subsystem, the Db2 group attach name, or both.

CCQD565E

The *subsystem_ID* Db2 subsystem already exists in the list of Db2 entries and is already associated with the current product.

Explanation:

The specified subsystem is already associated.

System action:

None.

User response:

Specify a different Db2 subsystem.

CCQD566E

The *member_name* Db2 member for the *group_attach_name* Db2 group attach name already exists in the list of Db2 entries and is already associated with the current product.

Explanation:

The specified Db2 member is already associated.

System action:

None.

User response:

Specify a different Db2 member.

CCQD567E

The *group_attach_name* Db2 group attach name already exists in the list of Db2 entries and

is already associated with the current product.

Explanation:

The specified Db2 group attach name is already associated.

System action:

None.

User response:

Specify another Db2 group attach name.

CCQD568I

***product_name* is not associated with a DB2 entry.**

Explanation:

The product that you are trying to customize is not associated with a Db2 entry. Before a product can be customized, it must be associated with at least one Db2 entry.

System action:

None.

User response:

Associate one or more Db2 entries with the product.

CCQD569I

The *product_name* product configuration is not associated with a DB2 entry.

Explanation:

The configuration for the specified product is not associated with a Db2 entry.

System action:

None.

User response:

Associate one or more Db2 entries with the configuration.

CCQD577W

The *mode_name* Db2 mode of the *subsystem_ID* Db2 subsystem is not supported by the product.

Explanation:

The product does not support the specified Db2 mode.

System action:

None.

User response:

Specify a supported Db2 mode.

CCQD578W

The *mode_name* Db2 mode of the *member_name* Db2 member for the Db2 group is not supported by the product.

Explanation:

The product does not support the specified Db2 mode.

System action:

None.

User response:

Specify a supported Db2 mode.

CCQD579W **The *mode_name* Db2 mode of the *group_name* Db2 group attach name is not supported by the product.**

Explanation:

The product does not support the specified Db2 mode.

System action:

None.

User response:

Specify a supported Db2 mode.

CCQD580S **The *subsystem_ID* Db2 subsystem was copied to the list of Db2 entries but was not associated because the product is already associated with the allowed number of Db2 entries.**

Explanation:

The copied Db2 subsystem was not associated with the product because the product is associated with the maximum number of Db2 entries.

System action:

None.

User response:

Remove an associated Db2 entry and associate the product with the copied Db2 subsystem.

CCQD581S **The *member_name* Db2 member for the *group_attach_name* Db2 group attach name was copied to the list of Db2 entries but was not associated because the product is already associated with the allowed number of Db2 entries.**

Explanation:

The copied Db2 member for the Db2 group attach name was not associated with the product because the product is associated with the maximum number of Db2 entries.

System action:

None.

User response:

Remove an associated Db2 entry and associate the product with the copied Db2 member.

CCQD582S **The *group_attach_name* Db2 group attach name was copied to the list of Db2 entries but was not associated because the product is already associated with the allowed number of Db2 entries.**

Explanation:

The copied Db2 group attach name was not associated with the product because the product is associated with the maximum number of Db2 entries.

System action:

None.

User response:

Remove an associated Db2 entry and associate the product with the copied Db2 group attach name.

CCQD583I **The *from_DB2* Db2 subsystem was copied to the *to_DB2* subsystem.**

System action:

None.

User response:

No action is required.

CCQD584I **The *member_name* DB2 member for the *group_attach_name* DB2 group attach name is copied to the *subsystem_ID* DB2 subsystem.**

Explanation:

The specified Db2 member was copied.

System action:

None.

User response:

No action is required.

CCQD585I **The *group_attach_name* Db2 group attach name cannot be copied because a Db2 member is required.**

Explanation:

The specified Db2 group attach name was not copied because a Db2 member was missing.

System action:

None.

User response:

No action is required.

CCQD586S **The current LPAR is *LPAR_name*, but the data store contains information about the *LPAR_name* LPAR. You must use the *LPAR_name* LPAR to customize the product.**

Explanation

An attempt was made to customize the product on an LPAR that is different than the LPAR in the data store. The LPAR that is stored in the data store data set must be used to customize the product.

This error can occur in the following situations:

- Tools Customizer is installed on a DASD device that is shared by multiple LPARs.
- After a product is customized by using Tools Customizer, the data store is copied to another LPAR.

This message is issued to prevent the data store from becoming corrupted.

System action:
Processing stops.

User response:
Use the LPAR that is stored in the data store data set.

CCQD587W **The *level_number* Db2 level of the *subsystem_name* Db2 subsystem is not supported by the product.**

Explanation:
The product does not support the specified Db2 level.

System action:
Processing continues.

User response:
Specify a supported level of Db2.

CCQD588W **The *level_number* Db2 level of the *member_name* Db2 member of the *group_name* Db2 group is not supported by the product.**

Explanation:
The product does not support the specified Db2 level.

System action:
Processing continues.

User response:
Specify a supported level of Db2.

CCQD589W **The *level_number* Db2 level of the *group_name* Db2 group attach name is not supported by the product.**

Explanation:
The product does not support the specified Db2 level.

System action:
Processing continues.

User response:
Specify a supported level of Db2.

CCQD593I **The *subsystem_ID* Db2 subsystem was deleted.**

User response:
No action is required.

CCQD594I **The *member_name* Db2 for the *group_attach_name* Db2 group attach name was deleted.**

User response:

No action is required.

CCQD595I **The *group_attach_name* Db2 group attach name was deleted.**

User response:
No action is required.

CCQD596E **The *subsystem_ID* Db2 subsystem was not deleted.**

Explanation:
An internal error occurred while the specified Db2 subsystem was being deleted.

System action:
Processing stops.

User response:
See [“Gathering diagnostic information” on page 312.](#)
Contact IBM Software Support.

CCQD597E **The *member_name* Db2 member for the *group_attach_name* Db2 group attach name was not deleted.**

Explanation:
An internal error occurred while the specified Db2 member was being deleted.

System action:
Processing stops.

User response:
See [“Gathering diagnostic information” on page 312.](#)
Contact IBM Software Support.

CCQD598E **The *group_attach_name* Db2 group attach name was not deleted.**

Explanation:
An internal error occurred while the specified Db2 group attach name was being deleted.

System action:
Processing stops.

User response:
See [“Gathering diagnostic information” on page 312.](#)
Contact IBM Software Support.

CCQD600W **The *member_name* product customization member is not valid. The PL/I XML parser issued the following exception warning code: *code_number*.**

Explanation:
While determining if the XML structure of the product customization member is valid, the PL/I XML parser issued an exception warning code.

System action:
Processing continues.

User response:

See the *Enterprise PL/I for z/OS Programming Guide* for more information about the exception warning code.

CCQD601S **The *member_name* product customization member is not valid. The PL/I XML parser issued the following exception error code: *code_number*.**

Explanation:

While determining if the XML structure of the product customization member is valid, the PL/I XML parser issued an exception error code.

System action:

Processing stops.

User response:

See the *Enterprise PL/I for z/OS Programming Guide* for more information about the exception error code.

CCQD602S **The XML structure of the *member_name* product customization member is not valid. The *element_name* element is unknown.**

Explanation:

The data store member contains an unknown element.

System action:

Processing stops.

User response:

See “[Gathering diagnostic information](#)” on page 312. Contact IBM Software Support.

CCQD603S **The XML structure of the *member_name* product customization member is not valid. Content is not allowed for the *element_name* element, but content was found.**

Explanation:

The specified element cannot contain content.

System action:

Processing stops.

User response:

See “[Gathering diagnostic information](#)” on page 312. Contact IBM Software Support.

CCQD604S **The XML structure of the *member_name* product customization member is not valid. Content is required for the *element_name* element, but content was not found.**

Explanation:

The specified element is missing required content.

System action:

Processing stops.

User response:

See “[Gathering diagnostic information](#)” on page 312. Contact IBM Software Support.

CCQD605S **The XML structure of the *member_name* product customization member is not valid. The content length for the *element_name* element exceeds *maximum_number* characters.**

Explanation:

The specified element contains too many characters.

System action:

Processing stops.

User response:

See “[Gathering diagnostic information](#)” on page 312. Contact IBM Software Support.

CCQD606S **The XML structure of the *member_name* product customization member is not valid. The *element_name* element cannot occur more than *maximum_number* times.**

Explanation:

The specified element occurs too many times.

System action:

Processing stops.

User response:

See “[Gathering diagnostic information](#)” on page 312. Contact IBM Software Support.

CCQD607S **The XML structure of the *member_name* product customization member is not valid. The *element_name* element must occur at least *minimum_number* times.**

Explanation:

The specified element does not occur enough times.

System action:

Processing stops.

User response:

See “[Gathering diagnostic information](#)” on page 312. Contact IBM Software Support.

CCQD608S **The XML structure of the *member_name* product customization member is not valid. The *attribute_name* attribute in the *element_name* element cannot occur more than *maximum_number* times.**

Explanation:

The specified attribute occurs too many times.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQD609S

The XML structure of the *member_name* product customization member is not valid. The *attribute_name* attribute in the *element_name* element must occur at least *minimum_number* times.

Explanation:

The specified attribute does not occur enough times.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQD610S

The XML structure of the *member_name* product customization member is not valid. Content is not allowed for the *attribute_name* attribute in the *element_name* element, but content was found.

Explanation:

The specified attribute cannot contain content.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQD611S

The XML structure of the *member_name* product customization member is not valid. Content is required for the *attribute_name* attribute in the *element_name* element, but content was not found.

Explanation:

The specified attribute does not contain required content.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQD612S

The XML structure of the *member_name* product customization member is not valid. The content length for the *element_name* element exceeds *maximum_number* characters.

Explanation:

The specified element contains too many characters.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQD613S

The XML structure of the *member_name* product customization member is not valid. The *attribute_name* attribute in the *element_name* element is unknown.

Explanation:

The specified attribute in the data store member is unknown.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQD614S

The content of the *member_name* product customization member is not valid. The value of the *element_name* element is not valid. The value is *value_name*.

Explanation:

The specified value is not valid.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQD700W

The *member_name* Db2 data member is not valid. The PL/I XML parser issued the following exception warning code: *code_number*.

Explanation:

While determining if the XML structure of the Db2 data member is valid, the PL/I XML parser issued an exception warning code.

System action:

Processing continues.

User response:

See the *Enterprise PL/I for z/OS Programming Guide* for more information about the exception warning code.

CCQD701S **The *member_name* Db2 data member is not valid. The PL/I XML parser issued the following exception error code: *code_number*.**

Explanation:

While determining if the XML structure of the Db2 data member is valid, the PL/I XML parser issued an exception error code.

System action:

Processing continues.

User response:

See the *Enterprise PL/I for z/OS Programming Guide* for more information about the exception error code.

CCQD750W **The *value_number* value in the Db2 parameter *parameter_name* was skipped because only *maximum_number* values are allowed.**

Explanation:

The specified value was skipped because it exceeds the number of allowed values in the Db2 parameter.

System action:

Processing continues.

User response:

No action is required. To stop this message from being issued, remove the extra values from the Db2 parameter.

CCQD800W **The *member_name* LPAR data member is not valid. The PL/I XML parser issued the following exception warning code: *code_number*.**

Explanation:

While determining if the XML structure of the LPAR data member is valid, the PL/I XML parser issued an exception warning code.

System action:

Processing continues.

User response:

See the *Enterprise PL/I for z/OS Programming Guide* for more information about the exception warning code.

CCQD801S **The *member_name* LPAR data member is not valid. The PL/I XML parser issued the following exception error code: *code_number*.**

Explanation:

While determining if the XML structure of the LPAR data member is valid, the PL/I XML parser issued an exception error code.

System action:

Processing continues.

User response:

See the *Enterprise PL/I for z/OS Programming Guide* for more information about the exception error code.

CCQD850W **The *value_number* value in the LPAR parameter *parameter_name* was skipped because only *maximum_number* values are allowed.**

Explanation:

The specified value was skipped because it exceeds the number of allowed values in the LPAR parameter.

System action:

Processing continues.

User response:

No action is required. To stop this message from being issued, remove the extra values from the LPAR parameter.

CCQD851I **The *subsystem_ID* Db2 subsystem is copied to the *member_name* Db2 member for the *group_attach_name* Db2 group attach name.**

User response:

No action is required.

CCQD852I **The *member_name* Db2 member for the *group_attach_name* Db2 group attach name is copied to the *member_name* Db2 member for the *group_attach_name* Db2 group attach name.**

User response:

No action is required.

CCQD854I **The *member_name* Db2 member for the *group_attach_name* Db2 group 'attach name is copied to multiple Db2 entries.**

User response:

No action is required.

CCQD900W **The *member_name* product data member is not valid. The PL/I XML parser issued the following exception warning code: *code_number*.**

Explanation:

While determining if the XML structure of the product data member is valid, the PL/I XML parser issued an exception warning code.

System action:

Processing continues.

User response:

See the *Enterprise PL/I for z/OS Programming Guide* for more information about the exception warning code.

CCQD901S **The *member_name* product data member is not valid. The PL/I XML parser issued the following exception error code: *code_number*.**

Explanation:

While determining if the XML structure of the product data member is valid, the PL/I XML parser issued an exception error code.

System action:

Processing continues.

User response:

See the *Enterprise PL/I for z/OS Programming Guide* for more information about the exception warning code.

CCQD950W **The *value_number* value in the product parameter *parameter_name* was skipped because only *maximum_number* values are allowed.**

Explanation:

The specified value was skipped because it exceeds the number of allowed values in the product parameter.

System action:

Processing continues.

User response:

No action is required. To stop this message from being issued, remove the extra values from the product parameter.

CCQD960I **The *subsystem_ID* Db2 subsystem was changed to the *member_name* Db2 member for the *group_attach_name* Db2 group attach name.**

User response:

No action is required.

CCQD961I **The *member_name* Db2 member for the *group_attach_name* Db2 group attach name was changed to the *subsystem_ID* Db2 subsystem.**

User response:

No action is required.

CCQD962I **The *member_name* Db2 member for the *group_attach_name* Db2 group attach name was changed to the *member_name* Db2 member for the *group_attach_name* Db2 group attach name.**

User response:

No action is required.

CCQD963E **The DB2 group attach name cannot be blank when the Db2 subsystem ID is blank.**

Explanation:

A Db2 group attach name, Db2 subsystem ID, or both must be specified.

System action:

Processing stops.

User response:

Specify a Db2 group attach name, Db2 subsystem ID, or both.

CCQE000S **The specified message field name or message *message_ID* was not found.**

Explanation:

An error occurred while displaying a message field name or the specified message.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQE001E **An incorrect trace level was specified. Valid trace levels are 0 - 4.**

Explanation:

A wrong trace level was specified. Valid trace levels are 0 - 4.

System action:

Processing stops.

User response:

Specify a valid trace level 0 - 4.

CCQF028E **An asterisk was improperly specified in a filter argument.**

Explanation:

An asterisk, which is treated as data, is embedded in the filter arguments. A generic filter argument is specified by placing the asterisk in the last nonblank position of the argument. No rows match the filter arguments, so all rows will be shown.

System action:

Processing stops.

User response:

Specify a valid filter argument.

CCQF029I **More Db2 entries are associated with the specified product. All Db2 entries are listed.**

System action:

None.

User response:

No action is required.

CCQF080I **The customized jobs for the product that you are customizing are stored in this data set.**

System action:

None.

User response:

No action is required.

CCQF081I **The JCL must be browsed or edited.**

Explanation:

You can either browse or edit the JCL.

System action:

None.

User response:

No action is required.

CCQF082E **The *sort-command* command has an invalid sort field or order. The valid fields are *list-of-column-names*. The valid sort orders are A (for ascending) or D (for descending).**

Explanation:

An invalid sort field or order was specified.

System action:

Processing stops.

User response:

Specify a valid sort field or order.

CCQF083E **The *sort-command* command is missing a sort field.**

Explanation:

A sort field must be specified.

System action:

Processing stops.

User response:

Specify a valid sort field.

CCQF084E **The *sort-command* command has more than two sort fields specified.**

Explanation:

The specified sort command included more than two sort fields. The sort command can have up to two fields specified.

System action:

Processing stops.

User response:

Specify only one or two sort fields.

CCQF085E **A sort order was specified incorrectly in the *sort-command* command. A sort order can be specified only after a field name.**

Explanation:

Valid orders are A (for ascending) or D (for descending).

System action:

Processing stops.

User response:

Specify a valid sort order after a field name.

CCQF086E **The *sort-command* command has an invalid sort field. The valid fields are *list-of-the-table-column-names*.**

Explanation:

An invalid sort field was specified.

System action:

Processing stops.

User response:

Specify a valid sort field.

CCQF087E **The *sort-command* command has an invalid sort order. The valid orders are A (for ascending) or D (for descending).**

Explanation:

An invalid sort order was specified.

System action:

Processing stops.

User response:

Specify a valid sort order.

CCQF088E **No row match the specified filter argument. All rows are shown.**

Explanation:

No rows match the selected values.

System action:

Processing stops.

User response:

Specify a matched value for filtering.

CCQF089I **Type the search arguments to filter objects. A generic filter argument is a search argument of the form AA*.**

Explanation:

In a generic filter argument, only the characters up to the asterisk (*) are compared. The * must be placed in the last nonblank position of the argument. Asterisks embedded in the argument are treated as data.

System action:

None.

User response:

No action is required.

CCQF110I **To show the panel instructions section, specify a slash (/). To hide the panel instructions section, remove the slash.**

System action:

None.

User response:

No is action required.

CCQF111I **To show the Products to Customize section, specify a slash (/). To hide the Products to Customize section, remove the slash. The Product to Customize section can be shown or hidden only on the Customizer Workplace panel.**

System action:

None.

User response:

No is action required.

CCQF112I **To show the Usage Notes section, specify a slash (/). To hide the Usage Notes section, remove the slash. The Usage Notes section can be shown only on the Product Parameters, LPAR Parameters, and DB2 Parameters panels.**

System action:

None.

User response:

No action is required.

CCQF113I **The specified values have been saved.**

System action:

None.

User response:

No action is required.

CCQF114I **Displays the Panel Display Options panel. Use this panel to select which information to display on panels .**

System action:

None.

User response:

No action is required.

CCQF116I **The fully qualified name of the data set into which you want to copy the current user profile. If the data set name exceeds 42 characters, enclose the name in quotation marks. ALTER or UPDATE authorization to this data set is required.**

System action:

None.

User response:

No action is required.

CCQF117I **The volume name in which the data set will reside. If left blank, the volume name will be decided by the system.**

System action:

None.

User response:

No action is required.

CCQF110I **To show the panel instructions section, specify a slash (/). To hide the panel instructions section, remove the slash.**

System action:

None.

User response:

No is action required.

CCQH001W **The specified option *option_name* is not valid.**

Explanation:

The option that was specified is not a valid option on the panel.

System action:

Tools Customizer stops.

User response:

Specify a valid option on the panel.

CCQH006W **Before you customize a product, verify your user settings.**

Explanation:

The user settings must be verified before a product can be customized.

System action:

Tools Customizer stops.

User response:

Verify the user settings.

CCQH007E **Check the user settings. One or more current values are not valid.**

Explanation:

One or more of the values in the user settings is not valid.

System action:

Tools Customizer stops.

User response:

Ensure that the specified values for the user settings are valid.

CCQH008W **Before you use Tools Customizer, you must select option 0 to verify your user settings.**

Explanation:

The user settings must be changed before a product can be customized.

System action:

Tools Customizer stops.

User response:

Change the user settings.

CCQH009E **You must select option 0 to change your user settings.**

Explanation:

User settings must be changed before a product can be customized.

System action:

Tools Customizer stops.

User response:

Change the user settings.

CCQI000W **The XML structure of the *member_name* Db2 parameter metadata member is not valid. The PL/I XML parser issued the following exception warning code: *code_number*.**

Explanation:

While determining if the Db2 parameter metadata member is valid, the PL/I XML parser issued an exception warning code.

System action:

Processing continues.

User response:

See the *Enterprise PL/I for z/OS Programming Guide* for more information about the exception warning code.

CCQI001S **The XML structure of the *member_name* Db2 parameter metadata member is not valid. The PL/I XML parser issued the following exception error code: *code_number*.**

Explanation:

While determining if the Db2 parameter metadata member is valid, the PL/I XML parser issued an exception error code.

System action:

Processing stops.

User response:

See the *Enterprise PL/I for z/OS Programming Guide* for more information about the exception warning code.

CCQI002S **The XML structure of the *member_name* Db2 parameter metadata member is not valid. The *element_name* element is unknown.**

Explanation:

The specified element in the Db2 parameter metadata member is unknown.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI003S **The XML structure of the *member_name* Db2 parameter metadata member is not valid. Content is not allowed for the *element_name* element, but content was found.**

Explanation:

The specified element cannot contain content.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI004S **The XML structure of the *member_name* Db2 parameter metadata member is not valid. Content is required for the *element_name* element, but content was not found.**

Explanation:

The specified element requires content.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQI005S **The XML structure of the *member_name* Db2 parameter metadata member is not valid. The content length for the *element_name* element cannot exceed *maximum_number* characters.**

Explanation:
The specified element contains too many characters.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQI006S **The XML structure of the *member_name* Db2 parameter metadata member is not valid. The content length for the *element_name* element must be at least *minimum_number* characters.**

Explanation:
The specified element does not contain enough characters.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQI007S **The XML structure of the *member_name* Db2 parameter metadata member is not valid. The *element_name* element must occur at least *minimum_number* times.**

Explanation:
The specified element does not occur enough times.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQI008S **The XML structure of the *member_name* Db2 parameter metadata member is not valid. The *attribute_name* attribute in the *element_name* element**

cannot occur more than *maximum_number* times.

Explanation:
The specified attribute occurs too many times.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQI009S **The XML structure of the *member_name* Db2 parameter metadata member is not valid. The *attribute_name* attribute in the *element_name* element must occur at least *minimum_number* times.**

Explanation:
The specified attribute did not occur enough times.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQI010S **The XML structure of the *member_name* Db2 parameter metadata member is not valid. Content is not allowed for the *attribute_name* attribute in the *element_name* element, but content was found.**

Explanation:
The specified attribute cannot have content.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQI011S **The XML structure of the *member_name* Db2 parameter metadata member is not valid. Content is required for the *attribute_name* attribute in the *element_name* element, but content was not found.**

Explanation:
The specified attribute is missing required content.

System action:
Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI012S **The XML structure of the *member_name* Db2 parameter metadata member is not valid. The content length for the *element_name* element cannot exceed *maximum_number* characters.**

Explanation:

The specified element contains too many characters.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI013S **The XML structure of the *member_name* Db2 parameter metadata member is not valid. The *attribute_name* attribute in the *element_name* element is unknown.**

Explanation:

The specified attribute in the Db2 parameter metadata member is unknown.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI014S **The content of the *member_name* Db2 parameter metadata member is not valid because the value of the *element_name* element is incorrect. The value is *value_name*.**

Explanation:

The specified value of the element is not a valid value.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI015S **The content of the DB2 parameter metadata member is not valid because the value of the *attribute_name* attribute in the *element_name* element is incorrect. The value of the attribute is *value_name*.**

Explanation:

The specified value of the attribute is not a valid value.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI016S **The content of the DB2 parameter metadata member is not valid because the data type of the *element_name* element is incorrect. The value is *value_name*.**

Explanation:

The specified data type is not a valid data type.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI017S **The content of the DB2 parameter metadata member is not valid because the data type of the *attribute_name* attribute in the *element_name* element is incorrect. The value of the attribute is *value_name*.**

Explanation:

The specified data type is not a valid data type.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI050S **The *member_name* Db2 parameter metadata member was not found in the *data_set_name* data set.**

Explanation:

Tools Customizer could not find the specified Db2 parameter metadata member.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI051S **The *parameter_name* LPAR parameter in the *template_name* template does not have associated metadata in the *member_name* LPAR parameter metadata member.**

Explanation:

The specified template does not contain metadata for an LPAR parameter. The name of the LPAR parameter metadata member, the name of the LPAR parameter, and the name of the template are indicated in the message text.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI052S **The *parameter_name* product parameter in the *template_name* template does not have associated metadata in the *member_name* product parameter metadata member.**

Explanation:

The specified template does not contain metadata for a product parameter. The name of the product parameter metadata member, the name of the product parameter, and the name of the template are indicated in the message text.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI053E **The following metadata data set was not found: *data_set_name*.**

Explanation:

Tools Customizer could not find the specified metadata data set.

System action:

Processing stops.

User response:

Ensure that the metadata data set is specified correctly. If the problem persists, contact IBM Software Support.

CCQI054E **The following metadata data set could not be opened: *data_set_name*.**

Explanation:

Tools Customizer could not open the specified LPAR metadata data set.

System action:

Processing stops.

User response:

Ensure the metadata data set was specified correctly.

CCQI055S

The CCQ\$\$DB2 Db2 parameter metadata member was not found in the *data_set_name* Tools Customizer metadata data set.

Explanation:

Tools Customizer could not find the Db2 parameter metadata member in the specified Tools Customizer metadata data set.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI056S

The CCQ\$\$LPR LPAR parameter metadata member was not found in the *data_set_name* data set.

Explanation:

Tools Customizer could not find the specified LPAR parameter metadata member.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI057S

The *member_name* product parameter metadata member was not found in the *data_set_name* data set.

Explanation:

The product parameter metadata member was not found in the specified data set.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI058I

***Product_name* does not have any Db2 parameters.**

Explanation:

Db2 parameters are not required to customize the specified product.

System action:

Processing continues.

User response:

No action is required.

CCQI059I

***Product_name* does not have any LPAR parameters.**

Explanation:

LPAR parameters are not required to customize the specified product.

System action:

Processing continues.

User response:

No action is required.

CCQI060S **The *parameter_name* Db2 parameter in the *task_description* task condition does not have associated metadata in the *member_name* Db2 parameter metadata member.**

Explanation:

Associated metadata is missing for the specified Db2 parameter in a task.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI061S **The *parameter_name* LPAR parameter in the *task_description* task condition does not have associated metadata in the *member_name* LPAR parameter metadata member.**

Explanation:

Associated metadata is missing for the specified LPAR parameter in a task.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI062S **The *parameter_name* product parameter in the *task_description* task condition does not have associated metadata in the *member_name* product parameter metadata member.**

Explanation:

Associated metadata is missing for the specified product parameter in a task.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI063S **The *parameter_name* Db2 parameter in the *task_description***

task and the *step_description* step does not have associated metadata in the *member_name* Db2 parameter metadata member.

Explanation:

Associated metadata is missing for the specified Db2 parameter in a task and step.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI064S **The *parameter_name* LPAR parameter in the *task_description* task and the *step_description* step does not have associated metadata in the *member_name* LPAR parameter metadata member.**

Explanation:

Associated metadata is missing for the specified LPAR parameter in a task and step.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI065S **The *parameter_name* product parameter in the *task_description* task and the *step_description* step does not have associated metadata in the *member_name* parameter metadata member.**

Explanation:

Associated metadata is missing for the specified parameter in a task and step.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI066S **The *parameter_name* Db2 parameter in the *task_description* task, *step_description* step, and *template_name* template condition does not have associated metadata in the *member_name* Db2 parameter metadata member.**

Explanation:

Associated metadata is missing for the specified Db2 parameter in a task, step, and template.

System action:
Processing stops.

User response:
See [“Gathering diagnostic information” on page 312.](#)
Contact IBM Software Support.

CCQI067S **The *parameter_name* LPAR parameter in the *task_description* task, *step_description* step, and *template_name* template condition does not have associated metadata in the *member_name* LPAR parameter metadata member.**

Explanation:
Associated metadata is missing for the specified LPAR parameter in a task, step, and template.

System action:
Processing stops.

User response:
See [“Gathering diagnostic information” on page 312.](#)
Contact IBM Software Support.

CCQI068S **The *parameter_name* product parameter in the *task_description* task, *step_description* step, and *template_name* template condition does not have associated metadata in the *member_name* product parameter metadata member.**

Explanation:
Associated metadata is missing for the specified product parameter in a task, step, and template.

System action:
Processing stops.

User response:
See [“Gathering diagnostic information” on page 312.](#)
Contact IBM Software Support.

CCQI069S **Product metadata does not support multiple configurations, but the *template_name* product template contains the *parameter_name* parameter. Enable multiple configurations support for this product, and try again.**

Explanation:
The specified template contains a parameter for multiple configurations, but the product is not enabled to support multiple configurations.

System action:
Processing stops.

User response:
Enable multiple configurations support, and try again.

CCQI070E **The *parameter_name* Db2 parameter metadata member is not valid. The default length for the *parameter-element_name* parameter element exceeds the length of the parameter. The default length is *default_length*, and the specified length is *specified_length*. The default length will be truncated accordingly.**

Explanation:
The specified length cannot be shorter than the default length.

System action:
Processing stops.

User response:
See [“Gathering diagnostic information” on page 312.](#)
Contact IBM Software Support.

CCQI071E **The *parameter_name* LPAR parameter metadata member is not valid. The default length for the *parameter-element_name* parameter element exceeds the length of the parameter. The default length is *default_length*, and the specified length is *specified_length*. The default length will be truncated accordingly.**

Explanation:
The specified length cannot be shorter than the default length.

System action:
Processing stops.

User response:
See [“Gathering diagnostic information” on page 312.](#)
Contact IBM Software Support.

CCQI072E **The *parameter_name* product parameter metadata member is not valid. The default length for the *parameter-element_name* parameter element exceeds the length of the parameter. The default length is *default_length*, and the specified length is *specified_length*. The default length will be truncated accordingly.**

Explanation:

The specified length cannot be shorter than the default length.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information”](#) on page 312.
Contact IBM Software Support.

CCQI073S **The XML structure of the *member_name* Db2 parameter metadata member is not valid. The following value of the *attribute_name* attribute in the *element_name* element already exists: *value_name*.**

Explanation:

The specified value already exists for an attribute.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information”](#) on page 312.
Contact IBM Software Support.

CCQI074S **The XML structure of the *member_name* LPAR parameter metadata member is not valid. The following value of the *attribute_name* attribute in the *element_name* element already exists: *value_name*.**

Explanation:

The specified value already exists for an attribute.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information”](#) on page 312.
Contact IBM Software Support.

CCQI075S **The XML structure of the *member_name* product parameter metadata member is not valid. The following value of the *attribute_name* attribute in the *element_name* element already exists: *value_name*.**

Explanation:

The specified value already exists for an attribute.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information”](#) on page 312.
Contact IBM Software Support.

CCQI076S **The XML structure of the *member_name* Db2 parameter metadata member is not valid. The *parameter_name* parameter refers to the *section-name* section. This section was not found in the Db2 parameter metadata member.**

Explanation:

The specified value already exists for an attribute.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information”](#) on page 312.
Contact IBM Software Support.

CCQI077S **The XML structure of the *member_name* LPAR parameter metadata member is not valid. The *parameter_name* parameter refers to the *section-name* section. This section was not found in the LPAR parameter metadata member.**

Explanation:

The specified parameter refers to a section that is not in the LPAR parameter metadata member.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information”](#) on page 312.
Contact IBM Software Support.

CCQI078S **The XML structure of the *member_name* product parameter metadata member is not valid. The *parameter_name* parameter refers to the *section-name* section. This section was not found in the product parameter metadata member.**

Explanation:

The specified parameter refers to a section that is not in the product parameter metadata member.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information”](#) on page 312.
Contact IBM Software Support.

CCQI080S **The content of the *member_name* Db2 parameter metadata member is not valid because the value of the *attribute_name* attribute in the *element_name* element**

is incorrect. The value of the attribute is *value_name*.

Explanation:

The specified value for an attribute in the Db2 parameter metadata member is not valid.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312. Contact IBM Software Support.

CCQI081S **The content of the *member_name* LPAR parameter metadata member is not valid because the value of the *attribute_name* attribute in the *element_name* element is incorrect. The value of the attribute is *value_name*.**

Explanation:

The specified value for an attribute in the LPAR parameter metadata member is not valid.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312. Contact IBM Software Support.

CCQI082S **The content of the *member_name* product parameter metadata member is not valid because the value of the *attribute_name* attribute in the *element_name* element is incorrect. The value of the attribute is *value_name*.**

Explanation:

The specified value for an attribute in the product parameter metadata member is not valid.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312. Contact IBM Software Support.

CCQI088I **The *command* command is not active in BROWSE mode.**

Explanation:

The specified command can be entered only in Edit mode.

System action:

Processing continues.

User response:

Put the panel in Edit mode and reissue the command.

CCQI089I **The *command* command is already active.**

System action:

Processing continues.

User response:

No action required.

CCQI090S **The product-defined Db2 parameter *parameter_name* in the *member_name* parameter metadata member references the *section_ID* section ID, but this ID does not exist in either the parameter metadata member or the Db2 parameter metadata member.**

Explanation:

A section that does not exist in the parameter metadata member or the Db2 parameter metadata member is referenced by the specified Db2 parameter.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312. Contact IBM Software Support.

CCQI091S **The product-defined LPAR parameter in the *member_name* parameter metadata member references the *section_ID* section ID, but this ID does not exist in either the parameter metadata member or the LPAR parameter metadata member.**

Explanation:

A section that does not exist in the parameter metadata member or the LPAR parameter metadata member is being referenced by the specified LPAR parameter.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312. Contact IBM Software Support.

CCQI092S **The overridden DB2 parameter *parameter_name* in the *member_name* parameter metadata member does not exist in the Db2 parameter metadata member.**

Explanation:

The specified parameter does not exist.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQI093S **The overridden LPAR parameter *parameter_name* in the *member_name* parameter metadata member does not exist in the LPAR parameter metadata member.**

Explanation:

The specified parameter does not exist.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQI094S **The CCQ\$\$PRD product customization parameter metadata member was not found in the *data_set_name* data set.**

Explanation:

The specified data set must contain the CCQ\$\$PRD product customization parameter metadata member

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQI100W **The XML structure of the *member_name* LPAR parameter metadata member is not valid. The PL/I XML parser issued the following exception warning code: *code_number*.**

Explanation:

While determining if the LPAR parameter metadata member is valid, the PL/I XML parser issued an exception warning code.

System action:

Processing continues.

User response:

See the *Enterprise PL/I for z/OS Programming Guide* for more information about the exception warning code.

CCQI101S **The XML structure of the *member_name* LPAR parameter metadata member is not valid. The PL/I XML parser issued the following exception error code: *code_number*.**

Explanation:

While determining if the LPAR parameter metadata member is valid, the PL/I XML parser issued an exception error code.

System action:

Processing stops.

User response:

See the *Enterprise PL/I for z/OS Programming Guide* for more information about the exception warning code.

CCQI102S **The XML structure of the *member_name* LPAR parameter metadata member is not valid. The *element_name* element is unknown.**

Explanation:

The specified element in the LPAR parameter metadata member is unknown.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQI103S **The XML structure of the *member_name* LPAR parameter metadata member is not valid. Content is not allowed for the *element_name* element, but content was found.**

Explanation:

The specified element cannot contain content.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQI104S **The XML structure of the *member_name* LPAR parameter metadata member is not valid. Content is required for the *element_name* element, but content was not found.**

Explanation:

The specified element requires content.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQI105S **The XML structure of the *member_name* LPAR parameter**

metadata member is not valid. The content length for the *element_name* element cannot exceed *maximum_number* characters.

Explanation:

The specified element contains too many characters.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI106S **The XML structure of the *member_name* LPAR parameter metadata member is not valid. The content length for the *element_name* element must be at least *minimum_number* characters.**

Explanation:

The specified element does not contain enough characters.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI107S **The XML structure of the *member_name* LPAR parameter metadata member is not valid. The *element_name* element must occur at least *minimum_number* times.**

Explanation:

The specified element does not occur enough times.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI108S **The XML structure of the *member_name* LPAR parameter metadata member is not valid. The *attribute_name* attribute in the *element_name* element cannot occur more than *maximum_number* times.**

Explanation:

The specified attribute occurs too many times.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI109S **The XML structure of the *member_name* LPAR parameter metadata member is not valid. The *attribute_name* attribute in the *element_name* element must occur at least *minimum_number* times.**

Explanation:

The specified attribute did not occur enough times.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI110S **The XML structure of the *member_name* LPAR parameter metadata member is not valid. Content is not allowed for the *attribute_name* attribute in the *element_name* element, but content was found.**

Explanation:

The specified attribute cannot have content.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI111S **The XML structure of the *member_name* LPAR parameter metadata member is not valid. Content is required for the *attribute_name* attribute in the *element_name* element, but content was not found.**

Explanation:

The specified attribute is missing required content.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI112S **The XML structure of the *member_name* LPAR parameter metadata member is not valid. The content length for the *element_name* element**

cannot exceed *maximum_number* characters.

Explanation:

The specified element contains too many characters.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI113S **The XML structure of the *member_name* LPAR parameter metadata member is not valid. The *attribute_name* attribute in the *element_name* element is unknown.**

Explanation:

The specified attribute in the LPAR parameter metadata member is unknown.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI114S **The content of the *member_name* LPAR parameter metadata member is not valid because the value of the *element_name* element is incorrect. The value is *value_name*.**

Explanation:

The specified value for an element in the LPAR parameter metadata member is not valid.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI115S **The content of the *member_name* LPAR parameter metadata member is not valid because the value of the *attribute_name* attribute in the *element_name* element is incorrect. The value of the attribute is *value_name*.**

Explanation:

The specified value for an attribute in the LPAR parameter metadata member is not valid.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI116S **The content of the *member_name* LPAR parameter metadata member is not valid because the data type of the *element_name* element is incorrect. The value is *value_name*.**

Explanation:

The specified data type value for an element in the LPAR parameter metadata member is not valid.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI117S **The content of the *member_name* LPAR parameter metadata member is not valid because the data type of the *attribute_name* attribute in the *element_name* element is incorrect. The value is *value_name*.**

Explanation:

The specified data type value for an attribute in the LPAR parameter metadata member is not valid.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI120S **The XML structure of the *member_name* Db2 parameter metadata member is not valid. The *element_name* element in the *parameter_name* parameter contains duplicate values for the *element_name* element. The duplicate value is *value_name*.**

Explanation:

An element contains the specified duplicate value.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI121S **The XML structure of the *member_name* LPAR parameter metadata member is not valid. The *element_name* element in the *parameter_name* parameter**

contains duplicate values for the *element_name* element. The duplicate value is *value_name*.

Explanation:

An element contains the specified duplicate value.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312. Contact IBM Software Support.

CCQI122S **The XML structure of the *member_name* parameter metadata member is not valid. The *element_name* element in the *parameter_name* parameter contains duplicate values for the *element_name* element. The duplicate value is *value_name*.**

Explanation:

An element contains the specified duplicate value.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312. Contact IBM Software Support.

CCQI123S **The XML structure of the *member_name* discover metadata member is not valid. The *element_name* element in the *parameter_name* parameter contains duplicate values for the *element_name* element. The duplicate value is *value_name*.**

Explanation:

An element contains the specified duplicate value.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312. Contact IBM Software Support.

CCQI124S **The XML structure of the *member_name* product customization parameter metadata member is not valid. The *element_name* element in the *parameter_name* parameter contains duplicate values for the *element_name* element. The duplicate value is *value_name*.**

Explanation:

An element contains the specified duplicate value.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312. Contact IBM Software Support.

CCQI200W **The XML structure of the *member_name* information metadata member is not valid. The PL/I XML parser issued the following exception warning code: *code_number*.**

Explanation:

While determining if the information metadata member is valid, the PL/I XML parser issued an exception warning code.

System action:

Processing continues.

User response:

See the *Enterprise PL/I for z/OS Programming Guide* for more information about the exception warning code.

CCQI201S **The XML structure of the *member_name* information metadata member is not valid. The PL/I XML parser issued the following exception error code: *code_number*.**

Explanation:

While determining if the information metadata member is valid, the PL/I XML parser issued an exception error code.

System action:

Processing stops.

User response:

See the *Enterprise PL/I for z/OS Programming Guide* for more information about the exception warning code.

CCQI202S **The XML structure of the *member_name* information metadata member is not valid. The *element name* element is unknown.**

Explanation:

The specified element in the information metadata member is unknown.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312. Contact IBM Software Support.

CCQI203S **The XML structure of the *member_name* information metadata member is not valid.**

Content is not allowed for the *element_name* element, but content was found.

Explanation:

The specified element cannot contain content.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI204S **The XML structure of the *member_name* information metadata member is not valid. Content is required for the *element_name* element, but content was not found.**

Explanation:

The specified element requires content.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI205S **The XML structure of the *member_name* information metadata member is not valid. The content length for the *element_name* element cannot exceed *maximum_number* characters.**

Explanation:

The specified element contains too many characters.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI206S **The XML structure of the *member_name* information metadata member is not valid. The content length for the *element_name* element must be at least *minimum_number* characters.**

Explanation:

The specified element does not contain enough characters.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI207S **The XML structure of the *member_name* information metadata member is not valid. The *element_name* element must occur at least *minimum_number* times.**

Explanation:

The specified element does not occur enough times.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI208S **The XML structure of the *member_name* information metadata member is not valid. The *attribute_name* attribute in the *element_name* element cannot occur more than *maximum_number* times.**

Explanation:

The specified attribute occurs too many times.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI209S **The XML structure of the *member_name* information metadata member is not valid. The *attribute_name* attribute in the *element_name* element must occur at least *minimum_number* times.**

Explanation:

The specified attribute did not occur enough times.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI210S **The XML structure of the *member_name* information metadata member is not valid. Content is not allowed for the *attribute_name* attribute in the *element_name* element, but content was found.**

Explanation:

The specified attribute cannot have content.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQI211S **The XML structure of the *member_name* information metadata member is not valid. Content is required for the *attribute_name* attribute in the *element_name* element, but content was not found.**

Explanation:
The specified attribute is missing required content.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQI212S **The XML structure of the *member_name* information metadata member is not valid. The content length for the *element_name* element cannot exceed *maximum_number* characters.**

Explanation:
The specified element contains too many characters.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQI213S **The XML structure of the *member_name* information metadata member is not valid. The *attribute_name* attribute in the *element_name* element is unknown.**

Explanation:
The specified attribute in the information metadata member is unknown.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQI214S **The content of the *member_name* information metadata member is not valid because the value of the *element_name* element**

is incorrect. The value is *value_name*.

Explanation:
The specified value for an element in the information metadata member is not valid.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQI215S **The content of the *member_name* information metadata member is not valid because the value of the *attribute_name* attribute in the *element_name* element is incorrect. The value is *value_name*.**

Explanation:
The specified value for an attribute in the information metadata member is not valid.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQI216S **The content of the *member_name* information metadata member is not valid because the data type of the *element_name* element is incorrect. The value is *value_name*.**

Explanation:
The specified data type value for an element in the information metadata member is not valid.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQI217S **The content of the *member_name* information metadata member is not valid because the data type of the *attribute_name* attribute in the *element_name* element is incorrect. The value is *value_name*.**

Explanation:
The specified data type value for an attribute in the information metadata member is not valid.

System action:
Processing stops.

User response:

See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQI218S **The content of the *member_name* information metadata member is not valid. The length of the *value_name* value that of the *attribute_name* attribute is longer than the *value_name* value of the *attribute_name* attribute.**

Explanation:

The first specified value cannot be longer than the second specified value.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQI219S **The content of the *member_name* information metadata member is not valid. The *value_name* value of the *attribute_name* attribute contains the *value_name* value.**

Explanation:

The first specified value cannot be longer than the second specified value.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQI220S **The XML structure of the *member_name* information metadata member is not valid. Content for the *attribute_name* attribute in the *element_name* element exceed *maximum_number* characters.**

Explanation:

The specified attribute contains too many characters.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQI223S **The XML structure of the *member_name* information metadata member is not valid. The value that is specified for the Db2 Level already exists. The value is *value_name*.**

Explanation:

The specified value already exists.

System action:

Processing stops.

User response:

Specify a different Db2 level. If the problem persists, contact IBM Software Support.

CCQI224S **The XML structure of the *member_name* information metadata member is not valid. The value that is specified for the Db2 Mode already exists. The value is *value_name*.**

Explanation:

The specified value already exists.

System action:

Processing stops.

User response:

Specify a different Db2 mode. If the problem persists, contact IBM Software Support.

CCQI250S **The information metadata member was not found in the *data_set_name* data set.**

Explanation:

Tools Customizer could not find the information metadata member in the specified data set.

System action:

Processing stops.

User response

If this message was issued on the **Specify the Metadata Library** (CCQPHLQ) panel, specify the product metadata library. The name of this library is *hlq.SINZDENU*.

Do not specify the Tools Customizer metadata library, which is *hlq.SCCQDENU*.

If the problem persists, identify the name of the Tools Customizer trace data set and contact IBM Software Support.

CCQI251E **The *member_name* member was not accessible in the *data_set_name* data set.**

Explanation:

The specified member could not be accessed in the data set.

System action:

Processing stops.

User response:

Specify the correct metadata library.

CCQI252S **The information metadata member was not found in the *library_name* component metadata library that is part of the *library_name* pack metadata library. The name of the pack is *pack_name*.**

Explanation:

The specified component metadata library does not contain the information metadata member.

System action:

Processing stops.

User response:

Specify the correct metadata library.

CCQI253E **The *library_name* Tools Customizer metadata library is not current. Update the metadata library on the Tools Customizer Settings panel.**

Explanation:

The specified metadata library is not current.

System action:

Processing stops.

User response:

Specify a current metadata library on the **Tools Customizer Settings** panel.

CCQI300W **The XML structure of the *member_name* sequence metadata member is not valid. The PL/I XML parser issued the following exception warning code: *code_number*.**

Explanation:

While determining if the sequence metadata member is valid, the PL/I XML parser issued an exception warning code.

System action:

Processing continues.

User response:

See the *Enterprise PL/I for z/OS Programming Guide* for more information about the exception warning code.

CCQI301S **The XML structure of the *member_name* sequence metadata member is not valid. The PL/I XML parser issued the following exception error code: *code_number*.**

Explanation:

While determining if the sequence metadata member is valid, the PL/I XML parser issued an exception error code.

System action:

Processing stops.

User response:

See the *Enterprise PL/I for z/OS Programming Guide* for more information about the exception error code, and contact IBM Software Support.

CCQI302S **The XML structure of the *member_name* sequence metadata member is not valid. The *element_name* element is unknown.**

Explanation:

The specified element in the sequence metadata member is unknown.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312. Contact IBM Software Support.

CCQI303S **The XML structure of the *member_name* sequence metadata member is not valid. Content is not allowed for the *element_name* element, but content was found.**

Explanation:

The specified element cannot contain content.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312. Contact IBM Software Support.

CCQI304S **The XML structure of the *member_name* sequence metadata member is not valid. Content is required for the *element_name* element, but content was not found.**

Explanation:

The specified element is missing required content.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312. Contact IBM Software Support.

CCQI305S **The XML structure of the *member_name* sequence metadata member is not valid. Content length for the *element_name* element cannot exceed *maximum_number* characters.**

Explanation:
The specified element contains too many characters.

System action:
Processing stops.

User response:
See [“Gathering diagnostic information” on page 312.](#)
Contact IBM Software Support.

CCQI306S **The XML structure of the *member_name* sequence metadata member is not valid. The *element_name* element cannot occur more than *maximum_number* times.**

Explanation:
The specified element occurs too many times.

System action:
Processing stops.

User response:
See [“Gathering diagnostic information” on page 312.](#)
Contact IBM Software Support.

CCQI307S **The XML structure of the *member_name* sequence metadata member is not valid. The *element_name* element must occur at least *minimum_number* times.**

Explanation:
The specified element does not occur enough times.

System action:
Processing stops.

User response:
See [“Gathering diagnostic information” on page 312.](#)
Contact IBM Software Support.

CCQI308S **The XML structure of the *member_name* sequence metadata member is not valid. The *attribute_name* attribute in the *element_name* element cannot occur more than *maximum_number* times.**

Explanation:
The specified attribute occurs too many times.

System action:
Processing stops.

User response:
See [“Gathering diagnostic information” on page 312.](#)
Contact IBM Software Support.

CCQI309S **The XML structure of the *member_name* sequence metadata member is not valid. The *attribute_name* attribute in the**

***element_name* element must occur at least *minimum_number* times.**

Explanation:
The specified attribute does not occur enough times.

System action:
Processing stops.

User response:
See [“Gathering diagnostic information” on page 312.](#)
Contact IBM Software Support.

CCQI310S **The XML structure of the *member_name* sequence metadata member is not valid. Content is not allowed for the *attribute_name* attribute in the *element_name* element, but content was found.**

Explanation:
The specified attribute cannot contain content.

System action:
Processing stops.

User response:
See [“Gathering diagnostic information” on page 312.](#)
Contact IBM Software Support.

CCQI311S **The XML structure of the *member_name* sequence metadata member is not valid. Content is required for the *attribute_name* attribute in the *element_name* element, but content was not found.**

Explanation:
The specified attribute is missing required content.

System action:
Processing stops.

User response:
See [“Gathering diagnostic information” on page 312.](#)
Contact IBM Software Support.

CCQI312S **The XML structure of the *member_name* sequence metadata member is not valid. The content length for the *element_name* element cannot exceed *maximum_number* characters.**

Explanation:
The specified element contains too many characters.

System action:
Processing stops.

User response:
See [“Gathering diagnostic information” on page 312.](#)
Contact IBM Software Support.

CCQI313S **The XML structure of the *member_name* sequence metadata member is not valid. The *attribute_name* attribute in the *element_name* element is unknown.**

Explanation:

The specified attribute in the sequence metadata member is unknown.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI314S **The content of the *member_name* sequence metadata member is not valid because the value of the *element_name* element is incorrect. The value is *value_name*.**

Explanation:

The specified value for an element in the sequence metadata member is not valid.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI315S **The content of the *member_name* sequence metadata member is not valid because the value of the *attribute_name* attribute in the *element_name* element is incorrect. The value is *value_name*.**

Explanation:

The specified value for an attribute in the sequence metadata member is not valid.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI316S **The content of the *member_name* sequence metadata member is not valid because the data type of the *element_name* element is incorrect. The value is *value_name*.**

Explanation:

The specified data type value for an element in the sequence metadata member is not valid.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI317S **The content of the *member_name* sequence metadata member is not valid because the data type of the *attribute_name* attribute in the *element_name* element is incorrect. The value is *value_name*.**

Explanation:

The specified data type value for an attribute in the sequence metadata member is not valid.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI350S **The XML structure of the *member_name* sequence metadata member is not valid because the value of the *attribute_name* attribute in the *element_name* element is incorrect. The value is *value_name*.**

Explanation:

A specified value for an attribute in the sequence metadata member is not valid.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI351S **The *member_name* sequence metadata member was not found in the *data_set_name* metadata data set.**

Explanation:

Tools Customizer could not find the specified sequence metadata member in the metadata data set.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI352S **The *template_name* product template was not found in the *data_set_name* metadata data set.**

Explanation:

Tools Customizer could not find the specified product template in the data set.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312. Contact IBM Software Support.

CCQI353S **The sequence metadata member was not found in the *data_set_name* component data set that is part of the *data_set_name* pack.**

Explanation:

Tools Customizer could not find the sequence metadata member.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312. Contact IBM Software Support.

CCQI360S **The XML structure of the *member_name* sequence metadata member is not valid. The value of the *attribute_name* attribute in the *element_name* element already exists.**

Explanation:

The specified attribute contains a value that already exists.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312. Contact IBM Software Support.

CCQI361S **The XML structure of the *member_name* sequence metadata member is not valid. The condition element on the *level_type* level already contains a relational operator.**

Explanation:

A relational operator already exists for the condition element on the specified level.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312. Contact IBM Software Support.

CCQI362S **The XML structure of the *member_name* sequence metadata member is not valid. The condition element on the *level_type* level must contain only one content string or content number element.**

Explanation:

Only one content string element or content number element can be contained in the condition element on the specified level.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312. Contact IBM Software Support.

CCQI363S **The XML structure of the *member_name* sequence metadata member is not valid. The condition element in the *element_name* element with the *attribute_name* attribute must contain either the content string element or the content number element.**

Explanation:

Either the content string element or the content number element must be in the condition element.

System action:

Processing stops.

User response:

Contact IBM Software Support.

CCQI400W **The XML structure of the *member_name* parameter metadata member is not valid. The PL/I XML parser issued the following exception warning code: *code_number*.**

Explanation:

While determining the parameter metadata member is valid, the PL/I XML parser issued an exception warning code.

System action:

Processing continues.

User response:

See the *Enterprise PL/I for z/OS Programming Guide* for more information about the exception warning code.

CCQI401S **The XML structure of the *member_name* parameter metadata member is not valid. The PL/I XML parser issued the**

following exception error code:
code_number.

Explanation:

While determining if the parameter metadata member is valid, the PL/I XML parser issued an exception error code.

System action:

Processing stops.

User response:

See the *Enterprise PL/I for z/OS Programming Guide* for more information about the exception warning code.

CCQI402S **The XML structure of the *member_name* parameter metadata member is not valid. The *element_name* element is unknown.**

Explanation:

The specified element in the parameter metadata member is unknown.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312. Contact IBM Software Support.

CCQI403S **The XML structure of the *member_name* parameter metadata member is not valid. Content is not allowed for the *element_name* element, but content was found.**

Explanation:

The specified element cannot contain content.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312. Contact IBM Software Support.

CCQI404S **The XML structure of the *member_name* parameter metadata member is not valid. Content is required for the *element_name* element, but content was not found.**

Explanation:

The specified element requires content.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312. Contact IBM Software Support.

CCQI405S **The XML structure of the *member_name* parameter metadata member is not valid. The content length for the *element_name* element cannot exceed *maximum_number* characters.**

Explanation:

The specified element contains too many characters.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312. Contact IBM Software Support.

CCQI406S **The XML structure of the *member_name* parameter metadata member is not valid. The content length for the *element_name* element must be at least *minimum_number* characters.**

Explanation:

The specified element does not contain enough characters.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312. Contact IBM Software Support.

CCQI407S **The XML structure of the *member_name* parameter metadata member is not valid. The *element_name* element must occur at least *minimum_number* times.**

Explanation:

The specified element does not occur enough times.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312. Contact IBM Software Support.

CCQI408S **The XML structure of the *member_name* parameter metadata member is not valid. The *attribute_name* attribute in the *element_name* element cannot occur more than *maximum_number* times.**

Explanation:

The specified attribute occurs too many times.

System action:
Processing stops.

User response:
See [“Gathering diagnostic information” on page 312.](#)
Contact IBM Software Support.

CCQI409S **The XML structure of the *member_name* parameter metadata member is not valid. The *attribute_name* attribute in the *element_name* element must occur at least *minimum_number* times.**

Explanation:
The specified attribute does not occur enough times.

System action:
Processing stops.

User response:
See [“Gathering diagnostic information” on page 312.](#)
Contact IBM Software Support.

CCQI410S **The XML structure of the *member_name* parameter metadata member is not valid. Content is not allowed for the *attribute_name* attribute in the *element_name* element, but content was found.**

Explanation:
The specified attribute cannot have content.

System action:
Processing stops.

User response:
See [“Gathering diagnostic information” on page 312.](#)
Contact IBM Software Support.

CCQI411S **The XML structure of the *member_name* parameter metadata member is not valid. Content is required for the *attribute_name* attribute in the *element_name* element, but content was not found.**

Explanation:
The specified attribute is missing required content.

System action:
Processing stops.

User response:
See [“Gathering diagnostic information” on page 312.](#)
Contact IBM Software Support.

CCQI412S **The XML structure of the *member_name* parameter metadata member is not valid. The content length**

for the *element_name* element cannot exceed *maximum_number* characters.

Explanation:
The specified element contains too many characters.

System action:
Processing stops.

User response:
See [“Gathering diagnostic information” on page 312.](#)
Contact IBM Software Support.

CCQI413S **The XML structure of the *member_name* parameter metadata member is not valid. The *attribute_name* attribute in the *element_name* element is unknown.**

Explanation:
The specified attribute in the parameter metadata member is unknown.

System action:
Processing stops.

User response:
See [“Gathering diagnostic information” on page 312.](#)
Contact IBM Software Support.

CCQI414S **The content of the *member_name* parameter metadata member is not valid because the value of the *element_name* element is incorrect. The value is *value_name*.**

Explanation:
The specified value for an element in the parameter metadata member is not valid.

System action:
Processing stops.

User response:
See [“Gathering diagnostic information” on page 312.](#)
Contact IBM Software Support.

CCQI415S **The content of the *member_name* parameter metadata member is not valid because the value of the *attribute_name* attribute in the *element_name* element is incorrect. The value is *value_name*.**

Explanation:
The specified value for an attribute in the parameter metadata member is not valid.

System action:
Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI416S **The content of the *member_name* parameter metadata member is not valid because the data type of the *element_name* element is incorrect. The value is *value_name*.**

Explanation:

The specified data type value for an element in the parameter metadata member is not valid.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI417S **The content of the *member_name* parameter metadata member is not valid because the data type of the *attribute_name* attribute in the *element_name* element is incorrect. The value is *value_name*.**

Explanation:

The specified data type value for an attribute in the parameter metadata member is not valid.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI420S **The XML structure of the *member_name* parameter metadata member is not valid. The *element_name* element is unknown for the overridden Db2 parameter.**

Explanation:**System action:**

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI421S **The XML structure of the *member_name* parameter metadata member is not valid. The *element_name* element is unknown for the overridden LPAR parameter.**

Explanation:**System action:**

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI422S **The XML structure of the *member_name* parameter metadata member is not valid. The *attribute_name* attribute in the *element_name* element is unknown for the overridden Db2 parameter.**

Explanation:**System action:**

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI423S **The XML structure of the *member_name* parameter metadata member is not valid. The *attribute_name* attribute in the *element_name* element is unknown for the overridden LPAR parameter.**

Explanation:**System action:**

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI450S **The *member_name* product parameter metadata member was not found in the *data_set_name* data set.**

Explanation:

Tools Customizer could not find the specified product parameter metadata member.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI510W **The *data_set_name* data store data set does not exist.**

Explanation:

The specified data store data set does not exist.

System action:

Processing continues.

User response:

Ensure that the data store data set exists.

CCQI511S **The *data_set_name* data store data set cannot be opened by using the *disposition_type* disposition.**

Explanation:

The specified data store data set could not be opened with the specified disposition.

System action:

Processing continues.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI512S **The *data_set_name* data store data set cannot be opened by using the *option-type* option.**

Explanation:

The specified data store data set was unable to be opened with the specified option.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI600W **The XML structure of the *member_name* product customization parameter metadata member is not valid. The PL/I XML parser issued the following exception warning code: *code_number*.**

Explanation:

While determining if the product customization parameter metadata member is valid, the PL/I XML parser issued an exception warning code.

System action:

Processing continues.

User response:

See the *Enterprise PL/I for z/OS Programming Guide* for more information about the warning.

CCQI601S **The XML structure of the *member_name* product customization parameter metadata member is not valid. The PL/I XML parser issued the following exception error code: *code_number*.**

Explanation:

While determining if the product customization parameter metadata member is valid, the PL/I XML parser issued an exception error code.

System action:

Processing continues.

User response:

See the *Enterprise PL/I for z/OS Programming Guide* for more information about the warning.

CCQI602S **The XML structure of the *member_name* product customization parameter metadata member is not valid. The *element_name* element is unknown.**

Explanation:

The specified product customization parameter metadata member contains an unknown element.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI603S **The XML structure of the *member_name* product customization parameter metadata member is not valid. Content is not allowed for the *element_name* element, but content was found.**

Explanation:

Content was found in an element that cannot contain content.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI604S **The XML structure of the *member_name* product customization parameter metadata member is not valid. Content is required for the *element_name* element, but content was not found.**

Explanation:

The specified element does not contain required content.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI605S **The XML structure of the *member_name* product customization parameter metadata member is not valid. The content length for the *element_name* element 'cannot exceed *maximum_number* characters.**

Explanation:
The specified element contains too many characters.

System action:
Processing stops.

User response:
See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI606S **The XML structure of the *member_name* product customization parameter metadata member is not valid. The *element_name* element cannot occur more than *maximum_number* times.**

Explanation:
The specified element occurs too many times in the product customization parameter metadata member.

System action:
Processing stops.

User response:
See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI607S **The XML structure of the *member_name* product customization parameter metadata member is not valid. The *element_name* element must occur at least *minimum_number* times.**

Explanation:
The specified element does not occur enough times in the product customization parameter metadata member.

System action:
Processing stops.

User response:
See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI608S **The XML structure of the *member_name* product customization parameter metadata member is not valid.**

The *attribute_name* attribute in the *element_name* element cannot occur more than *maximum_number* times.

Explanation:
The specified attribute occurs too many times in the product customization parameter metadata member.

System action:
Processing stops.

User response:
See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI609S **The XML structure of the *member_name* product customization parameter metadata member is not valid. The *attribute_name* attribute in the *element_name* element must occur at least *minimum_number* times.**

Explanation:
The specified attribute does not occur enough times in the product customization parameter metadata member.

System action:
Processing stops.

User response:
See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI610S **The XML structure of the *member_name* product customization parameter metadata member is not valid. Content is not allowed for the *attribute_name* attribute in the *element_name* element, but content was found.**

Explanation:
Content was found in an element that cannot contain content.

System action:
Processing stops.

User response:
See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI611S **The XML structure of the *member_name* product customization parameter metadata member is not valid. Content is required for the *attribute_name* attribute 'in the *element_name* element, but content was not found.**

Explanation:

The specified attribute does not contain required content.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI612S

The XML structure of the *member_name* product customization parameter metadata member is not valid. The content length for the *attribute_name* attribute in the *element_name* element cannot exceed *maximum_number* characters.

Explanation:

The specified attribute contains too many characters.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI613S

The XML structure of the *member_name* product customization parameter metadata member is not valid. The *attribute_name* attribute in the *element_name* element is unknown.

Explanation:

The specified product customization parameter metadata member contains an unknown attribute.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI614S

The XML structure of the *member_name* product customization parameter metadata member is not valid. The value of the *element_name* element is not valid. The value *value_name*.

Explanation:

The specified value of the element is not a valid value.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI615S

The XML structure of the *member_name* product customization parameter metadata member is not valid. The value of the *attribute_name* attribute for the *element_name* element is not valid. The value is *value_name*.

Explanation:

The specified value of the attribute is not a valid value.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI616S

The XML structure of the *member_name* product customization parameter metadata member is not valid. The data type of the *element_name* element is 'not valid. The value of the element is *value_name*.

Explanation:

The specified data type is not a valid data type.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI617S

The XML structure of the *member_name* product customization parameter metadata member is not valid. The data type of the *attribute_name* attribute for the *element_name* element is not valid. The value of the attribute is *value_name*.

Explanation:

The specified data type is not a valid data type.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI650S

The XML structure of the *member_name* product customization parameter metadata member is not valid. The following value of the

attribute_name attribute in the ***element_name*** element already exists: ***value_name***.

Explanation:

The specified value for an attribute already exists.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI651S **The XML structure of the *member_name* product customization parameter metadata member is not valid. The *parameter_name* parameter refers to the following section, which was not found in the *member_name* product customization parameter metadata member: *section-name*.**

Explanation:

The specified section is not in the product customization parameter metadata member.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI652S **The *member_name* product customization metadata member not valid. The default length for the *element_name* parameter element exceeds the length of the parameter. The default length is *default_length*, and the specified length is *specified_length*. The default length will be truncated accordingly.**

Explanation:

The specified length cannot be shorter than the default length.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI653S **The content of the *member_name* product customization parameter metadata member is not valid. The value of the *attribute_name* attribute in the *element_name***

element is not valid. The value of the attribute is *value_name*.

Explanation:

The specified value of the attribute is not a valid value.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQI700W **The XML structure of the *member_name* solution pack metadata member is not valid. The PL/I XML parser issued the following exception warning code: *code_number*.**

Explanation:

While determining if the specified solution pack metadata member is valid, the PL/I XML parser issued an exception warning code.

System action:

Processing continues.

User response:

See the *Enterprise PL/I for z/OS Programming Guide* for more information about the warning.

CCQI701S **The XML structure of the *member_name* solution pack metadata member is not valid. The PL/I XML parser issued the following exception error code: *code_number*.**

Explanation:

While determining if the specified solution pack metadata member is valid, the PL/I XML parser issued an exception error code.

System action:

Processing stops.

User response:

See the *Enterprise PL/I for z/OS Programming Guide* for more information about the error.

CCQI702S **The XML structure of the *member_name* solution pack metadata member is not valid. The *element_name* element is unknown.**

Explanation:

The specified solution pack metadata member contains an unknown element.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI703S **The XML structure of the *member_name* solution pack metadata member is not valid. Content is not allowed for the *element_name* element, but content was found**

Explanation:

Content was found in an element that cannot contain content.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI704S **The XML structure of the *member_name* solution pack metadata member is not valid. Content is required for the *element_name* element, but content was not found.**

Explanation:

The specified element does not contain required content.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI705S **The XML structure of the *member_name* solution pack metadata member is not valid. The content length for the *element_name* element cannot exceed *maximum_number* characters.**

Explanation:

The specified element contains too many characters.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI706S **The XML structure of the *member_name* solution pack metadata member is not valid. The *element_name* element cannot occur more than *maximum_number* times.**

Explanation:

The specified element occurs too many times.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI707S **The XML structure of the *member_name* solution pack metadata member is not valid. The *element_name* element must occur at least *minimum_number* times.**

Explanation:

The specified element does not occur enough times.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI708S **The XML structure of the *member_name* solution pack metadata member is not valid. The *attribute_name* attribute in the *element_name* element cannot occur more than *maximum_number* times.**

Explanation:

The specified attribute occurs too many times.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI709S **The XML structure of the *member_name* solution pack metadata member is not valid. The *attribute_name* attribute in the *element_name* element must occur at least *minimum_number* times.**

Explanation:

The specified attribute does not occur enough times.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI710S **The XML structure of the *member_name* solution pack metadata member is not valid. Content is not allowed for the *attribute_name* attribute in**

the *element_name* element, but content was found.

Explanation:

The specified attribute cannot have content.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312.](#)
Contact IBM Software Support.

CCQI711S **The XML structure of the *member_name* solution pack metadata member is not valid. Content is required for the *attribute_name* attribute in the *element_name* element, but content was not found.**

Explanation:

The specified attribute is missing content.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312.](#)
Contact IBM Software Support.

CCQI712S **The XML structure of the *member_name* solution pack metadata member is not valid. The content length for the *attribute_name* attribute in the *element_name* element cannot exceed *maximum_number* characters.**

Explanation:

The specified attribute contains too many characters.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312.](#)
Contact IBM Software Support.

CCQI713S **The XML structure of the *member_name* solution pack metadata member is not valid. The *attribute_name* attribute in the *element_name* element is unknown.**

Explanation:

The specified attribute in the solution pack metadata member is unknown.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312.](#)
Contact IBM Software Support.

CCQI714S **The XML structure of the *member_name* solution pack metadata member is not valid because the value of the *element_name* element is incorrect. The value is *value_name*.**

Explanation:

The specified value of the element is not a valid value.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312.](#)
Contact IBM Software Support.

CCQI715S **The XML structure of the *member_name* solution pack metadata member is not valid because the value of the *attribute_name* attribute in the *element_name* element is incorrect. The value of the attribute is *value_name*.**

Explanation:

The specified value of the attribute is not a valid value.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312.](#)
Contact IBM Software Support.

CCQI716S **The XML structure of the *member_name* solution pack metadata member is not valid because the data type of the *element_name* element is incorrect. The value is *value_name*.**

Explanation:

The specified data type is not a valid data type.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312.](#)
Contact IBM Software Support.

CCQI717S **The XML structure of the *member_name* solution pack metadata member is not valid because the data type of the *attribute_name* attribute in the *element_name* element is**

incorrect. The value of the attribute is *value_name*.

Explanation:

The specified data type is not a valid data type.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI720S **The XML structure of the *member_name* solution pack metadata member is not valid. The *msg* element is required for the *component_name* component that is not customizable.**

Explanation:

The *msg* element is required for the specified component, which cannot be customized by using Tools Customizer.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI750S **The solution pack metadata member was not found in the *library_name* metadata library.**

Explanation:

Tools Customizer could not find the solution pack metadata member in the specified library.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI751S **The version in the *library_name* solution pack metadata library is different than the version in the *library_name* component metadata library. The name of the pack is *pack_name*, and the name of the component is *component_name*.**

Explanation:

The version in the solution pack metadata library does not match the version in the component metadata library.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI752S **The release in the *library_name* solution pack metadata library is different than the release in the *library_name* component metadata library. The name of the pack is *pack_name*, and the name of the component is *component_name*.**

Explanation:

The release in the solution pack metadata library does not match the release in the component metadata library.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI753S **The modification level in the *library_name* solution pack metadata library is different than the modification level in the *library_name* component metadata library. The name of the pack is *pack_name*, and the name of the component is *component_name*.**

Explanation:

The modification level in the solution pack metadata library does not match the modification level in the component metadata library.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#).
Contact IBM Software Support.

CCQI755S **The XML structure of the *member_name* parameter metadata member is not valid. When a default value is not specified in the metadata member, the "required" attribute with a value of "true" cannot be specified.**

System action:

Processing stops.

User response:

Contact IBM Software Support.

CCQM002E **The *command_name* line command is not valid: .**

Explanation:

The specified line command is not valid.

System action:
Processing continues.

User response:
Specify a valid line command on the panel.

CCQ000W **The XML structure of the *member_name* discover parameter metadata member is not valid. The PL/I XML parser issued the following exception warning code: *code_number*.**

Explanation:
While determining if the discover parameter metadata member is valid, the PL/I XML parser issued an exception warning code.

System action:
Processing continues.

User response:
See the *Enterprise PL/I for z/OS Programming Guide* for more information about the exception warning code.

CCQ0001S **The XML structure of the *member_name* discover parameter metadata member is not valid. The PL/I XML parser issued the following exception error code: *code_number*.**

Explanation:
While determining if the Discover metadata member is valid, the PL/I XML parser issued an exception error code.

System action:
Processing stops.

User response:
See the *Enterprise PL/I for z/OS Programming Guide* for more information about the exception warning code. Contact IBM Software Support.

CCQ0002S **The XML structure of the *member_name* discover parameter metadata member is not valid. The *element_name* element is unknown.**

Explanation:
The specified element in the discover parameter metadata member is unknown.

System action:
Processing stops.

User response:
See “[Gathering diagnostic information](#)” on page 312. Contact IBM Software Support.

CCQ0003S **The XML structure of the *member_name* discover parameter metadata member is not valid.**

Content is not allowed for the *element_name* element, but content was found.

Explanation:
The specified element cannot contain content.

System action:
Processing stops.

User response:
See “[Gathering diagnostic information](#)” on page 312. Contact IBM Software Support.

CCQ0004S **The XML structure of the *member_name* discover parameter metadata member is not valid. Content is required for the *element_name* element, but content was not found.**

Explanation:
The specified element is missing required content.

System action:
Processing stops.

User response:
See “[Gathering diagnostic information](#)” on page 312. Contact IBM Software Support.

CCQ0005S **The XML structure of the *member_name* discover parameter metadata member is not valid. The content length for the *element_name* element cannot exceed *maximum_number* characters.**

Explanation:
The specified element contains too many characters.

System action:
Processing stops.

User response:
See “[Gathering diagnostic information](#)” on page 312. Contact IBM Software Support.

CCQ0006S **The XML structure of the *member_name* discover parameter metadata member is not valid. The *element_name* element cannot occur more than *maximum_number* times.**

Explanation:
The specified element occurs too many times.

System action:
Processing stops.

User response:
See “[Gathering diagnostic information](#)” on page 312. Contact IBM Software Support.

CCQ0007S **The XML structure of the *member_name* discover parameter metadata member is not valid. The *element_name* element must occur at least *minimum_number* times.**

Explanation:

The specified element does not occur enough times.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQ0008S **The XML structure of the *member_name* discover parameter metadata member is not valid. The *attribute_name* attribute in the *element_name* element cannot occur more than *maximum_number* times.**

Explanation:

The specified attribute occurs too many times.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQ0009S **The XML structure of the *member_name* discover parameter metadata member is not valid. The *attribute_name* attribute in the *element_name* element must occur at least *minimum_number* times.**

Explanation:

The specified attribute does not occur enough times.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQ0010S **The XML structure of the *member_name* discover parameter metadata member is not valid. Content is not allowed for the *attribute_name* attribute in the *element_name* element, but content was found.**

Explanation:

The specified attribute cannot contain content.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQ0011S **The XML structure of the *member_name* discover parameter metadata member is not valid. Content is required for the *attribute_name* attribute in the *element_name* element, but content was not found.**

Explanation:

The specified attribute requires content.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQ0012S **The XML structure of the *member_name* discover parameter metadata member is not valid. The content length for the *attribute_name* attribute in the *element_name* element in the cannot exceed *maximum_number* characters.**

Explanation:

The specified attribute contains too many characters.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQ0013S **The XML structure of the *member_name* discover parameter metadata member is not valid. The *attribute_name* attribute in the *element_name* element is unknown.**

Explanation:

The specified attribute is unknown.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312.
Contact IBM Software Support.

CCQ0014S **The content of the *member_name* discover parameter metadata member is not valid because the value of the *element_name* element is incorrect. The value is *value_name*.**

Explanation:

A The specified value for an element in the discover parameter metadata member is not valid.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQ0015S **The content of the *member_name* discover parameter metadata member is not valid because the value of the *attribute_name* attribute in the *element_name* element is incorrect. The value is *value_name*.**

Explanation:

The specified value for an attribute in the discover parameter metadata member is not valid.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQ0016S **The content of the *member_name* discover parameter metadata member is not valid because the data type of the *element_name* element is incorrect. The value is *value_name*.**

Explanation:

The specified data type value for an element in the discover parameter metadata member is not valid.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQ0017S **The content of the *member_name* product parameter metadata member is not valid because the data type of the *attribute_name* attribute in the *element_name* element is incorrect. The value is *value_name*.**

Explanation:

The specified data type value for an attribute in the product parameter metadata member is not valid.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQ0050S **The *data_set_name* Discover REXX EXEC data set could not be initialized or was not found.**

Explanation:

Tools Customizer could not find or could not initialize the specified Discover REXX EXEC data set.

System action:

Processing stops.

User response:

Ensure that the Discover REXX EXEC is specified correctly.

CCQ0051W **The *data_sharing_group_ID* data sharing group ID cannot contain more than four characters.**

Explanation:

The specified data sharing group ID contains too many characters.

System action:

Processing continues.

User response:

Ensure that the specified data sharing group ID does not exceed four characters.

CCQ0052S **The *REXX_EXEC_name* Discover REXX EXEC was not found in the *data_set_name* Discover data set.**

Explanation:

Tools Customizer could not find the Discover REXX EXEC in the specified data set.

System action:

Processing stops.

User response:

Ensure that the Discover data set was specified correctly.

CCQ0053W **The *LPAR_name* LPAR name cannot contain more than eight characters.**

Explanation:

The specified LPAR name contains too many characters.

System action:

Processing continues.

User response:

Ensure that the specified LPAR name does not exceed eight characters.

CCQ0054W **The *subsystem_ID* Db2 SSID cannot contain more than four**

characters. The record was not processed.

Explanation:

The specified Db2 SSID contains too many characters.

System action:

Processing continues.

User response:

Ensure that the specified Db2 SSID does not exceed four characters.

CCQ0055W **The *parameter_name* Db2 group attach name parameter is in the *record_name* Discover record, but a Db2 group attach name was not specified. The record was not processed.**

Explanation:

The Discover record contains a data sharing group parameter, but a Db2 group attach name was not specified.

System action:

Processing continues.

User response:

Ensure that information is specified correctly on the **Discover Customized Product Information** panel.

CCQ0056W **The *parameter_name* Db2 parameter in the *record_name* Discover record did not have a Db2 group attach name or a Db2 SSID. The record was not processed.**

Explanation:

The Discover record did not have a Db2 group attach name or a Db2 subsystem ID in the Db2 parameter.

System action:

Processing continues.

User response:

Ensure that information is specified correctly on the **Discover Customized Product Information** panel.

CCQ0057W **The Discover EXEC could not find the *parameter_name* parameter in the metadata for the product to be customized. The record was not processed.**

Explanation:

The specified parameter could not be found in the metadata for the product to be customized.

System action:

Processing continues.

User response:

Ensure that information is specified correctly on the **Discover Customized Product Information** panel.

CCQ0058W **The *parameter_name* product parameter name in the *record_type* Discover record does not start with *CCQ_LPR_*, *CCQ_DB2_*, or *CCQ_PRD_*. The record was not processed.**

Explanation:

The parameter in the record does not start with *CCQ_DB2_*, *CCQ_LPAR_*, or *CCQ_PRD_*.

System action:

Processing continues.

User response:

See [“Gathering diagnostic information”](#) on page 312. Contact IBM Software Support.

CCQ0059W **The *parameter_name* product parameter cannot contain more than 72 characters. The record was not processed.**

Explanation:

The specified product parameter contains too many characters.

System action:

Processing continues.

User response:

Ensure that the specified product parameter does not exceed 72 characters.

CCQ0060W **The *record_name* Discover record from the REXX EXEC output must start with the following record type: *record_type*. The record was not processed.**

Explanation:

A Discover record from the REXX EXEC output must start with the specified Db2 record type.

System action:

Processing continues.

User response:

See [“Gathering diagnostic information”](#) on page 312. Contact IBM Software Support.

CCQ0061I **If you do not have a previously customized version of the product, do not run the Discover EXEC. Press END to go to the Customizer Workplace panel.**

Explanation:

This message is issued when you customize a product for a the first time. It prompts you to use the Discover EXEC to discover data from a previous customization of the specified product.

System action:

Processing continues.

User response

Tip: Using the Discover EXEC saves time and reduces errors that can occur when parameters are specified manually. If you want to use the Discover EXEC, specify the required information on the **Discover Customized Product Information** panel. Otherwise, press End to continue without discovering data from a previous customization of the product.

CCQ0062W **The Discover EXEC could not find the following *parameter_name* parameter in the Db2 metadata. The record was not processed.**

Explanation:

The specified parameter is missing in the Db2 metadata.

System action:

Processing continues.

User response:

If this parameter is required, contact IBM Software Support.

CCQ0064W **The *Discover-record* Discover record did not have a parameter name. The record was not processed.**

Explanation:

A parameter name was missing in the Discover record.

System action:

Processing continues.

User response:

See [“Gathering diagnostic information”](#) on page 312. Contact IBM Software Support.

CCQ0065W **The value for the *parameter_name* parameter is ignored because it has more than *maximum_number* characters, which is the maximum length that is defined in the metadata. The value is *parameter_value*.**

Explanation:

The specified value exceeded the maximum allowed length, which was defined in the metadata. Tools Customizer truncated the extra characters.

System action:

Processing continues.

User response:

See [“Gathering diagnostic information”](#) on page 312. Contact IBM Software Support.

CCQ0066W **The *record_name* Discover record from the Discover REXX EXEC output does not have a parameter value. The record was not processed.**

Explanation:

The Discover record was missing a parameter value from the Discover EXEC output.

System action:

Processing continues.

User response:

Ensure that information was specified correctly on the **Discover Customized Product Information** panel.

CCQ0067W **The *parameter_name* parameter is defined in the metadata to support one value, but more than one value was found. The last value was used.**

Explanation:

The definition of the parameter in the metadata supports one value, but more than one value was specified. Only the last value was used.

System action:

Processing continues.

User response:

Ensure that information was specified correctly on the **Discover Customized Product Information** panel.

CCQ0068W **The value of the *parameter_name* parameter is ignored because the parameter is defined as *internal=true*. The value is *value_name*.**

Explanation:

The specified value of the parameter is ignored because it is defined as *internal=true*.

System action:

Processing continues.

User response:

Ensure that information was specified correctly on the **Discover Customized Product Information** panel.

CCQ0069W **The Discover EXEC did not find the *parameter_name* parameter in the LPAR metadata. The record was not processed.**

Explanation:

The specified parameter is missing from the LPAR metadata.

System action:

Processing continues.

User response:

Ensure that information was specified correctly on the **Discover Customized Product Information** panel.

CCQ0070W **The *record_type* Discover record contains an incorrect delimiter between the Environment section and the Data section. The record was not processed.**

Explanation:

Tools Customizer found an incorrect delimiter between the Environment section and the Data section.

System action:

None.

User response:

No action is required.

CCQ0071W **The *member_name* member could not be found in the *data_set_name* Discover data set.**

Explanation:

Tools Customizer could not find the specified Discover data set.

System action:

None.

User response:

No action is required.

CCQ0072S **The *member_name* discover metadata member was not found in the *data_set_name* metadata data set.**

Explanation:

Tools Customizer could not find the specified metadata member in the data set.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQ0073E **The *member_name* discover metadata member is not valid because the default length for the *element_name* parameter element exceeds the length of the parameter. The default length is *default_length*, and the specified length is *specified_length*. The default length will be truncated accordingly.**

Explanation:

The default length for the specified parameter element is longer than the parameter.

System action:

Processing continues.

User response:

No action is required.

CCQ0074S **The content of the *member_name* discover metadata member is not valid. The value of the *attribute_name* attribute in the *element_name* element is not valid. The value of the attribute is *value_name*.**

Explanation:

The specified value is not valid.

System action:

Processing stops.

User response:

See [“Gathering diagnostic information” on page 312](#). Contact IBM Software Support.

CCQ0075W **The *configuration_ID* configuration ID in the *record_name* Discover record is incorrect. The record was not processed.**

Explanation:

The specified configuration ID is not correct.

System action:

Processing continues.

User response:

No action is required.

CCQ0076W **The *configuration_ID* configuration ID cannot contain more than *maximum_number* characters. The record was not processed.**

Explanation:

The specified configuration ID contains too many characters.

System action:

Processing continues.

User response:

No action is required.

CCQ0077S **The discover metadata member was not found in the *data_set_name* component data set that is part of the *data_set_name* pack.**

Explanation:

The discover metadata member was not found in the specified component data set.

System action:

Processing stops.

User response:

See “Gathering diagnostic information” on page 312. Contact IBM Software Support.

CCQ0078I Additional configurations were discovered and saved in the data store. All Db2 entries associated with this configuration are listed.

System action:
None.

User response:
No action is required.

CCQ0080I *Product_name* does not support the Discover process.

Explanation:
The specified product does not support the Discover process.

System action:
None.

User response:
No action is required.

CCQP000E The value of the *mode_name* Db2 mode is not valid for the *level_name* Db2 level.

Explanation:
The specified Db2 mode is not valid for the Db2 level.

System action:
Processing stops.

User response:
Specify a valid Db2 mode for the Db2 level.

CCQP001E The value of the *mode_name* Db2 mode is missing.

Explanation:
The specified Db2 mode is not defined.

System action:
Processing stops.

User response:
Specify a value for the Db2 mode.

CCQP002E The value of the *mode_name* Db2 level is missing.

Explanation:
The specified Db2 level is not defined.

System action:
Processing stops.

User response:
Specify a value for the Db2 level.

CCQP003E The value of the *level_name* Db2 level is not valid.

Explanation:

The specified Db2 level does not have a valid name.

System action:
Processing stops.

User response:
Specify a valid value for the Db2 level.

CCQP004S The *parameter_name* parameter does not exist in the CCQ\$\$DB2 Db2 parameter metadata member.

Explanation:
The CCQ\$\$DB2 Db2 parameter metadata member does not contain the specified parameter.

System action:
Processing stops.

User response:
See “Gathering diagnostic information” on page 312. Contact IBM Software Support.

CCQP005E The value of the *subsystem_ID* Db2 SSID is missing.

Explanation:
The specified Db2 SSID is not defined.

System action:
Processing stops.

User response:
Specify a valid value for the Db2 SSID.

CCQP006E The value of the *group_attach_name* Db2 group attach name is missing.

Explanation:
The specified Db2 group attach name is not defined.

System action:
Processing stops.

User response:
Specify a valid Db2 group attach name.

CCQQ000E Specify a valid metadata library. Each qualifier of the library must start with an alphabetic character and must be 1-8 alphanumeric characters. The library name must be 1-44 characters.

Explanation:
The metadata library was not specified in the correct format. The high-level qualifier must contain alphanumeric characters, and the first character cannot be numeric. The name cannot contain wildcard characters, such as asterisks (*) and percent signs (%).

System action:
Tools Customizer prompts for the correct library name.

User response

Specify a library in the correct format. If the message was issued on the **Specify the Metadata Library** (CCQPHLQ) panel, specify the product metadata library. The name of this library is *hlq.SINZDENU*.

Do not specify the Tools Customizer metadata library, which is *hlq.SCCQDENU*.

CCQQ001E **The *data_set_name* data set name that was specified for the metadata library was not found.**

Explanation:

The data set does not exist, or the data set name was written in the incorrect format. The high-level qualifier must contain alphanumeric characters, and the first character cannot be numeric. The name cannot contain wildcard characters, such as asterisks (*) and percent signs (%).

System action:

Tools Customizer prompts for the correct data set name.

User response:

Specify a data set name in the correct format.

CCQQ002E **The data set name that was specified for the *library_name* metadata library cannot be opened.**

Explanation:

Tools Customizer could not open the data set.

System action:

Tools Customizer prompts for an available data set.

User response:

Ensure that the specified data set is available for Tools Customizer to open it.

CCQQ003E **The *data_set_name* data set name that was specified for the metadata sample library is not valid. The data set must be in the following format: *HLQ.SxxxSAMP*.**

Explanation:

The specified data set name was not specified in the correct format.

System action:

None.

User response:

Specify the data set name in the following format: *HLQ.SxxxSAMP*, where *xxx* is the three-character prefix for the product.

CCQQ004E **The *data_set_name* data set is being used by another user. Try**

again when the data set is not being used.

Explanation:

Another user is using the specified data set.

System action:

None.

User response:

Ensure that the specified data set is not being used.

CCQQ009E **The *data_set_name* data set name that was specified for the metadata library is not valid because the data set is empty.**

Explanation:

The specified data set is empty.

System action:

Tools Customizer prompts for an available data set.

User response:

Ensure that the specified data set is available for Tools Customizer to open it.

CCQQ011E **The *library_name* metadata library for the component that is part of the *library_name* pack was not found in the catalog. The name of the pack is *pack_name*, and the name of the component is *component_name*.**

Explanation:

The specified metadata library is not in the catalog.

System action:

None.

User response:

Specify another metadata library.

CCQQ012E **The *library_name* metadata library for the component that is part of the *library_name* pack cannot be opened.**

Explanation:

The specified metadata library cannot be opened.

System action:

None.

User response:

Ensure that the name of the library is specified correctly.

CCQS000I **Tools Customizer is being invoked for the first time or the previous ISPF session ended before Tools Customizer was exited. In both cases, the fields on this panel are populated with default values. Review these default values or**

specify new values to be used to customize products or packs.

Explanation:

When you customize a stand-alone product or a solution pack for the first time, or when an ISPF session unexpectedly ends before the ISPF profile is saved, you must specify or review your Tools Customizer user settings.

System action:

Processing stops.

User response:

Review and accept the default settings, or specify new settings.

CCQS001E **The following command is not valid: *command_name*.**

Explanation:

The specified command is not a valid command on the panel.

System action:

Processing stops.

User response:

Specify a valid command.

CCQS002W **The *data_set_name* Discover data set could not be found.**

Explanation:

Tools Customizer could not find the specified data set.

System action:

The data set will be allocated, and processing continues.

User response:

Ensure that the data set name is specified correctly because the data set will be allocated with this name after the values are saved.

CCQS003W **The *data_set_name* Discover data set was not found so it was created.**

Explanation:

Tools Customizer could not find the specified data set.

System action:

Processing continues.

User response:

Ensure that the data set name is specified correctly.

CCQS004I **The settings were saved.**

Explanation:

The settings that you changed were saved.

System action:

Processing continues.

User response:

No action is required.

CCQS006W **The length of a qualifier for the *data_set_name* customization library data set exceeds 26 characters.**

Explanation:

The qualifier for the customization library data set is too long. The qualifier cannot exceed 26 characters.

System action:

Processing continues.

User response:

Specify a qualifier that is 26 characters or less.

CCQS007E **The discover data set *data_set_name* could not be opened with the *option-type* option.**

Explanation:

The specified option could not open the Discover data set.

System action:

None.

User response:

Specify a data set to which you have WRITE access.

CCQS008E **The Discover data set *data_set_name* exists on a different volume.**

Explanation:

The specified Discover data set must exist on the same volume as where it was created.

System action:

Processing continues.

User response:

Specify a different Discover data set name.

CCQS010E **The customization library qualifier is not valid.**

Explanation:

The customization library qualifier that was specified is not valid.

System action:

None.

User response:

Specify a valid qualifier for the customization library.

CCQS011E **The group attach option is not valid.**

Explanation:

The group attach option that was specified is not valid.

System action:

None.

User response:
Specify a valid option for the group attach option.

CCQS012E **The Tools Customizer metadata library is not valid.**

Explanation:
The metadata library that was specified is not a valid data set.

System action:
None.

User response:
Specify a valid data set for the metadata library.

CCQS013E **The Discover data set is not valid.**

Explanation:
The Discover data set that was specified is not a valid data set.

System action:
None.

User response:
Specify a valid Discover data set.

CCQS014E **The data store data set is not valid.**

Explanation:
The data set that was specified is not a valid data set.

System action:
None.

User response:
Specify a valid data store data set.

CCQS015E **Tools Customizer is already running.**

Explanation:
A session of Tools Customizer is already running in your environment. Only one Tools Customizer session is allowed.

System action:
None.

User response:
The trace data set is being used. Free the trace data set, and start Tools Customizer again.

CCQS018E **Information on the first line of the job card exceeds 57 characters.**

Explanation:
The first line of the job card can contain only 57 characters. This character limit includes a continuation character.

System action:
Tools Customizer clears the first line of the job card.

User response:

Specify information that does not exceed 57 characters on the first line of the job card.

CCQS019E **The required trace data set, *data_set_name*, is currently not accessible.**

Explanation:
The trace data set must be accessible.

System action:
Processing stops.

User response:
Ensure that the trace data set is accessible.

CCQS020E **An error occurred while the customization library data set was being created. ALTER authority on the high-level qualifier for the customization library data set is required.**

Explanation:
To create the customization library data set, ALTER authority on the specified high-level qualifier must be granted.

System action:
None.

User response:
Ensure that ALTER authority for the specified customization library data set is granted.

CCQS021E **The value *value_name* in the field that contains the cursor position is not valid.**

Explanation:
The specified value is not valid.

System action:
None.

User response:
Specify a valid value.

CCQS022E **An error occurred while the customization library data set was being opened. UPDATE authority on the high-level qualifier for the customization library data set is required.**

Explanation:
To open the customization library data set, UPDATE authority on the specified high-level qualifier must be granted.

System action:
None.

User response:
Ensure that UPDATE authority for the specified customization library data set is granted.

CCQS023E **An error occurred while the customization library data set was being opened. UPDATE authority on the high-level qualifier for the customization library data set is required.**

Explanation:

To open the customization library data set, UPDATE authority on the specified high-level qualifier must be granted.

System action:

None.

User response:

Ensure that UPDATE authority for the specified customization library data set is granted, or specify a different high-level qualifier for the customization library data set on the **Tools Customizer Settings** panel.

CCQS024E **An error occurred while the customization library data set was being created. ALTER authority on the high-level qualifier for the customization library data set is required.**

Explanation:

To create the customization library data set, ALTER authority on the specified high-level qualifier must be granted.

System action:

None.

User response:

Ensure that ALTER authority for the specified customization library data set is granted, or specify a different high-level qualifier for the customization library data set on the **Tools Customizer Settings** panel.

CCQS025I **The display options were saved.**

System action:

None.

User response:

No action is required.

CCQS026E **The customization library data set *data_set_name* could not be opened because the requester does not have UPDATE authority on this data set.**

Explanation:

Users must have UPDATE authority to open the customization library data set. Users must have UPDATE authority to open the customization library data set.

System action:

None.

User response:

Ensure that UPDATE authority for the specified customization library data set is granted or specify a different high-level qualifier for the customization library data set on the **Tools Customizer Settings** panel.

CCQS027E **The customization library data set *data_set_name* could not be created because the requester does not have ALTER authority on this data set.**

Explanation:

To create the customization library data set, ALTER authority on the data set must be granted.

System action:

Processing stops.

User response:

Ensure that ALTER authority for the specific customization library data set is granted, or specify a different high-level qualifier for the customization library data set on the **Tools Customizer Settings** panel.

CCQS029E **The customization library data set is not valid. Enter a valid data set name or use the Tools Customizer default: *data_set_name*.**

Explanation:

The specified data set is invalid.

System action:

Processing stops.

User response:

Specify a valid data set name.

CCQS030E **The following command is not a valid CREATE statement: *command_statement*.**

Explanation:

The specified CREATE command statement is invalid because it contains blanks or alphabetic characters.

System action:

Processing stops.

User response:

Specify a valid CREATE command statement. The correct syntax is CREATE *nn*, where *nn* is 1 - 99.

CCQS031E **The following command is not a valid CREATE statement: *command_statement*. The number that can be specified with the CREATE command is 1 - 99.**

Explanation:

The specified CREATE command statement is invalid because it contains either 0 or a number greater than 99.

System action:

Processing stops.

User response:

Specify a valid CREATE command statement. The correct syntax is CREATE *nn*, where *nn* is 1 - 99.

CCQS033E A user profile cannot be copied into the same user profile
Explanation:

The specified data set cannot be copied into user's own user profile.

System action:

Processing stops.

User response:

Enter a different data set name.

CCQS034E The shared user profile data set *data_set_name* could not be created because the requester does not have UPDATE authority on this data set or because the data set already exists in another volume serial.
Explanation:

To create a shared user profile data set, the requester must have update authority on the data set, and the specified data set name must be unique.

System action:

Processing stops.

User response:

Ensure that the requester has UPDATE authority on the data set and ensure that the data set name is unique.

CCQS035E The specified data set already has a user profile. Specify a different data set, or press Enter again to replace the existing user profile.
Explanation:

Pressing Enter overwrites the previous user profile for the specified data set with user's own user profile.

System action:

Processing stops.

User response:

Specify a different data set name.

CCQS036E The customization library *data_set_name* already exists in volume and cannot be created in a different volume. Enter a different customization library name.
Explanation:

The same data set name cannot exist in a different volume.

System action:

Processing stops.

User response:

Specify a different data set name.

CCQS037E The data set name was either not specified or invalid.
Explanation:

The data set name specified does not follow the IBM data set name convention.

System action:

Processing stops.

User response:

Specify a valid data set name.

CCQS038E The specified data set cannot be used.
Explanation:

The specified data sets contain information that supports Tools Customizer, but this data set cannot be used.

System action:

Processing stops.

User response:

Specify a different data set.

CCQS039E The specified data set has an invalid record format.
Explanation:

The specified data set should be saved as a different record format. For example, the record format should be FB (Formatted Block) but it is set to VB (Variable Block).

System action:

Processing stops.

User response:

Specify a valid record format.

CCQT000I The product configuration ID *copied_configuration_ID* was successfully copied from *configuration_ID*.
Explanation:

The specified configuration ID was copied.

System action:

None.

User response:

No action is required.

CCQT001E **The *command_name* line command was specified more than once, which is not allowed.**

Explanation:

The specified line command cannot be specified more than one time.

System action:

Processing stops.

User response:

Specify the line command only once.

CCQT002E **The *configuration_ID* configuration ID already exists. Specify a different configuration ID.**

Explanation:

The specified configuration ID exists.

System action:

Processing stops.

User response:

Ensure that the specified configuration ID is unique.

CCQT003I **The product configuration ID *configuration_ID* was created.**

Explanation:

The specified configuration ID was created.

System action:

None.

User response:

No action is required.

CCQT004I **The product configuration ID *configuration_ID* was removed.**

Explanation:

The specified configuration ID was removed.

System action:

None.

User response:

No action is required.

CCQT005E **The product configuration ID *configuration_ID* is not valid. The product configuration ID cannot contain a colon (:).**

Explanation:

The specified configuration ID contains a colon (:), but a colon is not valid.

System action:

Processing stops.

User response:

Specify a configuration ID that does not contain a colon.

CCQT006E **The *configuration_ID* configuration ID exists. Specify a different configuration ID.**

Explanation:

The specified configuration ID exists.

System action:

Processing stops.

User response:

Specify another configuration ID.

CCQT007E **The *configuration_ID* configuration ID exists but was removed from the list of configurations. To use this configuration ID, you must restore it.**

Explanation:

The specified configuration ID exists but was removed from the list of available configuration.

System action:

Processing stops.

User response:

Specify another configuration ID. To restore the specified configuration ID, issue the CREATE command, and specify the same configuration ID again.

CCQT008E **The *configuration_ID* configuration ID exceeds *maximum_number* characters.**

Explanation:

The specified configuration ID contains too many characters.

System action:

Processing stops.

User response:

Specify another configuration ID that does not exceed the maximum number of characters that was set by Db2 HPU.

CCQT010I **Create request for *configuration_ID* configuration was cancelled by user.**

Explanation:

The request to create the specified configuration was canceled.

System action:

Processing stops.

User response:

No action is required.

CCQT011I **The *configuration_ID* configuration was not copied.**

Explanation:

The specified configuration was not copied.

System action:

Processing stops.

User response:

No action is required.

CCQT012I **The *configuration_ID* configuration was not removed.**

Explanation:

The specified configuration was not removed.

System action:

Processing stops.

User response:

No action is required.

CCQT013I **None of the configurations were copied or removed. All of the previously selected configurations are deselected.**

Explanation:

The selected configurations were not copied or removed, and they are deselected.

System action:

Processing stops.

User response:

No action is required.

CCQT014E **Specify Y or N and press Enter to continue, or press End to cancel.**

Explanation:

A function requires input.

System action:

Processing stops.

User response:

To continue, specify Y or N and press Enter. Otherwise, press End to cancel.

CCQT015E **The *command_name* command is not allowed during the process of "Select" configuration line command.**

Explanation:

The specified command is not allowed while the line command for selecting configurations is processing.

System action:

Processing stops.

User response:

Remove the specified line command.

CCQT016I **The *configuration_ID* configuration was not created**

Explanation:

The specified configuration was not created.

System action:

Processing stops.

User response:

No action is required.

CCQT017I **The *configuration_ID* configuration was not copied.**

Explanation:

The specified configuration was not copied.

System action:

Processing stops.

User response:

No action is required.

CCQT018E **Specify Y or N, and press Enter.**

Explanation:

A function requires input.

System action:

Processing stops.

User response:

To continue, specify Y or N, and press Enter.

CCQT019I **The select *configuration_ID* configuration process ended.**

Explanation:

The select process for the specified configuration is finished.

System action:

Processing stops.

User response:

No action is required.

CCQT020E **The *configuration_ID* configuration was not created because the data store was not accessible.**

Explanation:

The specified configuration was not created because the data store could not be accessed.

System action:

Processing stops.

User response:

Ensure that the data store is accessible and create the configuration again.

CCQT021E **The *configuration_ID* configuration was not copied because the data store was not accessible.**

Explanation:

The specified configuration was not copied because the data store could not be accessed.

System action:

Processing stops.

User response:

Ensure that the data store is accessible and copy the configuration again.

CCQT025I **The *configuration_ID* configuration was not updated.**

Explanation:

The specified configuration was not updated because the edit process was canceled.

System action:

Processing stops.

User response:

No action is required.

CCQT027I **The product configuration ID has been updated from *edit_from_id* to *edit_to_id*.**

System action:

Processing continues.

User response:

No action is required.

CCQT028I **The product configuration ID has been updated from *edit_from_id* to *edit_to_id*, and the description has been updated from *edit_from_des* to *edit_to_des*.**

System action:

Processing continues.

User response:

No action is required.

CCQT029I **The product configuration description has been updated from *edit_from_des* to *edit_to_des*.**

System action:

Processing continues.

User response:

No action is required.

CCQX001S ***Product_name* has already been customized by using values from *data_set_name* data store data set. Switch to the specified data store data set to continue customizing this product.**

Explanation:

The specified product was customized by using values from the specified data store data set.

System action:

Processing stops.

User response:

Use the specified data store data set to continue customizing the product.

CCQX002S ***component_name* has already been customized by using values from *data_set_name* data store data set. Switch to the specified data store data set to continue customizing this component.**

Explanation:

The specified component was customized by using values from the specified data store data set.

System action:

Processing stops.

User response:

Use the specified data store data set to continue customizing the component.

CCQX011I ***Product_name* was not found.**

Explanation:

The specified product was not found.

System action:

Processing stops.

User response:

Specify another product.

Db2 HPU user abend codes

This section contains a list of all of the abends that are issued by Db2 HPU.

1003

Db2 HPU was unable to open a sequential file. Correct the JCL to include the missing DD statement, and resubmit the job. This situation might occur when unloading data from image copies (COPYDDN option) of a partitioned table space stored on tape if some of the image copy data set are stored on the same volume. In such case, system messages requesting the same volume be mounted should be found in the system log, such as in the example below:

```
14.55.19 JOB09615*246 IEF455D MOUNT BRES19 ON 0581 FOR MZLFRDI UNLOAD OR REPLY
```

```
14.55.45 JOB09615 IEF234K 0581.BRES19,PVT,MZLFRDI,UNLOAD
```

```
14.55.45 JOB09615 INZX081 FR9D216 IMAGE COPY IS BEING READ FROM DDNAME IC001
```

```
14.55.45 JOB09615 INZX081 FR9D216 IMAGE COPY IS BEING READ FROM DDNAME IC002
```

14.55.45 JOB09615 INZX081 FR9D216 IMAGE COPY IS BEING READ FROM DDNAME IC003
 14.55.45 JOB09615 INZX081 FR9D216 IMAGE COPY IS BEING READ FROM DDNAME IC004
 14.55.45 JOB09615 IEF233D M 0581,BRES19,,MZLFRDI;UNLOAD, 939
 939
 LABO.F1P.DBTLS00.FRD9D216.D13031.T1612444,
 939 OR RESPOND TO IEF455D MESSAGE
 14.55.45 JOB 09615*247 IEF455D MOUNT BRES19 ON 0581 FOR MZLFRDI UNLOAD OR REPLY
 14.56.09 JOB 09615 IEA995I SYMPTOM DUMP OUTPUT 942
 942 USER COMPLETION CODE=1003
 942 TIME=14.56.07 SEQ=24286 CPU=0000
 ASID=00D6
 942 PSW AT TIME OF ERROR 078D1000 804BD3EE ILC 2 INTC 0D
 942 ACTIVE LOAD MODULE
 ADDRESS=000070000 OFFSET=004B
 942 NAME=INZUTILK
 942 DATAAT PSW 004BD3E8 - 00181610 0A0D9640 D26A0700
 942 AR/GR 0: 00000000/80000000 1: 00000000/800003EB
 942 2: 00000000/000606D0 3: 00000000/1254A8B0
 942 4: 00000000/12386008 5: 00000000/12540000
 942 6: 00000000/1254A548 7: 00000000/00000001
 942 8: 00000000/1254A930 9: 00000000/12706000
 942 A: 00000000/12541088 B: 00000000/004BCF58
 942 C: 00000000/004BDF58 D: 00000000/0059F000
 942 E: 00000000/804BD3D4 F: 00000002/00000008
 If you identify such a situation, disable the parallelism by adding an option such as MAXPART 1
 PARALLELISM (,1,).

1004

Db2 HPU attempted to allocate or open a VSAM file. The attempt was unsuccessful because an allocation or open failure occurred (see the register 15 return code).

See *DFSMS Macro Instructions for Data Sets for z/OS* for a complete description of the possible return codes and reason codes.

1005

An error occurred while accessing a VSAM file (see the register 15 return code).

See *DFSMS Macro Instructions for Data Sets for z/OS* for a complete description of the possible return codes and reason codes.

1006

A VSAM CLOSE failed (output). See the output messages.

1009

A return code greater than 4 was returned from an MVS sort. Error messages from sort are printed in the UTPRINT data set. Determine the cause of the error. In most cases, error messages from MVS sort identify the problem, and a dump is not needed. If the sort is unable to open the UTPRINT data set, only the messages and the abend are provided. For example, if the UTPRINT DD statement is omitted, add a UTPRINT DD statement in your JCL to obtain detailed error messages for analyzing the error.

1010

Db2 HPU detected that an internal subtask did not terminate at the end of processing. A possible cause might be that the DD cards do not correspond to the control statements. See the LOG messages. Contact IBM Software Support, if necessary.

1012

Db2 HPU was unable to decompress a row. Check the table space after restore.

1013

Db2 HPU detected an error in EDITPROC. Check the libraries and the table space.

1015

An attempt was made to perform an unload, but the ddname for the IMAGE COPY file was not in the JCL.

1017

A sub-task abended, which resulted in a general abend. Examine the error messages that were issued for the original abend (for example, B37 issued by a SORT utility).

1019

Db2 HPU detected that one of the WHERE clauses was too complex. Possible causes are that one of the keywords is not supported or is not compatible with SQL syntax.

1021

When register R15 is 0, the input image copy contains rows with several versions, and the active table version is 0. An input image copy that has rows with several versions means the table was altered before the image copy was taken and was not reorganized or reloaded in the meantime. When the active table version is 0, it has not been altered since it was created. When register R15 is not 0, an unexpected system page sequence was found.

If register R15 is 0, Db2 HPU cannot use the image copy as input. Select a copy that was run after the table space was reorganized.

If register R15 is 12, this means that Db2 HPU has found an unexpected page number (the page that was read was not the expected one). This control is done if CHECK_INTEGRITY LEVEL1 was requested and the LDS subparameter applies. In such a case:

- R2 contains the expected page number
- R3 contains the number of the page that has been read

This can occur if the image copy to unload has one of the following types:

- inline image copy
- FlashCopy
- a copy created with the COPYTOCOPY utility
- is actually a concatenation of several Incremental Image Copies and an Full Image Copy

and no option allowing Db2 HPU to be aware of the specific type of the input image copy was specified. These options are:

- INLINE
- FROM_COPYTOCOPY
- CHECK
- FLASHCOPY
- MERGE_IIC

See the documentation of these options to determine which is relevant.

For any other value of R15, ensure the image copy is valid by creating an object and populating it with the image copy. You can use DSN1COPY. If the image copy is valid, contact IBM Software Support.

If register R15 is 14, this means that Db2 HPU has found an invalid record prefix while unloading the data from an image copy. This control is done if CHECK_INTEGRITY LEVEL1 with the IC subparameter was requested. In such a case:

- R2 contains the page number which contains the invalid record
- R3 contains the idmap of the invalid record

1022

Db2 HPU detected a problem with the version description (OBDREC) of a record from an input image copy or an input table space data set (LDS) which prevents the data from this record to be unloaded. Register R15 contains the version number of that record. Db2 HPU stops with this ABEND when one of the following situation is encountered:

- The version that is indicated by register R15 is not described in the image copy. The image copy might have been created with the SYSTEMPAGES NO option.
- When the image copy was created, the table had been altered n times (there are n records versions in the image copy), and when the table was unloaded, the table had been altered only m times, where $m < n$ (the Db2 catalog only describes m records versions).
- When the image copy was created before a REORG that materializes a DROP COLUMN, use the DDLDDN option to provide Db2 HPU with a file that contains the DDL of the table as before the involved DROP COLUMN to unload the data from the image copy.
- The version of a record read from the table space data set (LDS) is not described in the table space data set; In such case, the INZX135 message is issued before Db2 HPU stops with the ABENDU1022. Refer to the explanation of this message.

If none of these situations occurred, contact IBM Software Support and provide the job log for a new run of the unload that failed and the related SYSABEND file.

When the image copy was created before a REORG that materializes a DROP COLUMN, use the DDLDDN option to provide Db2 HPU with a file that contains the DDL of the table as before the involved DROP COLUMN to unload the data from the image copy.

1024

Db2 HPU was unable to start. The reason code (register 15) is the code returned by the macro ATTACH. Contact IBM Software Support to get help on how to determine the root cause of the problem.

11xx

For abend codes that are not described below, Db2 HPU detected an internal error. Contact IBM Software Support.

1128

Db2 HPU has detected an internal error. The following reason code is issued:

1

A DATE TIME involved in a scalar expression needs to be converted by a DATE EXIT and this EXIT returned an error. There might be problem with either the DATA/TILE data or the DATE/TIME exit. Check that the data contained in the table is correct. If so, contact IBM Software Support.

any other reason code

This is an internal and unexpected error. Contact IBM Software Support for more information.

1129

If reason code 250 is associated with this abend, Db2 HPU detected an unsupported situation due to binary zeroes (i.e. x'00') in char columns to be unloaded.

Example:

```
•250 * OPTIMIZATION NOT ALLOWED * ddname * first column of merged column * value of all the merged column
```

Converting data to the target ccsid, binary zero has been detected either in the input data, either in the converted data. This unusual situation prevents an optimization mechanism to work correctly. To determine the record which leads to the issue, add the DD card \$HRECID to get additional information:

```
250 * OPTIMIZATION NOT ALLOWED * ddname * PART nnnn PGNUM nnnnnnnn ID nn * DB :dbname TS : tsname
```

If the binary zero is contained in the input data and it is not expected, update the table to remove this character. Otherwise, disable this kind of optimization by setting FIX(OPTCNV) in the ULOPTNS parmlib parameter.

In any other case (i.e. reason code different than 250), this might be an internal error. Contact IBM Software Support.

1132

Db2 HPU has encountered an error when unloading LOB or XML in native mode.

If the reason code is among 5, 8, 15, 20, 22, 23, 24 and 25, Db2 HPU has encountered the following situation. For a specific row, the unload of LOB or XML data in native mode failed because of an inconsistency between the base table space and the LOB or XML related table space. This situation can occur if the consistency of these table spaces has not been ensured by having the Db2 buffer flushed to the underlying data sets (e.g. by specifying the QUIESCE YES option in the UNLOAD command) and no concurrent update of the object occurs during the unload (e.g. by specifying the LOCK YES option in the UNLOAD command). Submit the job again after having ensured of the table spaces consistency or run the unload in SQL mode by specifying the DB2 FORCE option. You can request Db2 HPU to issue a message and stop or to ignore such a situation and resume the processing by respectively setting the VUU084/ULLOBBHV to STOP or IGNORE.

If the reason code 21, increase the region size and submit again the JCL.

For any other reason code or if the actions suggested above have not solved the problem, contact your IBM support.

1133

Db2 HPU has encountered an error when unloading LOB or XML in native mode.

If the reason code is among 2, 3 and 5, Db2 HPU has encountered the following situation. For a specific row, the unload of LOB or XML data in native mode failed because of an inconsistency between the base table space and the LOB or XML related table space. This situation can occur if the consistency of these table spaces has not been ensured by having the Db2 buffer flushed to the underlying data sets (e.g. by specifying the QUIESCE YES option in the UNLOAD command) and no concurrent update of the object occurs during the unload (e.g. by specifying the LOCK YES option in the UNLOAD command). Submit the job again after having ensured of the table spaces consistency or run the unload in SQL mode by specifying the DB2 FORCE option. You can request Db2 HPU to issue a message and stop or to ignore such a situation and resume the processing by respectively setting the VUU084/ULLOBBHV to STOP or IGNORE.

For any other reason code or if the actions suggested above have not solved the problem, contact your IBM support.

1134

If reason code 0A is associated with this abend, Db2 HPU detected an error while writing a LOB file into its target library. Db2 HPU received an error notification from the STOW macro (SVC21), and the registers are set to the following specifications:

R14

The return code of STOW (R15 from STOW)

R2

The reason code of STOW (R0 from STOW)

R3

The address of the member name (LOB file) that could not be created

R4

The address of the library name for which the error occurred

This abend can be issued for the following reasons:

- The target library has run out of space (R14=16 and R2=2871=x'B37', or R2=3383=x'D37').
- Directory space for the target library does not exist (R14=12 and R2=0).

- The member (LOB file) to be created already exists in the target library (R14=4 and R2=0).

See *DFSMS Macro Instructions for Data Sets for z/OS* for a complete description of the possible return codes and reason codes.

If a reason code other than 0A is associated with this abend, Db2 HPU detected an internal error. Contact IBM Software Support.

1135

Db2 HPU has encountered an error when unloading LOB or XML in native mode.

If the reason code is 2, Db2 HPU has encountered the following situation. For a specific row, the unload of LOB or XML data in native mode failed because of an inconsistency between the base table space and the LOB or XML related table space. This situation can occur if the consistency of these table spaces has not been ensured by having the Db2 buffer flushed to the underlying data sets (e.g. by specifying the QUIESCE YES option in the UNLOAD command) and no concurrent update of the object occurs during the unload (e.g. by specifying the LOCK YES option in the UNLOAD command). Submit the job again after having ensured of the table spaces consistency or run the unload in SQL mode by specifying the DB2 FORCE option. You can request Db2 HPU to issue a message and stop or to ignore such a situation and resume the processing by respectively setting the VUU084/ULLOBBHV to STOP or IGNORE.

If the reason code is among 4 and D, increase the region size and submit again the JCL.

For any other reason code or if the actions suggested above have not solved the problem, contact your IBM support.

1136

Db2 HPU has encountered an error when unloading LOB or XML in native mode.

If the reason code is among 2, 4, 15, 1A, 29, 2B, 2D, 47, 48 and 4B, Db2 HPU has encountered the following situation. For a specific row, the unload of LOB or XML data in native mode failed because of an inconsistency between the base table space and the LOB or XML related table space. This situation can occur if the consistency of these table spaces has not been ensured by having the Db2 buffer flushed to the underlying data sets (e.g. by specifying the QUIESCE YES option in the UNLOAD command) and no concurrent update of the object occurs during the unload (e.g. by specifying the LOCK YES option in the UNLOAD command). Submit the job again after having ensured of the table spaces consistency or run the unload in SQL mode by specifying the DB2 FORCE option. You can request Db2 HPU to issue a message and stop or to ignore such a situation and resume the processing by respectively setting the VUU084/ULLOBBHV to STOP or IGNORE.

For any other reason code or if the actions suggested above have not solved the problem, contact your IBM support.

1137

An error occurred while Db2 Sort was running. The following reason code is issued:

2

The requested number of sort operations is incorrect because it exceeds the maximum number of sort operations that can be run in parallel or the requested number is out of range. See register R3 for the requested number of sort operations. If R3 contains a positive, small number, consider decreasing the parallelism degree that is requested by your unload process. If R3 contains an irrelevant value, such as a negative number or a positive number that is too large to be the accurate number of required sort operations, contact IBM Software Support.

If a reason code other than 2 is associated with this abend, Db2 HPU detected an internal error. Contact IBM Software Support.

11xx

For abend codes that were not previously described, Db2 HPU detected an internal error. Contact IBM Software Support.

1205

While reading the LDS of an object, a GET call returned with a completion code of 8 and a reason code of x'78. Db2 HPU writes diagnosis information to a SYSOUT SYSnnnn dataset. Contact IBM Software Support and provide the joblog of the failing job containing the SYSnnnn dataset.

12xx

Db2 HPU detected an internal error. Contact IBM Software Support.

20xx

Db2 HPU detected an internal error. Contact IBM Software Support.

3001-3005

Db2 HPU detected an internal error. Contact IBM Software Support.

4000

Expected information was not provided by the LISTCAT command. The following WTO is issued prior to the 4000 abend:

```
INZUT4-n : ERROR DURING LISTCAT FOR dsname
```

where *dsname* is the name of the data set for which the LISTCAT command was issued.

If *n*=1: the data set was located but no data set entry was found (information field length is equal to 0).

If *n*=2: for a CLUSTER component, the AMDSB control block could not be retrieved. The AMDSB control block contains the type of the data set (HURBA or HARBA).

Issue a manual LISTCAT command to determine the error.

40xx

Db2 HPU detected an internal error. Contact IBM Software Support.

Db2 HPU messages

This section contains a list of all of the messages that are issued by Db2 HPU.

Each Db2 HPU is accompanied by one of the following return codes:

Return code	Definition
0	Informational. No error occurred.
4	Warning. A condition was detected; you might need to take further action.
8 or 16	Error. An error was detected; processing could not continue.

The return code shown for a message is the condition code from the job step in which the message is issued. If additional messages that have higher condition codes are issued during the same job step, the higher condition code is returned.

The message text uses the short variable name, such as *Vxxnnnn*, or the short parameter name. Use these short names to find descriptions about them in this user's guide.

INZC002E **FATAL ERROR WHILE CHECKING DDNAME *ddname* (RC=*reason code*)**

User response

Contact IBM Software Support.

Explanation

A unrecoverable error occurred when checking the *ddname* that was provided.

Return Code

8

INZC003E **ERROR DDNAME *ddname* IS NOT ALLOCATED AND/OR NOT ROOT OF ANY ALLOCATED DDNAMES**

Explanation

The specified ddname is not allocated in the execution JCL.

User response

Correct the SYSIN or the DD statements that are allocated in the JCL and resubmit the job.

Return Code

8

INZC004E	INCOMPLETE OBJECT DEFINITION FOR TABLESPACE <i>dbname.tsname message</i>
-----------------	---

Explanation

The definition of the table space is incomplete. The partitioning index is missing.

User response

Create the partitioning index.

Return Code

8

INZC005E	IMAGE COPIES MUST BE SPECIFIED BY PARTITION, INVALID ALLOCATED DDNAME : <i>ddname</i>
-----------------	--

Explanation:

Image copy files should be specified per partition for a partitioned table space.

User response:

Allocate a file per partition for image copy files.

Return Code:

8

INZC018E	UNBALANCED QUOTE
-----------------	-------------------------

Explanation

An unbalanced quotation mark is found in a file (SYSIN, TEMPLATE, LISTDEF, or DDL). Refer to the previous message to see which file contains the unbalanced quotation mark.

User response

Review the file and correct the unbalanced quotation mark.

Return Code

8

INZC019E	ERROR DDNAME <i>ddname</i> NOT ALLOCATED AND NO TEMPLATE FOUND
-----------------	---

Explanation

The indicated *ddname* used in the SYSIN does not fulfill any of the following:

- It is allocated via a DD card in the JCL
- It is the root name (prefix) of a ddname or of a set of ddname starting with the mentioned ddname appended with a numerical suffix allocated via JCL
- It is described by a TEMPLATE statement

Db2 HPU cannot process the unload command properly as an input or output data set associated to the indicated DD name is not allocated either by using a DD card or a TEMPLATE statement.

User response

Check the JCL and the SYSIN and correct the problem.

Return Code

8

INZC020E	<i>stmt1</i> STATEMENT CANNOT BE MIXED WITHIN <i>stmt2</i> STATEMENT
-----------------	---

Explanation

Incompatible statements were specified in the SYSIN. For example, UNLOAD PLUS cannot be used within a Db2 HPU UNLOAD statement.

User response

Check the JCL and the SYSIN and correct the incompatibility.

Return Code

8

INZC021E	LISTDEF <i>list</i> CANNOT BE FOUND
-----------------	--

Explanation

A LISTDEF or LISTDEFTBV that was specified in the SYSIN cannot be found. The LISTDEF or LISTDEFTBV definition is searched in the first place in the SYSIN, and then in the LISTDEF or LISTDEFTBV LIBRARY.

User response

Verify that a LISTDEF or LISTDEFTBV definition exists in the SYSIN or the LISTDEF or LISTDEFTBV LIBRARY.

Return Code

8

INZC022E LISTDEF NAME *list* IS TOO LONG

Explanation

A LISTDEF or LISTDEFTBV name that is longer than 18 characters is specified in the SYSIN.

User response

Change the length of the LISTDEF or LISTDEFTBV name to be 18 characters or less.

Return Code

8

INZCE0322 ERROR : THE MODULE INZUTILB IS NOT APF AUTHORIZED

Explanation

Db2 HPU determined that the INZUTILB module was not APF authorized.

User response

Provide the necessary authorization for the specified module, and resubmit the job.

Return Code

8

INZCE0559 ERROR : UNABLE TO LOAD DSNHDECP FROM THE DSNEXIT LIBRARY

Explanation

Db2 HPU was unable to load the Db2 installation options from the DSNEXIT LIBRARY

User response

Check the value of the VZD007 installation parameter for the specified Db2 subsystem.

Return Code

8

INZCI0559 DDNAME: *ddname* ROWS: number

Explanation

The message is printed to the ddname HPU PRINT, if allocated, to inform about the number of unloaded rows per ddname.

User response

None.

Return Code

0

INZDSC01I The *nnn* value of VZD014 is ignored because it is ambiguous for the *subsystem-ID* SSID.

Explanation

Db2 HPU V4.1 and earlier releases did not require any details for Db2 V9 NFM and later releases. For such Db2 subsystems, VZD014 had the same value (i.e. 915). In Db2 HPU V5.1 and later releases, the exact Db2 level must be specified. This message is issued because the Discover process in Tools Customizer found the ambiguous 915 value and has not generated any value. The related value needs to be specified by using Tools Customizer.

User response:

No action is required.

Return Code

None.

INZDSC02I The *nnn* value of VZD014 is not recognized for the *subsystem-ID* SSID.

Explanation

The value that was discovered for the VZD014 is not valid. The value was not stored by the Discover process. The related value needs to be specified by using Tools Customizer.

User response

No action is required.

Return Code

None.

INZDSC03I The *value-name* value of *Vvariable-ID* contains a colon (:).

Explanation

The specified value of the indicated variable contains a colon, which might cause incorrect processing in Tools Customizer. The value is kept as specified, and if incorrect processing occurs, Tools Customizer will issue the CCQ0070W message.

User response

No action is required.

Return Code

None.

INZDSC07E	INTERNAL ERROR, UNEXPECTED ERROR NUMBER <i>n</i>
------------------	---

Explanation

An unexpected error has occurred

User response

Contact IBM Software support.

Return Code

8

INZDSC08E	ENTER VALUE EITHER IN FIELD 'NAME OF PARMLIB LIBRARY...' EITHER IN BOTH FIELDS 'PREVIOUS DATA SET...'
------------------	--

Explanation

The discover process requires either the "name of the PARMLIB library of a previous version (4.2.0 and later) or both the name of the "Previous data set of variables to be retrieved (4.1.0 and earlier)" and the name of the "Previous data set with customized file dsnames (4.1.0 and earlier)". At least one piece of information has not been entered.

User response

Fill in the fields where the cursor is located.

Return Code

8

INZDSC09I	THE VALUE IN FIELDS 'PREVIOUS DATA SET...' IS IGNORED WHEN A VALUE IS SPECIFIED FOR 'NAME OF PARMLIB LIBRARY...'
------------------	---

Explanation

Values have been entered for both a discover from a release 4.2.0 and later and a release "4.1.0 and earlier". Only the values from the later version (4.2.0 and later) are taken into account. The values entered in the fields "4.1.0 and earlier" are ignored.

User response

None

Return Code

None.

INZDSC10E	DATASET NAME IS NOT THE NAME OF A PDS/PDSE
------------------	---

Explanation

A non-PDS or PDSE data set name has been entered in the field "Name of PARMLIB library of a previous version (4.2.0 and above) " where a PDS or PDSE is required.

User response

Correct the file "Name of PARMLIB library of a previous version (4.2.0 and above)".

Return Code

8

INZDSC11E	INCONSISTENT Db2 HPU PARMLIB
------------------	-------------------------------------

Explanation

The information for the discover exec process is inconsistent for the indicated reason.

User response

Enter consistent information.

Return Code

8

INZDSC12I	VARIABLE NOT RECOGNIZED: <i>variable-name</i>
------------------	--

Explanation

An unknown variable has been read from the setting from which the discover process is done. The related line is ignored and the discover process continues.

User response

None.

Return Code

None.

INZDSC13E	DISCOVER VERSION <i>current-vm</i> CANNOT WORK WITH AN OLD PARMLIB FROM VERSION <i>previous-vm</i>.
------------------	--

Explanation

The former settings provided as an input to the discover utility comes from a Db2 HPU version. The discover process cannot be done.

User response

Provide the parmlib of a version not later than the current one.

Return Code

8

INZDSC14I	VALUE <i>INSTALL-SYSADM/INSTALL_SYSOPR</i> IS NO LONGER ACCEPTED FOR DB2 PARAMETER VARIABLE-NAME FOR SSID DB0A. THE VALUE HAS TO BE CHANGED BEFORE TO GENERATE JCLs.
------------------	---

Explanation

The value *IINSTALL-SYSADM/INSTALL_SYSOPR* formerly allowed for the indicated variable is no longer supported and must be changed after the discover process

User response

Modify the setting for the indicated value after the discover process is completed.

Return Code

None.

INZDSC15I	THE PREVIOUS PARMLIB HAS NOT BEEN BUILT THROUGH TCz. CHECK THE VALUE FOR PARAMETER VARIABLE-NAME
------------------	---

Explanation

The data set entered in the "Name of the PARMLIB library of a previous version (4.2.0 and later)" actually comes from a version earlier than 4.2.0. Although the discover process works, the value for the indicated variable might not be the expected one.

User response

Either check the value for the indicated variable or preferably rerun the discover process after having specified the data set name in the relevant field, i.e. "Previous data set variables to be retrieved (4.1.0 and earlier)".

Return Code

None.

INZGE00nn	ERROR : WRONG <i>nn</i> PARAMETER SPECIFIED IN THE PARMLIB <i>details</i>
------------------	--

Explanation

An invalid value was specified in the PARMLIB for the specified parameter. The values for *nn* and *details* are:

nn

details

00

Refer to the line that follows this message.

01

The variable is missing.

02

The variable must be numeric.

03

The variable must be an 8-digit number.

User response

Modify the parameter value, and resubmit the job.

Return Code

8

INZGE0004	ERROR: WRONG VALUE SPECIFIED FOR VUM028/ DISPLUSR IN THE INZTVAR MEMBER, ITS LENGTH IS GREATER THAN THE MAXIMUM LENGTH FOR THIS PARAMETER
------------------	--

Explanation

Db2 HPU detected a length error in the PARMLIB for the VUM028/DISPLUSR parameter.

User response

Correct the length of the value that was specified for the VUM028/DISPLUSR parameter in the PARMLIB.

Return Code

8

INZGE0102	INTERNAL ERROR : FILE <i>file</i>, LINE <i>line</i>. PLEASE CONTACT YOUR TECHNICAL SUPPORT
------------------	---

Explanation

Db2 HPU detected an internal error.

User response

Contact IBM Software Support, and supply the return and reason codes.

Return Code

8

INZGE0200	ERROR : <i>ddname</i> DDCARD SHOULD BE LINE A FILE WITH RECFM=VBS
------------------	--

Explanation

The mentioned ddname does not relate to a file with the SPANNED format while this format is requested to process the unload request. Db2 HPU detected an internal error.

User response

Change the allocation parameters for the mentioned ddname by specifying the VBS RECFM or consider specifying DFSIGDCB YES to allow Db2 HPU to override the DCB of the provided output file and set its RECFM to VBS.

Return Code

ABENDU1003

INZI006E	NO CONVERSION WAS AVAILABLE BETWEEN CCSID <i>ccsid</i> AND CCSID <i>ccsid</i>
-----------------	--

Explanation

A conversion could not be performed because no conversion service was available to perform the specified conversion.

User response

Ensure that the appropriate conversion services are online and that the conversion for the specified *ccsid* is available.

Return Code

8

INZI007I	A CONVERSION WAS REQUESTED BETWEEN CCSID <i>ccsid</i> AND CCSID <i>ccsid</i>
-----------------	---

Explanation

This is an informational message. Db2 HPU requested a conversion between the specified CCSIDs.

User response

No action is required.

Return Code

0

INZI008E	A CONVERSION FAILED BETWEEN CCSID <i>ccsid source</i> AND CCSID <i>ccsid target</i>
-----------------	--

Explanation:

A character was found in the source string that cannot be converted into the CCSID target, and the PARMLIB parameter VZM008/SCUNSUB was set to NO.

User response:

Set the PARMLIB parameter VZUM028/SCUNSUB to YES to allow substitution character in conversions.

Return Code

8

INZI009E	CUNLCNV ERROR: RC <i>n</i>, REASON <i>n</i> CONVERSION BETWEEN CCSID <i>ccsid1</i> AND CCSID <i>ccsid2</i>
-----------------	---

Explanation

An error occurred when using Conversion Services to convert a string. The return code and reason code were returned from IBM Conversion Services.

User response

Check the return and reason codes in *z/OS Support for Unicode: Using Conversion Services*.

Return Code

8

INZI010E	INTERNAL CONVERSION ERROR BETWEEN CCSID <i>ccsid1</i> AND CCSID <i>ccsid2</i>
-----------------	--

Explanation

An internal error occurred when using Conversion Services to convert a string.

User response

Contact IBM Software Support, and supply the return and reason codes.

Return Code

8

INZI020I	DB2 SUB SYSTEM <i>ssid</i> [group] DB2 CATALOG VERSION <i>version</i> DB2 APPLCOMPAT application compatibility or N/A DSNEXIT <i>dsname</i> DECIMAL POINT PERIOD COMMA SQL STRING DELIMITER DEFAULT QUOTE APOST MIXED YES NO ENCODING SCHEME EBCDIC ASCII UNICODE EBCDIC CCSID <i>nnnn,nnnn,nnnn</i> ASCII CCSID <i>nnnn,nnnn,nnnn</i> UNICODE CCSID <i>nnnn,nnnn,nnnn</i> DATE FORMAT ISO USA EUR JIS LOCAL TIME FORMAT ISO USA EUR JIS LOCAL DECIMAL ARITHMETIC DEC15 DEC31
-----------------	--

Explanation

The message displays the value of some parameters from the settings of the Db2 subsystem the utility is run against. The message text is formatted as follows:

```

DB2 SUB SYSTEM      ssid [group]
DB2 VERSION         version
DB2 APPLCOMPAT     DB2 application
compatibility or N/A
DSNEXIT            dsname
DECIMAL POINT      PERIOD|COMMA
SQL STRING DELIMITER DEFAULT|QUOTE|APOST
MIXED              YES|NO
ENCODING SCHEME    EBCDIC|ASCII|UNICODE
EBCDIC CCSID       nnnn,nnnn,nnnn
ASCII CCSID        nnnn,nnnn,nnnn
UNICODE CCSID      nnnn,nnnn,nnnn
DATE FORMAT        ISO|USA|EUR|JIS|LOCAL
TIME FORMAT        ISO|USA|EUR|JIS|LOCAL
DECIMAL ARITHMETIC DEC15|DEC31

```

The message fields display the information described below (when applicable, the related DSNHDECP fields are mentioned in parentheses).

- **DB2 SUB SYSTEM:** the subsystem identifier (DSNHDECP field: SSID if a single subsystem is involved - expected value is a valid subsystem name). When the subsystem is part of a data sharing group, the group attachment name <group> (DSNHDECP field: SSID if a member of a data sharing group is involved - expected value is a valid group attachment name) is also indicated.
- **DB2 CATALOG VERSION:** the version of the DB2 CATALOG and not exactly the Db2 version. For example, if a migration from V9 NFM to V10 CM has been attempted and a fallback to V9 has been done, the DB2 CATALOG VERSION field still displays V10 CM despite the fallback. A discrepancy between the DB2 CATALOG VERSION and the DB2 VERSION also occurs when only some of the members in a Db2 data sharing system have been migrated and some others still run the old version.
- **DB2 APPLCOMPAT:** displays the value of the Db2 application compatibility at the time Db2 HPU is run if applicable, i.e. from Db2 V11 NFM, and N/A otherwise. This value applies before Db2 HPU has taken any APPLCOMPAT option or APPLCOMPAT setting into account.
- **DSNEXIT:** name of the library that Db2 HPU considers as the DSNEXIT library, i.e. the library that contains the DSNHDECP load module
- **DECIMAL POINT:** the character used as decimal point (DSNHDECP field: DECIMAL - expected values are PERIOD|COMMA)
- **SQL STRING DELIMITER:** the SQL string delimiter (DSNHDECP field: SQLDELI - expected values are DEFAULT|QUOTE|APOST)
- **MIXED:** mixed attribute of the subsystem (DSNHDECP field: MIXED - expected values are YES|NO)

- **ENCODING SCHEME:** subsystem encoding scheme (DSNHDECP field: ENSCHEME- expected values are EBCDIC|ASCII|UNICODE)
- **EBCDIC CCSID:** EBCDIC CCSID (DSNHDECP fields: SCCSID,MCCSID,GCCSID - expected values are valid CCSID values)
- **ASCII CCSID:** ASCII CCSID (DSNHDECP fields: ASCCSID,AMCCSID,AGCCSID - expected values are valid CCSID values)
- **UNICODE CCSID:** Unicode CCSID (DSNHDECP fields: USCCSID,UMCCSID,UGCCSID - expected values are valid CCSID values)
- **DATE FORMAT:** date format (DSNHDECP fields: DATE - expected values are ISO|USA|EUR|JIS|LOCAL)
- **TIME FORMAT:** time format (DSNHDECP fields: TIME - expected values are ISO|USA|EUR|JIS|LOCAL)
- **DECIMAL ARITHMETIC:** rules that are to be used when both operands in a decimal operation have precisions of 15 or less (DSNHDECP field: DECARTH - expected values are DEC15|DEC31]

User response

No action is required. However, after the setting for a given Db2 has been completed, consider checking that the values displayed by UDBI020I/INZI020I are consistent with the Db2 subsystem settings. Also, if an unexpected behavior such as an unexpected format for the date or time fields in the output of an unload is encountered.

Reason code

None.

INZI049E THE FOLLOWING USS DIRECTORY DOES NOT EXIST: *directory_name*.

Explanation

A directory must exist before it can be used in a template.

User response

Create the target directory before you reference it in a template.

Return Code

8

INZI142E ERROR: DDNAME *ddname* NOT ALLOCATED

Explanation

An internal error occurred. Db2 HPU has determined that the specified ddname was not allocated.

User response

Contact IBM Software Support, and supply the return and reason codes.

Return Code

8

INZI143E	ERROR: DURING <i>ddname</i> ALLOCATION
-----------------	---

Explanation

Db2 HPU was unable to allocate a temporary data set under *ddname*. If the ddname is SYSIN, an extra blank line might be coded after the end of the in-stream SYSIN data set.

User response

Ensure that the parameters for the VUM018/WRKVOL PARMLIB parameter, the VUA007/WRKTUNIT PARMLIB parameter, or both are valid. Also, ensure that all the volumes that these parameters refer to have not run out of free space. Resubmit the job when the VUM018/WRKVOL PARMLIB parameter, the VUA007/WRKTUNIT PARMLIB parameter, or both refer to a set of existing volumes with enough free space.

If the ddname is SYSIN and the in-stream SYSIN is followed by an extra blank line, remove the blank line, and resubmit the job.

If the problem persists, contact IBM Software Support, and supply the return codes and reason codes.

Return Code

8

INZI144E	ERROR: DURING DEALLOCATION OF <i>ddname</i> DDNAME
-----------------	---

Explanation

Db2 HPU was unable to deallocate the ddname *ddname*.

User response

Contact IBM Software Support, and supply the return and reason codes.

Return Code

8

INZI145E	ERROR: ALLOCATING THE DDNAME : <i>ddname</i> TO THE DSNAME : <i>dsname</i>
-----------------	---

Explanation

Db2 HPU was unable to allocate one of the following files in the ddname and dsname that were specified:

- DB2 DSNEXT
- UNICODE CONVERSION LIBRARY
- IMAGE COPY (LAST_IC or *n*the most recent copy)

User response

Check the following files for the failed allocation:

- For the DB2 DSNEXT file, check the content of PARMLIB parameter VZD007.
- For the UNICODE CONVERSION SERVICES file, check the content of PARMLIB parameter VZM006/SCUNMOD.
- For allocation of the image copy, check if the image copy file exists.

Return Code

8

INZI146E	ERROR WHEN SUBMITTING A SQL QUERY TO DB2 ON PLAN <i>planname</i>
-----------------	---

Explanation

Db2 cannot reply to an SQL query.

User response

Examine the Db2 messages in the SYSPRINT file. See *Db2 Universal Database for z/OS Messages and Codes* for a description of the possible return codes and reason codes.

Return Code

8

INZI147E	ERROR WHEN CLOSING UTILITY PLAN, ERROR CODE: <i>nn</i> REASON CODE: <i>nn</i>
-----------------	--

Explanation

A Db2 CAF closing error occurred.

User response

See the *Db2 for z/OS Application Programming and SQL Guide* for CAF return code and reason code information.

Return Code

8

INZI148E	ERROR WHEN DISCONNECTING FROM DB2, ERROR CODE: <i>nn</i> REASON CODE: <i>nn</i>
-----------------	--

Explanation

Db2 HPU encountered an error while disconnecting from Db2.

User response

See the *Db2 for z/OS Application Programming and SQL Guide* for CAF return code and reason code information.

Return Code

8

INZI149S	DB2 CONNECTION ERROR, SSID: <i>ssid</i>, ERROR CODE: <i>nn</i> REASON CODE: <i>nn</i>
-----------------	--

Explanation:

A Db2 CAF connection attempt failed with the indicated Db2 return code and reason code.

User response

Determine the reason of the error and its solution by checking the meaning of the indicated Db2 return and reason codes from the Db2 codes documentation.

Return Code

12

INZI150S	DB2 OPEN PLAN ERROR, PLAN: <i>planname</i>, ERROR CODE: <i>nn</i> REASON CODE: <i>nn</i>
-----------------	---

Explanation

A Db2 CAF open error occurred.

User response

See the *Db2 for z/OS Application Programming and SQL Guide* for CAF return code and reason code information.

Return Code

12

INZI151E	ERROR WHEN FINDING <i>obj</i> ERROR CODE: <i>rc</i> REASON CODE: <i>rs</i>
-----------------	---

Explanation

Db2 HPU cannot continue because an internal error occurred when trying to find information in the Db2 control blocks. The search object, *obj*, can be one of the following objects:

- SQLID
- SYSOPERATOR ID
- VCAT
- VERSION NUMBER
- DATACLASS
- MINIMUM DIVIDE SCALE
- DEFAULT FOR TS AND IX PRIMARY QUANTITY
- SYSADM ID
- AUTHID
- SECURITY LABEL

User response

Contact IBM Software Support, and supply the return and reason codes.

Return Code

16

INZI154E	UNEXPECTED INTERNAL CONVERSION .KEY 0x
-----------------	---

Explanation

An error occurred during the internal conversion.

User response

Contact IBM Software Support, and supply the reason code.

Return Code

8

INZI157E	ERROR : UNABLE TO LOAD DSNHDECP FROM THE DSNEXIT LIBRARY <i>dsname</i>
-----------------	---

Explanation

The DSNHDECP module load from the *dsname* library failed.

User response

Check the value of the VZD007 installation parameter for the specified Db2 subsystem.

Return Code

8

INZI158E **ERROR WHEN TRYING TO OBTAIN
A SHARED LOCK ON TABLE : *name***

Explanation

An error occurred while positioning a shared lock.

User response

Resubmit the job. If the error occurs again, contact IBM Software Support and supply the return and reason codes.

Return Code

8

INZI159E **ERROR WHEN TRYING TO OBTAIN
AN EXCLUSIVE LOCK ON TABLE :
*name***

Explanation:

An error occurred while positioning an exclusive lock.

User response

Resubmit the job. If the error occurs again, contact IBM Software Support and supply the return and reason codes.

Return Code

8

INZI161I **TIMEOUT WAITING STOP STATUS
OF THE *objtype name***

Explanation

A timeout occurred while waiting for the result of a previous STOP command. The object type can be a TABLESPACE or INDEXSPACE. The STOP command is reissued.

User response:

No action is required.

Return Code

0

INZI162E **OPERATOR ISSUED CANCEL: DB2
CANNOT STOP THE *objtype name***

Explanation

A CANCEL command was issued. The object type can be a TABLESPACE or INDEXSPACE. This message is issued when Db2 response time is slow.

User response

Increase the values of WAITQTY, WAITQTYM, and WAITUNIT, and resubmit the job.

Return Code

8

INZI163E **TIMEOUT: OPERATOR DID NOT
REPLY TO THE CONSOLE:
EXECUTION ABORTED**

Explanation

Db2 HPU ended abnormally because there was no operator response to continue or cancel the job. This message is issued when Db2 response time is slow.

User response

Increase the values of WAITQTY, WAITQTYM, and WAITUNIT, and resubmit the job.

Return Code

8

INZI164E **ERROR WHEN TRYING TO STOP
THE *objtype name* DB2 RETURN
CODE : *rc* DB2 REASON CODE : *rs***

Explanation

A STOP request was issued for a table space or index space, but the object might be the object of another active utility. The object type can be a TABLESPACE or INDEXSPACE.

User response

See *Db2 Universal Database for z/OS Messages and Codes* for a description of the possible return codes and reason codes.

Return Code

8

INZI165E	ERROR WHEN TRYING TO STOP THE PARTITION(S) OF <i>objtype name</i> DB2 RETURN CODE : <i>rc</i> DB2 REASON CODE : <i>rs</i>
-----------------	--

Explanation

A STOP request was issued for a table space or index space that might be the object of another active utility. The object type can be a TABLESPACE or INDEXSPACE.

User response

See *Db2 Universal Database for z/OS Messages and Codes* for a description of the possible return codes and reason codes.

Return Code

8

INZI166E	ERROR WHEN TRYING TO START THE <i>objtype name</i> DB2 RETURN CODE : <i>rc</i> DB2 REASON CODE : <i>rs</i>
-----------------	---

Explanation

A START request was issued for a table space or index space that might be the object of another active utility. The object type can be a TABLESPACE or INDEXSPACE.

User response

See *Db2 Universal Database for z/OS Messages and Codes* for a description of the possible return codes and reason codes.

Return Code

8

INZI167E	ERROR WHEN TRYING TO START THE PARTITION(S) OF <i>objtype name</i> DB2 RETURN CODE : <i>rc</i> DB2 REASON CODE : <i>rs</i>
-----------------	---

Explanation

A START request was issued for a table space or index space that might be the object of another active utility. The object type can be a TABLESPACE or INDEXSPACE.

User response

See *Db2 Universal Database for z/OS Messages and Codes* for a description of the possible return codes and reason codes.

Return Code

8

INZI168E	ERROR WHEN ALLOCATING A TEMPORARY DATASET <i>unit_information</i> DYNALLOC RC : <i>rc</i> REASON : <i>OXreasonN</i>
-----------------	--

Explanation

The allocation of a temporary dataset used to call DSNUITLB in order to process the QUIESCE of a tablespace failed. The *unit_information* field gives details about the unit used to allocate this dataset which value is taken either from the WRKUNIT or its alias SORTDEVT option or, if none of these options is specified, from the "Unit name for batch work data sets" parmlib parameter. The possible values for the *unit_information* field and their related meanings are:

- WITHOUT ANY SPECIFIED UNIT: no unit was specified for the allocation
- USING 'unit-name' UNIT: the indicated unit was used for the allocation

User response

Determine the root cause of the failure with the help of the return and reason code from dynalloc. If the error suggests a problem with the unit, check if the indicated *unit_information* is the expected one.

Return Code

8

INZI169E	ERROR WHEN OPENING SYSIN
-----------------	---------------------------------

Explanation

An internal error occurred and Db2 HPU was unable to open the SYSIN data set.

User response

Contact IBM Software Support, and supply the return and reason codes.

Return Code

8

INZI170E	ERROR WHEN WRITING SYSIN
-----------------	---------------------------------

Explanation

An internal error occurred and Db2 HPU was unable to write to the SYSIN data set.

User response

Contact IBM Software Support, and supply the return and reason codes.

Return Code

8

INZI171E **ERROR WHEN CLOSING SYSIN**

Explanation

An internal error occurred and Db2 HPU was unable to close the SYSIN data set.

User response

Contact IBM Software Support, and supply the return and reason codes.

Return Code

8

INZI172E *name* **DSNUTILB FAILED RETURN
CODE = nn**

Explanation

The specified Db2 DSNUTILB utility cannot continue because it encountered an error.

User response

Examine the Db2 messages in the SYSPRINT file and refer to *Db2 Universal Database for z/OS Messages and Codes* for a description of the return codes and reason codes.

Return Code

8

INZI173E *name* **DSNUTILB ABENDED
RETURN CODE = nn**

Explanation

The Db2 DSNUTILB utility has abended.

User response

Examine the Db2 messages in the SYSPRINT file and refer to *Db2 Universal Database for z/OS Messages and*

Codes for a description of the possible return codes and reason codes.

Return Code

8

INZI174E **ERROR WHEN TRYING TO
DETERMINE ENFM STATUS**

Explanation

A failure occurred when determining the Db2 Version 8 subsystem mode. This error can occur because the DISPLAY GROUP command that was used for this purpose failed.

User response

Check for Db2 messages about the DISPLAY GROUP command. If authorization problems are reported by Db2, ensure that the user who performed the DISPLAY GROUP command has the necessary authorization to do so. An authorized user is the user who submitted the job and the user who is specified by the VUM028/DISPLUSR PARMLIB parameter.

Return Code

8

INZI175I **PROCESSING SYSIN AS *scheme***

Explanation

This is an informational message that indicates the encoding scheme that is used to read the SYSIN.

User response:

No action is required.

Return Code

0

INZI180E **ERROR WHEN DISPLAYING THE
STATUS OF THE *objtype name***

Explanation

An error occurred while attempting to display the status of the table space or index space. This message is usually preceded by message INZI187E, which contains detailed information about the error. The object type can be a TABLESPACE or INDEXSPACE.

User response

Check the value of PARMLIB parameter VUM028/DISPLUSR. See message INZI187E for more

information, and see the *Db2 Universal Database for z/OS Messages and Codes* for a description of the possible return codes and reason codes.

Return Code

8

INZI181E **THE PARTITION *n* OF THE *objtype* name IS NOT AVAILABLE : *status***

Explanation

An UNLOAD of a partitioned table space was requested but the specified partition of the object is unavailable. The object type can be a TABLESPACE or INDEXSPACE.

User response

Modify the status of the object, and resubmit the job.

Return Code

8

INZI182E **THE *objtype* name IS NOT AVAILABLE : *status***

Explanation

An UNLOAD was requested but the specified object is unavailable. The object type can be a TABLESPACE or INDEXSPACE.

User response

Modify the status of the object and restart the utility.

Return Code

8

INZI183E **FAILED TO SWITCH TSO USER *userid***

Explanation

The switch to the indicated userid failed as the userid is invalid. Db2 HPU needs to perform some operations on behalf of a userid that has the appropriate privileges to do so. As Db2 HPU failed to identify itself as the indicated userid, the process stops.

User response

If the indicated userid is valid, report the issue to your IBM support. If the indicated userid is invalid, check which of the following parmlib parameters:

- VUM028/DISPLUSR
- VUM037/CRYPTUSR
- VUM031/QUITSUSR
- VUM035/EXPLNUSR
- VUM032/ACTLGUSR
- VUU101/USERHIST

is set to this userid indicated by the message.

Then set the parameter(s) in question to a valid userid that has the required privileges.

If none of them is set to the indicated userid, report the issue to your IBM support.

Return Code

8

INZI184E **FAILED TO SWITCH BACK TSO USER *userid***

Explanation

The switch back to a previous user ID failed. This issue is an internal error.

User response

Contact IBM Software Support.

Return Code

8

INZI187E **DB2 COMMAND ERROR, DB2 RETURN CODE: *rc* REASON CODE: *rs* EXPLANATION: *text***

Explanation

A Db2 command failed. When possible, the result of the command is printed in the SYSPRINT file.

User response

See *Db2 Universal Database for z/OS Messages and Codes* for a description of the possible return codes and reason codes. Check the SYSPRINT file for the result of the command.

Return Code

8

INZI188E **UNABLE TO RETRIEVE VSAM INFORMATION FOR THE *objtype* name [PART *n*] LDS : *dsname***

Explanation

A LISTCAT command failed for the underlying LDS of a Db2 object. The object type can be TABLESPACE or INDEXSPACE. The dsname of the LDS is in error and, if the object is partitioned, the partition number is contained in the message.

User response:

No action is required.

Return Code

8

INZI189I	DISPLAY GROUP DETAIL INFORMATION : RC=<i>rc</i> REASON=<i>rs</i>
-----------------	---

Explanation

This is an informational message. The DISPLAY GROUP DETAIL that was performed to determine the Db2 MODE through Db2 CAF interface returned a warning (RC=4). The return code and reason code from CAF are also contained in this message.

User response:

No action is required.

Return Code

0

INZI190E	ERROR WHEN TRYING TO QUIESCE THE <i>object name</i>
-----------------	--

Explanation

The table space in a table space quiesce request might be the object of another active utility.

User response

See the *Db2 Codes* or *Db2 Messages* guide for a complete description of the possible error messages that are printed in SYSPRINT.

Return Code

8

INZI191E	ERROR WHEN TRYING TO QUIESCE THE PARTITION(S) OF <i>object name</i>
-----------------	--

Explanation

The table space in a table space quiesce request might be the object of another active utility.

User response

See the *Db2 Codes* or *Db2 Messages* guide for a complete description of the possible error messages that are printed in SYSPRINT.

Return Code

8

INZI192E	UNABLE TO LOAD THE DB2 LIBRARY (<i>system_explanation</i>)
-----------------	---

Explanation

Db2 HPU was not able to load a required *Db2* module from the allocated *Db2* libraries. The text reports the system explanation received when the attempt to load the module failed. For example, the *system_explanation* fields can be 'CEE3501S The module DSNAO64C was not found.' when the DSNAO64C *Db2* module required for ODBC access was not available to Db2 HPU.

User response

Fix the situation reported by the *system_explanation*. You may need to ensure that the tasks described in "Authorizing and enabling Db2 HPU" section has been correctly performed.

Return Code

8

INZI193E	ERROR: <i>originerror_description</i>
-----------------	--

Explanation:

Db2 HPU received an error when invoking a Db2 feature either through the Db2 CLI or the Db2 CAF component as indicated by the origin field of the message text. This message displays the error description returned by the Db2 component in question. The origin field is FROM CLI when the Db2 CLI is concerned and FROM CAF when the Db2 CAF is concerned.

User response

Fix the situation reported by the *error_description* field of the message. You may need to ensure that the tasks described in "Authorizing and enabling Db2 HPU" section has correctly been performed.

Return Code

8

INZI194E	DB2 CONNEXION TO <i>ssid</i> BY [CAF RRSF] FAILED, RETURN CODE:
-----------------	--

return code REASON CODE: reason code

Explanation

an attempt to connect to *Db2*, either by the CAF method through the CONNECT service or by the RRSAF method through the IDENTIFY service, failed with the indicated *Db2* return and reason codes.

User response

Determine the reason of the error and its solution by checking the meaning of the indicated *Db2* return and reason codes from the *Db2* codes documentation.

Return Code

8

INZI195I DB2 STATUS OF THE PARTITION *partition.number* OF THE *tablespace/indexspace dbname.tsname/dbname.isname* : *restricted_state*

Explanation

This message gives details for a subsequent/later INZU406E or INZU411W message that reports the impossibility to perform the QUIESCE utility used to honor the requested QUIESCE feature. One of the root causes of this impossibility is the *DB2* mentioned restricted state of the partition of the indicated table space or index space. This message is issued not only to the SYSPRINT dataset but also to the MVS console if the VUU028/ULQSCBHB parmli parameter is set to FORCE,WTO or TRY,WTO.

User response

Take this piece of information into account to determine the root cause of the situation reported by the further INZU406E or INZU411W message and solve the issue.

Return Code

0

INZI196I DB2 STATUS OF THE TABLESPACE/ INDEXSPACE *partition.number* OF THE *dbname.tsname/dbname.isname* : *restricted_state*

Explanation

This message gives details for a subsequent/later INZU406E or INZU411W message that reports the

impossibility to perform the QUIESCE utility used to honor the requested QUIESCE feature. One of the root causes of this impossibility is the *DB2* mentioned restricted state of the indicated table space or index space. This message is issued not only to the SYSPRINT dataset but also to the MVS console if the VUU028/ULQSCBHB parmli parameter is set to FORCE,WTO or TRY,WTO.

User response

Take this piece of information into account to determine the root cause of the situation reported by the further INZU406E or INZU411W message and solve the issue.

Return Code

0

INZI197I EXPLAIN PLAN SUCCESSFUL: QUERYNO = *number*, EXPLAIN_TIME = *timestamp*

Explanation

This message indicates that an EXPLAIN PLAN was performed successfully without automatic deletion of inserted rows in EXPLAIN tables. It gives the QUERYNO and EXPLAIN_TIME values to allow the manual deletion of the inserted rows.

User response:

No immediate action is required. As each execution of the job will insert a new set of data into the EXPLAIN tables, you may want to remove the just inserted row or gather the information for further deletion. You may also want not to keep the EXPLAIN tables rows by specifying the appropriate VUM034/EXPLNTB = DELETE in the parmli or the DELETE_EXPLAIN_TABLES_ROWS option for this unload.

Return Code

0

INZI199W EXPLAIN TABLE: *creator.name* IS MISSING

Explanation

This message indicates that an EXPLAIN table required by the EXPLAIN PLAN statement is missing. This EXPLAIN PLAN statement was attempted by *Db2* HPU because the OPTIMIZE_PART_RANGE feature was requested or to lock a table unloaded in SQL mode.

User response

If the indicated EXPLAIN table does not exist, create it.

Return Code

4

INZI200E	SYNTAX ERROR - UNBALANCED DELIMITERS FOR STRING STARTING AT (<i>line</i>, <i>column</i>)
-----------------	---

Explanation

The syntax contains a string with unbalanced delimiters.

User response

Check the SYSIN at the location that is indicated to find the string that contains the unbalanced delimiters. Correct the syntax and resubmit the job.

Return Code

8

INZI201E	SYNTAX ERROR - MISSING SHIFT-IN IN STRING STARTING AT (<i>line</i>, <i>column</i>).
-----------------	--

Explanation

A sequence of DBCS characters is not stopped with a SHIFT_IN character.

User response

Check the SYSIN at the location that is indicated to find the string with the missing SHIFT_IN character. Correct the syntax, and resubmit the job.

Return Code

8

INZI202E	SYNTAX ERROR - MISSING SHIFT-IN IN DBCS IDENTIFIER STARTING AT (<i>line</i>, <i>column</i>)
-----------------	--

Explanation

A DBCS identifier is not followed by a SHIFT_IN character.

User response

Check the SYSIN at the location that is indicated to find the string with the missing SHIFT_IN character. Correct the syntax, and resubmit the job.

Return Code

8

INZI203E	SYNTAX ERROR - UNBALANCED DELIMITERS IN GRAPHIC STRING STARTING AT (<i>line</i>, <i>column</i>)
-----------------	--

Explanation

The syntax contains a graphic string with unbalanced delimiters.

User response

Check the SYSIN at the location that is indicated to find the string that contains unbalanced delimiters. Correct the syntax, and resubmit the job.

Return Code

8

INZI204E	SYNTAX ERROR - UNBALANCED DELIMITER IN HEXADECIMAL STRING STARTING AT (<i>line</i>, <i>column</i>)
-----------------	---

Explanation

The syntax contains a hexadecimal string with unbalanced delimiters.

User response

Check the SYSIN at the location indicated to find the string that contains the unbalanced delimiters. Correct the syntax and resubmit the job.

Return Code

8

INZI205E	SYNTAX ANALYSIS FAILED AFTER LAST VALID PARAMETER [N/A <i>keyword</i>].
-----------------	--

Explanation

This message gives details about the location of the error reported by the immediately preceding message "INZU018E INVALID PARMLIB PARAMETER parmlib parameter". The syntax error was found at the indicated column. The incorrect value is printed below a ruler that shows the columns numbers.

User response

With the help of the ruler, determine the incorrect part of the value and correct the setting of the related parmlib parameter.

Return Code

8

INZI208E **UNEXPECTED VALUE JUST BEFORE COLUMN *col* IN parameter VALUE PRINTED BELOW**
-----1-----2-----3-----4-----5-----6-----7-----8

Explanation

This message gives details about the location of the error reported by the immediately preceding message "INZU018E INVALID PARMLIB PARAMETER parmlib parameter". The syntax error was found at the indicated column. The incorrect value is printed below a ruler that shows the columns numbers.

User response

With the help of the ruler, determine the incorrect part of the value and correct the setting of the related parmlib parameter.

Return Code

8

INZI210I **ZIIP ENABLE - SET TO *percentage* %**

Explanation

This message indicates that the zIIP usage is requested. It precises which proportion of eligible tasks (SRB tasks) should be off-loaded. This value is set either by the operand of the ZIIP option or by the associated parmlib parameter, i.e. ZIIP usage (VUX039/ZIIP).

User response

If enabling the zIIP was not meant, consider removing the ZIIP option from your unload command or specifying ZIIP OFF.

Return Code

0

INZI211I **ONLINE CPU(S) *gp_cpu* GENERAL CPU *zip_cpu* ZIIP CPU *other_cpu* OTHER CPU**

Explanation

When ZIIP usage is requested, this message gives information about the type and numbers of available GENERAL, ZIIP and OTHER CPUs. The types of processors are deduced from the PCCAATTR flag of the value of the PCCA system control block indicated in brackets below:

- ZIIP: zIIP processor (PCCAATTR =PCCAZIIP)
- OTHER: Special Processor (PCCAATTR=PCCAIFA) or (Discretionary Processor (PCCAATTR=PCCADSCR)
- GENERAL: Any processor not listed above ((PCCAATTR not in PCCAZIIP,CCAIFA, PCCADSCR)

See "'z/OS MVS Data Areas Volume 5" manual for more details about the PCCA control block.

User response

None.

Return Code

0

INZI212I **NO ZIIP AVAILABLE, ZIIP SET TO OFF**

Explanation

The zIIP usage is requested but no zIIP processor has been found. The zIIP specific processing is not performed and no task will be off-loaded to a zIIP processor. Db2 HPU behaves as if ZIIP OFF was specified.

User response

None.

Return Code

0

INZI213W **ZIIP ACTIVATION FAILED, RC=*return_code*, REASON=*reason_code***

Explanation

The zIIP usage is requested but the ZIIP initialization phase failed. No task can be off-loaded to the zIIP processor(s). The unload process continues as if ZIIP OFF was specified.

User response

Unless you are aware of malfunction of your zIIP processors, contact your IBM support.

Return Code

4

INZI214I **THE SYNTAX KEYWORD *option* IS DEPRECATED AND IS IGNORED BY THE PROCESS.**

Explanation

The specified option was valid in previous versions but is no longer used in the current version. The process does not take it into account.

User response

Refer to the “deprecated syntax” section and remove the keyword and its operands to prevent this message to be issued. See the table below that shows which keyword sequence to remove according to the keyword mentioned by the message. Option keyword sequences to be removed:

QUIESCECAT YES
QUIESCECAT NO
SRTVSMIN integer
SRTVSMAX integer
SQLACCES MINIMAL
SQLACCES AUTO
SQLACCES YES
SQLACCES NO

If none of the sequence mentioned in the table can be found, this means the syntax was not valid in any of the previous release and you must double check the current syntax diagram to find out how to correct the unload statement.

Return Code

0

INZI215I **THE VALUE *value* OF THE PARMLIB VARIABLE *variable* IS DEPRECATED AND IS IGNORED BY THE PROCESS.**

Explanation

The mentioned setting was applicable in previous version but is not longer taken into account by the process.

User response

If variable is ONDEMAND_RESOURCE_ALLOCATION, remove the whole ONDEMAND_RESOURCE_ALLOCATION(*value*) for the ULOPTNS setting. For any variable, generate the customization jobs and submit the INZTVAR and INZCHECK jobs.

Return Code

0

INZI216E **UNABLE TO DETERMINE CURRENT DB2 APPLCOMPAT**

Explanation

The current DB2 APPLICATION COMPATIBILITY could not be retrieved for an undetermined reason.

User response

Contact your IBM support.

Return Code

8

INZI217I **DB2 APPLCOMPAT IS SET TO *value***

Explanation

The Db2 current APPLCOMPAT was modified according to the APPLCOMPAT option specified in the GLOBAL OPTIONS block or by the VUM036/APPLCOMP parmlib parameter.

User response

None.

Return Code

0

INZI220I **RTS HAVE BEEN EXTERNALIZED FOR *objtype name***

Explanation

As RTSESTIM YES,EXTERNALIZE applies (either requested by the RTSESTIM YES,EXTERNALIZE option or by the setting of the VUX036/RTSESTIM

parmlib parameter to YES,EXTERNALIZE), the Real Time Statistics for the indicated object have been successfully externalized. This allow to populate the RTS table with up to date values for the object in question which help to make the estimate of the number or records to be unloaded, derived from these value, as accurate as possible.

User response

No action is needed but you may want to save up the CPU or elapse time dedicated to the RTS externalization if you can make sure the RTS are accurate enough when Db2 HPU is run.

Return Code

0

INZI221E **REQUESTED EXTERNALIZATION OF RTS FAILED FOR *objtype name* DB2 RETURN CODE: *rc* DB2 REASON CODE : *rs***

Explanation

The Real Time Statistics for the indicated object needed to be externalized as RTSESTIM YES,EXTERNALIZE applies. Db2 could not perform the EXTERNALIZE statement for this object and failed with the indicated return and reason codes. The unload involving the object in question stops as the potentially wrong estimate that could result of using outdated statistics might lead the unload to fail.

User response

Search the explanation of the return and reason codes in the appropriate DB2 publication and solve the issue, if necessary, before run or restarting, if applicable, the unload.

Return Code

8

INZI320I **LISTDEF INFORMATION: LISTDEF NAME *listdef-name***

Explanation

This is an informational message that indicates a LISTDEF name that is used by Db2 HPU.

User response

No action is required.

Return Code

0

INZI321E **LISTDEF ERROR: INVALID PARTLEVEL FOR *objqual.objname* VALID RANGE IS (1:n)**

Explanation

The PARTLEVEL number that was specified in a LISTDEF or LISTDEFTBV is greater than the number of partitions within the specified table space.

User response

Correct the PARTLEVEL specification in the indicated LISTDEF or LISTDEFTBV.

Return Code

8

INZI322E **LISTDEF ERROR: THE *option_name* OPTION IS NOT SUPPORTED.**

Explanation

Db2 HPU does not support the following options when they are specified in the LISTDEF:

- ALL
- XML
- LOB
- BASE
- HISTORY

User response

Remove the unsupported options from the LISTDEF definition.

Return Code

8

INZI323E **TEMPLATE ERROR: DUPLICATE OPTION *option* IN TEMPLATE *template-name***

Explanation

A template option is defined multiple times.

User response

Modify the template definition to remove the duplicate options.

Return Code

8

INZI324E **LISTDEF ERROR: OPTION
PARTLEVEL CANNOT BE MIXED
WITH RI OPTION**

Explanation

PARTLEVEL and RI are defined in the same LISTDEF.

User response

Modify the LISTDEF definition.

Return Code

8

INZI325I **TEMPLATE INFORMATION:
TEMPLATE NAME *template-name***

Explanation

This is an informational message that indicates a template name that was used by Db2 HPU.

User response

No action is required.

Return Code

8

INZI326E **TEMPLATE ERROR: VOLCNT
PARAMETER MUST BE FROM 1 TO
59 FOR DASD DATASET**

Explanation

An invalid VOLUME COUNT is set in a template for a DASD data set.

User response

Change the VOLCNT parameter in the template definition.

Return Code

8

INZI327E **TEMPLATE ERROR: WHEN
SPECIFYING A DEVICE NUMBER,
UNCNT MUST BE SET TO 1.**

Explanation

An invalid UNIT COUNT is set in a template, when a physical DEVICE NUMBER is used.

User response

Remove the UNCNT parameter from the template or set UNCNT to 1.

Return Code

8

INZI328I **DATASET ALLOCATED.
TEMPLATE=*template-name*
DDNAME=*ddname* DSN=*dsname***

Explanation

This is an informational message. A data set that was generated from a TEMPLATE is allocated by Db2 HPU.

User response

No action is required.

Return Code

0

INZI329I **DATASET ALLOCATED
FOR PARTITION *part*.
TEMPLATE=*template-name*
DDNAME=*ddname* DSN=*dsname***

Explanation

This is an informational message. A data set that was generated from a TEMPLATE for a specific partition is allocated by Db2 HPU.

User response

No action is required.

Return Code

0

INZI330E **DYNAMIC ALLOCATION FAILED.
TEMPLATE = *template name*
DSN=*dsname* RC=*rc*, REASON=*rs*.
SVC99 MESSAGES ARE REPORTED
IN JESMSGI CARD**

Explanation

A dynamic allocation through SVC 99 failed. The SVC 99 return code and the corresponding reason code are

contained in the return and reason codes. Dynamic allocation messages IKJnnnnnI are issued in WTO in the JESMSGL card. This message is followed by message INZI332I, which contains dynamic allocation parameters.

User response

Refer to the allocation messages that were issued in WTO to determine the reason for the allocation error. If the dsname is generated from a template, correct the template, and resubmit the job. Otherwise, contact IBM Software Support and supply them with the content of messages INZI330E, INZI332I, and IKJnnnnI.

Return Code

8

INZI331E	FREE OF DDNAME <i>ddname</i> FAILED, RC=<i>rc</i>, REASON=<i>rs</i>. SVC99 MESSAGES ARE REPORTED IN JESMSGL CARD
-----------------	---

Explanation

A dynamic free through SVC 99 failed. The SVC 99 return code and corresponding reason code are contained in the return and reason codes. Dynamic allocation messages IKJnnnnnI are issued in WTO in the JESMSGL card. This message is followed by information message INZI332I, which displays dynamic allocation parameters.

User response

Contact IBM Software Support and supply them with the content of messages INZI330E, INZI332I, and IKJnnnnI.

Return Code

8

INZI332I	DYNAMIC ALLOCATION PARAMETER LIST (SVC99): <i>text</i>
-----------------	---

Explanation

This message displays the dynamic allocation parameters when a dynamic allocation or free failed.

User response:

No action is required.

Return Code

0

INZI333E	SPACE ESTIMATION FAILED
-----------------	--------------------------------

Explanation

Db2 HPU failed to estimate the allocation of the file that was generated by the TEMPLATE statement because a LISTCAT command on the underlying LDS file failed.

User response

Check the status of the table space LDS files.

Return Code

8

INZI336E	DYNAMIC ALLOCATION FAILED. TEMPLATE=<i>template_name</i> GDG BASE=<i>dsn_gdg</i> IS NOT DEFINED AND GDGLIMIT IS SET TO 0
-----------------	---

Explanation:

Db2 HPU failed to allocate a GDS file from a template. The GDG base is not defined and the GDGLIMIT is set to zero to prevent its definition.

User response

Do one of the following:

- Change the GDGLIMIT setting to a non-zero value in the SYSIN and then resubmit the job.
- Create the GDG using an IDCAMS DEFINE GENERATIONDATAGROUP command and then resubmit the job.

Return Code

8

INZI337E	DYNAMIC ALLOCATION FAILED FOR TEMPORARY FILE=<i>temp_dsn</i> RC=<i>rc</i>, REASON=<i>reason</i> SVC99 MESSAGES ARE REPORTED IN JESMSGL CARD
-----------------	--

Explanation

The dynamic allocation of a temporary file by using DYNALLOC services (SVC 99) failed. RC and REASON contain the dynamic allocation return and reason codes. Dynamic allocation messages IKJnnnnnI are issued in WTO in the JESMSGL card.

User response

Refer to the allocation messages that were issued in WTO to determine the reason for the allocation error.

Return Code

8

INZI338E **IDCAMS ERROR RC=*rc*. *sysprint* of
the IDCAMS execution which failed**

Explanation

The IDCAMS program invoked by Db2 HPU has failed. This error message is followed by the SYSPRINT of the IDCAMS which failed. RC contains the IDCAMS return code.

User response

Refer to the content of the IDCAMS to determine the reason of the error.

Return Code

8

INZI339E **ALLOCATION OF BASE
GDG=*gdg_dsn* FAILED**

Explanation

This message occurs when Db2 HPU failed to create a base GDG for a template file. This error message is generally preceded by error message INZU337E or INZU338E.

User response

Refer to the content of message INZU337E or INZU338E and check the template definition.

Return Code

8

INZI340E **MISSING MODELDCB OR
DATACLAS IN DEFINITON OF
TEMPLATE=*template_name***

Explanation

This message occurs when a template that corresponds to GDG files is defined without a MODELDCB or DATACLAS parameter and when the parmlib parameter TEMPLDSCB is left blank.

User response

Check the template definition and parmlib parameter TEMPLDSCB, and resubmit the job.

Return Code

8

INZI341E **MODELDCB=*dsname* IN
TEMPLATE=*template_name* IS NOT
CATALOGUED**

Explanation

This message occurs when a template contains a MODELDCB that does not correspond to a cataloged entry.

User response

Correct the setting of the MODELDCB parameter in the template definition, and resubmit the job.

Return Code

8

INZI344I **LISTDEF *LISTDEF_name*:
object_type *object_name* NOT
FOUND**

Explanation

An object that was specified by a LISTDEF or LISTDEFTBV statement could not be found. *LISTDEF_name* is the name of the list defined the LISTDEF or LISTDEFTBV statement, *object_type* is the type of the missing object among DATABASE, TABLESPACE, INDEXSPACE, TABLE, INDEX, and *object_name* is the name of the missing object.

User response

No action is required.

Return Code

0

INZI345I **LISTDEF *LISTDEF_name*: CLAUSE
- *INCLUDE_or_EXCLUDE_clause* -
IDENTIFIES NO OBJECTS**

Explanation

A LISTDEF or LISTDEFTBV clause returned no object. *LISTDEF_name* is the name of the list defined the LISTDEF or LISTDEFTBV statement, and *INCLUDE_or_EXCLUDE_clause* indicates which clause returned no object.

User response

No action is required.

Return Code

0

INZI346E	LISTDEF INVALID SQLCODE=<i>sqlcode</i> FOR <i>sql_order_type_</i>
-----------------	--

Explanation

An SQL error occurred during the search of Db2 objects for a LISTDEF or LISTDEFTBV statement. *sql_ordertype_* can be one of the following: DECLARE/PREPARE CURSOR, OPEN CURSOR, FETCH CURSOR or CLOSE CURSOR

User response

Refer to the previous sql error message. If it suggests a site-dependent or temporary issue, solve the issue or simply run the job again. Otherwise, contact the IBM support.

Return Code

12

INZI348W	THE <i>option_name</i> OPTION IN THE <i>template_name</i> TAPE TEMPLATE IS IGNORED.
-----------------	--

Explanation

Db2 HPU ignored an option in a template. The option name and template name are indicated in the message text.

User response

Remove the specified option to suppress this warning.

Return Code

4

INZI365E	INVALID VALUE FOR CONFIGURATION PARAMETER <i>name</i>.
-----------------	---

Explanation

An invalid value was specified in the PARMLIB for the specified parameter.

User response

Modify the parameter value, and resubmit the job.

Return Code

8

INZI366E	THE MANDATORY CONFIGURATION PARAMETER <i>name</i> IS MISSING.
-----------------	--

Explanation

A specified mandatory PARMLIB parameter is missing.

User response

Specify the parameter value, and resubmit the job.

Return Code

8

INZI367W	THE CONFIGURATION PARAMETER <i>name</i> MUST BE NUMERIC.
-----------------	---

Explanation

The value specified for the indicated PARMLIB parameter is not numeric. The parameter must be numeric.

User response

Set the indicated parameter with a numeric value and resubmit the job.

Return Code

4

INZI368W	THE CONFIGURATION PARAMETER <i>name</i> IS OUT OF RANGE (<i>min_value</i> - <i>max_value</i>).
-----------------	---

Explanation

The value specified for the indicated PARMLIB parameter is not within the allowed range. The parameter must be greater than or equal to *min_value* and less than or equal to *max_value*.

User response

Set the indicated parameter with a supported value and resubmit the job.

Return Code

4

INZI436E **SYNTAX ERROR IN DDLDDN FILE
STARTING AT (line1,column1) AND
ENDING AT (line2,column2)**

Explanation

A syntax error occurred while analyzing the DDL DDN file. Db2 HPU was unable to determine the cause of the error but the error message contains the location where the error occurred.

User response

Verify that valid syntax was used in the indicated area of the DDLDDN file.

Return Code

8

INZI458E **utility COULD NOT START A NEW
THREAD OR PROCESS (CODE
reason) (reason text)**

Explanation

An error occurred when trying to start a new thread. The system returned the mentioned reason code along with the indicated reason text when the attempt to start a new thread failed.

User response

Determine the root cause of the issue from the reason text or from the reason code. The explanation of the mentioned reason code can be found in the "z/OS UNIX System Services Messages and Codes" manual. If the reason is the lack of resources to create a new thread, consider decreasing the Db2 HPU need for threads with the help of either the PARALLELISM or the MAXPART option or both. You may also want to use the corresponding parmlib parameters instead, i.e. VUX025/PARALLEL, VUX031/DB2PARAL, VUX030/UTLPARAL and VUU060/ULMAXPAR PARMLIB but as the optimal parallelism configuration might apply especially to the current unload, changing the unload statement should be preferred. If the information gathered about the error does not suggest any way to solve the issue, report it to your IBM support.

Return Code

8

INZI500I **DDL ANALYSING: PROCESSING
DDL FILE DDN=ddname**

Explanation

This is an informational message. The analysis of the DDL file has started.

User response

No action is required.

Return Code

0

INZI501I **DDL ANALYSING: IN BLOCK
STARTING AT POS(line1, column1)
ENDING AT POS(line2, column2)**

Explanation

This is an informational message that provides the position of the DDL file that is currently being analyzed.

User response

No action is required.

Return Code

0

INZI502I **DDL ANALYSING: ITEM STARTING
AT POS(line, column)**

Explanation

This is an informational message that provides the position of the DDL file that is currently being analyzed.

User response

No action is required.

Return Code

0

INZI503E **DDL ANALYSING: SYNTAX ERROR
AT POS(line, column)**

Explanation

A syntax error occurred in a DDL file during analysis.

User response

Correct the syntax error. Contact IBM Software Support if you are unable to determine the cause of the error.

Return Code

8

INZI510E	DDL ANALYSING: DUPLICATE DESCRIPTION OF <i>objtype name</i>
-----------------	--

Explanation

An object is defined twice in the DDLDDN file. This message is preceded by informational message INZI502I, which contains the location of the duplication in the DDL file.

User response

Check the CREATE clauses in the DDLDDN file and remove the duplicate definition.

Return Code

8

INZI511E	DDL ANALYSING: DUPLICATE DEFINITION OF PARTITION IN CREATE INDEX STATEMENT
-----------------	---

Explanation

The CREATE INDEX clause specifies a clustering index partition more than once.

User response

Check the CREATE INDEX clause in the DDLDDN file and remove the duplicate definition.

Return Code

8

INZI512E	DDL ANALYSING: INVALID INDEX KEY IN CREATE INDEX STATEMENT
-----------------	---

Explanation

The CREATE INDEX clause specifies an incorrect key.

User response

Check the CREATE INDEX clauses in the DDLDDN file and remove duplicate definitions.

Return Code

8

INZI513E	DDL ANALYSING: UNDEFINED COLUMN IN THE CREATE INDEX STATEMENT
-----------------	--

Explanation

The CREATE INDEX clause specifies an unknown column in the DDLDDN file.

User response

Check the CREATE TABLE and CREATE INDEX clauses in the DDLDDN file for invalid column names.

Return Code

8

INZI514E	DDL ANALYSING: UNDEFINED TABLE IN CREATE INDEX STATEMENT
-----------------	---

Explanation

An index is defined on a table that was not previously described in the DDLDDN file.

User response

Check the CREATE TABLE and CREATE INDEX clauses in the DDLDDN file for the undefined index.

Return Code

8

INZI515E	DDL ANALYSING: INVALID BUFFER POOL: <i>name</i>
-----------------	--

Explanation

An invalid buffer pool is specified in the DDL.

User response

Check the CREATE TABLESPACE or CREATE DATABASE clauses in the DDLDDN file.

Return Code

8

INZI519W	<i>reason</i> FOR [TABLESPACE/ INDEXSPACE/TABLE] <i>object</i> [PART] <i>part</i> WAIT(<i>wait time</i>)
-----------------	---

RETRY(*nb retry*) MECHANISM IS STARTING

Explanation

Db2 HPU detects an unavailable resource. The wait/retry mechanism is activated for one of the following reasons:

- ALLOCATION FAILED
- DB2 STATUS (*status*) NOT SUPPORTED
- LOCK TABLE FAILED

If the resource becomes available, processing continues.

User response

No action is required.

Return Code

None.

INZI520E	DDL ANALYSING: MANDATORY CLAUSE \"IN DATABASE-NAME.TABLESPACE-NAME\" IS MISSING IN DDL OF TABLE <i>creator.table</i>
-----------------	---

Explanation

The CREATE statement for the specified table does not contain database and table space names, which Db2 HPU requires.

User response

Add the IN DATABASE-NAME.TABLESPACE-NAME clause to the CREATE statement for the specified table.

Return Code

8

INZI522E	THE TOTAL NUMBER OF DEVICES ASSIGNED TO UNIT <i>unit_name</i> IS GREATER THAN THE TAPEUNIT PARAMETER (<i>number_of_device_in_tapeunit</i>)
-----------------	---

Explanation

The total number of devices required from template on the indicated UNIT is greater than the number of devices assigned through the TAPEUNIT parameter.

User response

Check parameters. Decrease UNCNT or increase the number of devices assigned to the UNIT through the TAPEUNIT option.

Return Code

12

INZI523I	UNIT COUNT IS SET TO <i>unit_count_value</i>
-----------------	---

Explanation

The unit count was set by Db2 HPU for the template file that is indicated in the preceding INZI328I message or the INZI329I message.

User response

No action is required.

Return Code

0

INZI524E	UNABLE TO READ PARMLIB <i>pds name/ddname</i> (<i>rc = return-code</i>)
-----------------	--

Explanation

Db2 HPU could not read the INZUTIL member from the specified partitioned data set or ddname to determine the installation parameters. The return code provides additional information as indicated below:

- 0x2ca03d: the parmlib could not be read because another process allocates the dataset in exclusive mode. This error is reported after 10 attempts to allocate the dataset which means that the concurrent process(es) had been holding the parmlib for at least 50 s (the allocation attempts are made every 5 s).
- any other return code: this is an unexpected error that requires further diagnosis by the IBM support

User response

If the return code is 0x2ca03d', make sure that your Db2 HPU step is not run concurrently with processes that hold the parmlib in exclusive mode. In particular, avoid to run the Db2 HPU INZCHECK customization jobs that allocates the parmlib in exclusive mode while Db2 HPU steps are run. As the INZCHECK customization job also contain a Db2 HPU step, avoid to run several INZCHECK customization in parallel.

For any other reason code or if none of the above suggested solutions solves the issue, check if the

mentioned partitioned data set or the data set allocated under the mentioned DDname exists and has a readable and compliant INZUTIL member (the INZUTIL member is normally generated by running the INZTVAR customization job). Otherwise:

- either correct the value of the "PARMLIB library (INZPLIB/INFPLIB)" parameter and complete de customization process
- or allocate a partitioned data set containing a relevant INZUTIL member under the INFPLIB ddname.

If a readable and compliant INZUTIL member can actually be found at the mentioned location (PDS or ddname) and no process was allocating the parmlib dataset in exclusive mode at the time of failure, contact the IBM support.

Return Code

8

INZI527E **DDL ANALYSING: *option1* OPTION REQUIRES MISSING *option2* OPTION.**

Explanation

This message indicates that the DDL provided for the DDLDDN option is incorrect because an option required by the first option is missing.

User response

Correct the syntax error.

Return Code

8

INZI528E **DDL ANALYSING: *option1* OPTION IS INCOMPATIBLE WITH *option2* OPTION.**

Explanation

This message indicates that the DDL provided for the DDLDDN option is incorrect because of a conflict between 2 options in the DDL.

User response

Correct the syntax error.

Return Code

8

INZI529I **THE PARMLIB PARAMETERS HAVE BEEN READ FROM: *path***

Explanation

This message indicates the name of the PDS or DDN from where the parmlib has been read.

User response

No action is required

Return Code

0

INZI531E **TEMPLATE ERROR: INVALID TEMPLATE DEFINITION FOR TEMPLATE *alternate_template_name* POINTED BY TEMPLATE *base_template_name***

Explanation

This message indicates that the alternate template specified by the LIMIT option of a base template is incompatible with the base template because the limit value it specifies for size is less than the main template size limit.

User response

Check and modify the template(s) definition(s) to ensure the rule concerning size limits is fulfilled.

Return Code:

8

INZI532W **TEMPLATE WARNING: LIMIT OPTION FOR TEMPLATE *template_name* IS IGNORED DUE TO USAGE OF SPACE OPTION**

Explanation

This message indicates that the LIMIT option of the TEMPLATE statement is ignored because a SPACE option is also specified.

User response

Check and modify the template(s) definition(s)

Return Code

4

INZI534E **CALL TO STORED PROCEDURE *proc* FAILED.**

Explanation

An error occurred while attempting to use the indicated stored procedure for one of the following reasons:

- case 1: the stored procedure is not reachable, in which case preceding Db2 error messages give more details on the reason of the error.
- case 2: the stored procedure returned an error code, in which case the message text contains the explanation of the IFI or SQL error.

User response

Proceed as described below, depending on the applicable case:

- case 1: Ensure that stored procedures and corresponding WLM environments are correctly created on the involved Db2 subsystem or data sharing group. If the involved stored procedure is ADMIN_INFO_SYSPARM, you may want to disallow its use by specifying USE_ADMIN_INFO_SYSPARM(NO) for the VUU030/ULOPTNS parameter.
- case 2: Refer to the documentation of the related stored procedure to determine the root cause of the error.

Return Code:

8

INZI535E	INTERNAL ERROR WHEN ACCESSING TO <i>dsname</i> PROCESSING IN NATIVE MODE IS IMPOSSIBLE.
-----------------	--

Explanation

An internal error occurred when accessing the indicated data set name during an unload processed in native mode. A potential subsequent an unpredictable ABEND can occur.

User response

Contact your IBM support and consider using the DB2 FORCE option if applicable.

Return Code

8

INZI536E	ERROR WHEN CATALOGING THE DATASET : <i>dsname</i> RC=<i>rc</i>, REASON=<i>0xreason</i>
-----------------	---

Explanation

An error occurred when trying to catalog the indicated data set (*dsname*). The reported return and reason codes are those returned by the CATALOG MACRO. Refer to the 'DFSMSdfp Advanced Services' documentation for detailed explanation about these codes.

User response

With the help of the reported return and reason code and system messages related to the indicated dataset, if any, determine what prevented to catalog it and solve the issue. Especially make sure the dataset was not cataloged before the execution of the unload.

Return Code

8

INZI666F	FATAL ERROR : <i>explanation</i>
-----------------	---

Explanation

An unexpected exception has occurred. The explanation text, if any, is intended only for support.

User response

Report this failure to your IBM Software Support.

Return Code

16

INZI800E	ERROR ACCESSING TO A DATASET. ACTION: <i>service</i> RC: <i>return-code</i> REASON: <i>reason</i> DDN: <i>ddname</i> DSN: <i>dsname</i>
-----------------	--

Explanation

Explanation: an error occurred when allocating or accessing to a dataset. The concerned *ddname*, *dsname*, *service* and related reason and return code are indicated in the message. The service affected by the issue can be one of the following:

- OPEN
- CLOSE
- GET
- PUT
- MODCB
- STOW
- CHECK
- POINT

- ALLOCATE
- FREE

If the concerned service is either ALLOCATE or FREE, the return and reason codes indicated by the message are those from dynalloc. For the other services, the return and reason codes are those from the related VSAM macro or QSAM macro.

Important: if the INZX134 message was issued after this message, this message only reports an expected allocation error and can be disregarded or considered as an informational message.

User response

Disregard this message if the INZX134 message was issued after this message as no action is required. Otherwise, determine the reason of the allocation error with the help of the explanation of:

- the mentioned return and reason codes for the specified 'service',
- the potential system error messages concerning the involved ddname or dsname.

Return Code

8 if the INZX134 message was not issued after this message.

0 if the INZX134 message was issued after this message.

INZRE40 **PAGE NO. *page number* IN LDS NO. *LDS number* OF PAGESET *pageset* IS NOT IN SEQUENCE, SCAN ABORTED**

Explanation

Some pages that are not in sequence were read from an image copy file. The INLINE or CHECK keyword was not specified.

User response

Specify INLINE if the input image copy is an INLINE image copy that was created by a LOAD or REORG utility. Specify CHECK if the image copy used as input is not always an INLINE image copy and the image copy is referenced by the Db2 catalog (in SYSIBM.SYSCOPY table). If the ddname specified by the COPYDDN option allocates a concatenation of partitions of a Universal Table Space, make sure the files in the concatenation are arranged according to the partition number.

Return Code

8 (APAR PH37028) and 16 (before PH37028).

INZRE41 **PAGE NO. *nnnn* IN LDS NO. *nnnn* OF PAGESET *xxxx* IS NOT A VALID DB2 PAGE**

Explanation

Db2 HPU encountered a Db2 page that is not valid.

User response

Use the REPAIR command to correct the condition; then resubmit the job. If you are unloading from an image copy file, check that the input file contains a valid image copy.

This message is issued if Db2 HPU encounters an error that is related to the row structure while it is reading the rows of a table space. To limit the number of error messages that are issued, use the VUX018/LDSERRLM variable in the PARMLIB. When the limit that is specified in VUX018/LDSERRLM is reached, message INZRE41 is issued with the following text: INZRE41 MESSAGE LIMIT REACHED, ONE OR MORE MESSAGE(S) NOT PRINTED.

Return Code

8

INZRE42 **ROW AT OFFSET *nnnn* ON PAGE (HEX) *nnnn* OF PAGESET *xxxx* IS INVALID**

Explanation

Db2 HPU encountered a row that is invalid.

User response

Keep a copy (DSN1COPY) of the LDS that contains the page indicated by the message before rebuilding the pages from the tablespace by running the IBM REORG utility against the tablespace. If the issue remains, contact your IBM support.

This message is issued if Db2 HPU encounters an error that is related to the row structure while it is reading the rows of a table space. To limit the number of error messages that are issued, use the VUX018/LDSERRLM variable in the PARMLIB. When the limit specified in VUX018/LDSERRLM is reached, message INZRE42 is issued with the following text: INZRE42 MESSAGE LIMIT REACHED, ONE OR MORE MESSAGE(S) NOT PRINTED.

Return Code

8

INZRE45	IMAGE COPY FROM DD <i>ddname</i> CONTAINS NO ROW WITH SPECIFIED OBID(S). SCAN ABORTED
----------------	--

Explanation

The image copy data set that is to be unloaded and allocated to the ddname *ddname* contains a table that does not belong to the requested table. The OBID report provides information about the image copy. This report is created only when an image copy of a table space that contains a single table is processed.

User response

Specify the correct OBID value or ORIGINOBID 0.

Return Code

8

INZR1007	ERROR WHEN OPENING VIRTUAL FILE : DB2FVNNN
-----------------	---

Explanation

An internal error occurred when opening virtual file DB2FVNNN.

System action

Processing ends.

User response

Contact IBM Software Support, and supply the return codes and reason codes.

Return Code

8

INZR1008	ERROR WHEN WRITING VIRTUAL FILE : DB2FVNNN
-----------------	---

Explanation

An internal error occurred when writing virtual file DB2FVNNN.

System action

Processing ends.

User response

Contact IBM Software Support, and supply the return and reason codes.

Return Code

8

INZR2000	DB2 ERROR: PREPARE / DESCRIBE
-----------------	--

Explanation

This is a Db2 error. The lines that follow this message contain the error message that is generated by Db2.

System action

Processing ends.

User response

Correct the error.

Return Code

8

INZR2001	DB2 ERROR: OPEN CURSOR
-----------------	-------------------------------

Explanation

This is a Db2 error. The lines that follow this message contain the error message that is generated by Db2.

System action

Processing ends.

User response

Correct the error.

Return Code

8

INZR2004	DB2 ERROR: FETCH CURSOR
-----------------	--------------------------------

Explanation

This is a Db2 error. The lines that follow this message contain the error message that is generated by Db2.

System action

Processing ends.

User response

Correct the error.

Return Code

8

INZR2010	DB2 ERROR: CONNECTING TO <i>ssid</i>, RETURN CODE=<i>rc</i> REASON CODE=<i>rs</i>
-----------------	--

Explanation

A Db2 CAF connection error occurred.

User response

See the CAF return codes and reason codes in the *Db2 for z/OS Application Programming and SQL Guide*.

Return Code

12

INZR2011	DB2 ERROR: OPENING PLAN <i>planname</i>, RETURN CODE=<i>rc</i> REASON CODE=<i>rs</i>
-----------------	---

Explanation

A Db2 CAF open error occurred.

User response

See the CAF return codes and reason codes in the *Db2 for z/OS Application Programming and SQL Guide*.

Return Code

12

INZR2012	DB2 ERROR: DISCONNECTING FROM <i>ssid</i>, RETURN CODE=<i>rc</i> REASON CODE=<i>rs</i>
-----------------	---

Explanation

An error occurred while Db2 HPU was disconnecting from Db2.

User response

See the CAF return codes and reason codes in the *Db2 for z/OS Application Programming and SQL Guide*.

Return Code

8

INZR2013	DB2 ERROR: CLOSING PLAN <i>planname</i>, RETURN CODE=<i>rc</i> REASON CODE=<i>rs</i>
-----------------	---

Explanation

A Db2 CAF closing error occurred.

User response

See the CAF return codes and reason codes in the *Db2 for z/OS Application Programming and SQL Guide*.

Return Code

8

INZR2014	DB2 ERROR: CLOSE CURSOR
-----------------	--------------------------------

Explanation

The Db2 error described by the Db2 message reprinted in the following lines occurred.

User response

Fix the error described the indicated Db2 message.

Return Code

8

INZR3000	NUMBER OF ROWS EXTRACTED COPIED ON <i>ddname</i> : <i>rows-count</i>
-----------------	---

Explanation

This message indicates the total number of records that were written into an output dataset by an unload processed in SQL mode.

User response

No action is required.

Return Code

0

INZR3001	NUMBER OF ROWS DISCARDED DUE TO DATA TRUNCATION : <i>number</i>
-----------------	--

Explanation

During an unload processed in SQL mode, some rows have not been retrieved as a truncation occurred (the process received an SQLCODE +354).

User response

Consider changing the SQL statement to avoid any truncation error.

Return Code

4

INZR3002	NUMBER OF ROWS DISCARDED DUE TO DATE/TIME EXIT ERROR : <i>n</i>
-----------------	---

Explanation:

During the processing of a logical unload inb SQL mode, the invocation of a DATE/TIME exit required to format a DATE or TIME data returned an error. This message informs about the situation and displays the number of rows that were discarded because they were affected by the issue.

User response:

Check the data contained in the unloaded table to determine the reason of this unexpected error.

Return Code:

8

INZT003E	TEMPLATE ERROR: INVALID EXPIRATION DATE FORMAT. VALID FORMATS ARE YYYYDDD, YYYY/DDD
-----------------	--

Explanation

An invalid expiration date is specified in a template.

User response

Specify a valid date and resubmit the job.

Return Code

8

INZT004E	TEMPLATE ERROR: INVALID OPERAND <i>operand</i>
-----------------	---

Explanation

An invalid operand is specified in a template.

User response

Specify a valid operand and resubmit the job.

Return Code

8

INZT005E	TEMPLATE ERROR: VOLSER <i>volser</i> IS TOO LONG
-----------------	---

Explanation

An invalid VOLSER is specified in a template.

User response

Specify a valid VOLSER and resubmit the job.

Return Code

8

INZT006I	TEMPLATE INFORMATION: TAPE- OPTIONS ARE IGNORED BY UTILITY
-----------------	---

Explanation

Db2 HPU does not support TAPE-OPTIONS of TEMPLATE. These options are ignored.

User response

No action is required.

Return Code

0

INZT007E	TEMPLATE ERROR: INVALID GDG PARAMETER
-----------------	--

Explanation

The GDG that is specified in a TEMPLATE statement is incorrect.

User response

Correct the incorrect GDG and resubmit the job.

Return Code

8

INZT008E	TEMPLATE ERROR: OPERAND <i>n</i> OF SUBSTRING <i>substring</i> IS OUT OF RANGE
-----------------	---

Explanation

The parameters specified in a SUBSTRING expression in a template are out of range.

User response

Check the syntax of the DSN in the template, verify that they are in the correct range, and resubmit the job.

Return Code

8

INZT009E **TEMPLATE ERROR: DUPLICATE
TEMPLATE NAME *template-name***

Explanation

A redefinition of a TEMPLATE occurs in the SYSIN.

User response

Correct the syntax and resubmit the job.

Return Code

8

INZT010E **TEMPLATE ERROR: TEMPLATEDD
ddname CANNOT BE OPEN**

Explanation

The TEMPLATEDD library of a TEMPLATE cannot be opened.

User response

Verify that the TEMPLATEDD library is spelled correctly in the SYSIN and the JCL.

Return Code

8

INZT011E **TEMPLATE ERROR: INVALID DSN
VARIABLE *var* IN TEMPLATE**

Explanation

An invalid variable is used in a dsname definition of a TEMPLATE.

User response

Modify the variable or use the TEMPLATESET option to define it.

Return Code

8

INZT012E **TEMPLATE ERROR: INVALID
SUBSTRING NOTATION *substring*
IN DSN OPERAND. DSN OPERAND
MUST BE ENCLOSED IN SINGLE
QUOTATION MARKS**

Explanation

The dsname expression of a TEMPLATE that uses the SUBSTR expression must be enclosed in single quotation marks.

User response

Use single quotation marks around the dsname specification.

Return Code

8

INZT013E **TEMPLATE ERROR: FATAL SYNTAX
ERROR**

Explanation

A syntax error occurred in a TEMPLATE definition. A previous message contains the position in the SYSIN where the analysis failed.

User response

Check the syntax of the TEMPLATE statement, correct any errors, and resubmit the job.

Return Code

8

INZT014E **TEMPLATE ERROR: DSN OR PATH
KEYWORD EXPECTED**

Explanation

A DSN or PATH keyword is missing in a TEMPLATE definition.

User response

Correct the syntax of the TEMPLATE statement, and resubmit the job.

Return Code

8

INZT015E **TEMPLATE ERROR: OPERAND
operand IS TOO LONG**

Explanation

A DSN expression of a TEMPLATE definition contains a qualifier or member that is too long.

User response

Modify the syntax of the DSN definition in the TEMPLATE statement, and resubmit the job.

Return Code

8

INZT016E	TEMPLATE ERROR: INVALID OPERAND <i>operand</i> INTEGER IS EXPECTED
-----------------	---

Explanation

An invalid operand is used in a TEMPLATE definition. An integer value was expected.

User response

Correct the TEMPLATE statement, and resubmit the job.

Return Code

8

INZT017E	TEMPLATE ERROR: INVALID OPERAND <i>operand</i> FOR OPTION <i>option</i>
-----------------	--

Explanation

An invalid operand is used in one of the options of a TEMPLATE definition.

User response

Correct the TEMPLATE statement, and resubmit the job.

Return Code

8

INZT018E	TEMPLATE ERROR: SYNTAX ERROR FOR OPTION <i>option</i>
-----------------	--

Explanation

A syntax error occurred in a TEMPLATE definition.

User response

Correct the TEMPLATE statement, and resubmit the job.

Return Code

8

INZT019E	TEMPLATE ERROR: NUMBER OF VOLSER IS GREATER THAN 255
-----------------	---

Explanation

The number of VOLSER that were specified in a TEMPLATE definition is greater than the allowable limit of 255.

User response

Correct the TEMPLATE statement, and resubmit the job.

Return Code

8

INZT020E	TEMPLATE ERROR: AS DIR OPTION FOR DSNTYPE PDS CANNOT BE ESTIMATED, IT MUST BE SPECIFIED
-----------------	--

Explanation

A DSNTYPE PDS is specified in a TEMPLATE statement without a DIR option. In the context the TEMPLATE statement is used, Db2 HPU cannot automatically determine a value for the DIR attribute, which prevents the allocation of the output data set.

User response

Add a DIR option to the involved TEMPLATE statement.

Return Code

8

INZT021E	TEMPLATE ERROR: OPERAND IS OUT OF RANGE (<i>val1</i>, <i>val2</i>) FOR OPTION <i>option</i>
-----------------	--

Explanation

An operand in the TEMPLATE definition is out of range. The message specifies which option is involved and the authorized range (*val1-val2*).

User response

Correct the TEMPLATE statement, and resubmit the job.

Return Code

8

INZT022E	TEMPLATE ERROR: <i>option1</i> OPTIONS CANNOT BE MIXED WITH <i>option2</i> OPTIONS
-----------------	---

Explanation

Incompatible options are used in the TEMPLATE definition.

User response

Correct the TEMPLATE statement, and resubmit the job.

Return Code

8

INZT023W	TEMPLATE WARNING: TEMPLATE <i>template-name</i> FOR STORAGE ON TAPE DEVICE IS IGNORED BY UTILITY
-----------------	---

Explanation

Db2 HPU does not support the use of templates that are defined with TAPE options. This TEMPLATE definition is ignored and processing continues. If no other TEMPLATE definition exists and if the corresponding DDNAME is not allocated in the JCL, Db2 HPU will fail with error message INZC019E.

User response

If necessary, change the TEMPLATE definition or use another TEMPLATE.

Return Code

4

INZT024E	TEMPLATE ERROR: INVALID DISP SPECIFICATION
-----------------	---

Explanation

A disposition option in the TEMPLATE definition is invalid.

User response

Correct the TEMPLATE statement, and resubmit the job.

Return Code

8

INZT025E	TEMPLATE ERROR: INVALID OPERAND <i>operand</i> FOR OPTION <i>option</i>. VALID OPERAND(S) MAY BE <i>values</i>
-----------------	---

Explanation

An invalid operand is used in a TEMPLATE definition. The message specifies which TEMPLATE option is invalid and lists valid values.

User response

Correct the TEMPLATE statement, and resubmit the job.

Return Code

8

INZT026E	TEMPLATE ERROR: INVALID PARENTHETICAL EXPRESSION
-----------------	---

Explanation

An invalid parenthetical expression is used in a TEMPLATE definition.

User response

Correct the TEMPLATE statement, and resubmit the job.

Return Code

8

INZT027E	TEMPLATE ERROR: COMMA IS EXPECTED
-----------------	--

Explanation

A comma is expected in a TEMPLATE definition.

User response

Correct the TEMPLATE statement, and resubmit the job.

Return Code

8

INZT028E **TEMPLATE ERROR: RETPD AND EXPDL OPTIONS ARE EXCLUSIVES**

Explanation

Options RETPD and EXPDL are exclusives in a TEMPLATE definition.

User response

Correct the TEMPLATE statement, and resubmit the job.

Return Code

8

INZT029E **TEMPLATE ERROR: INVALID DSNAME QUALIFIER** *qualifier*

Explanation

An invalid qualifier occurs in the dsname expression of a TEMPLATE definition.

User response

Correct the TEMPLATE statement, and resubmit the job.

Return Code

8

INZT030E **TEMPLATE ERROR: DOT IS EXPECTED**

Explanation

A DOT character is expected in the dsname expression of a TEMPLATE definition.

User response

Correct the TEMPLATE statement, and resubmit the job.

Return Code

8

INZT032E **TEMPLATE ERROR: VARIABLE** *var* **IS NOT SUPPORTED IN CONTEXT OF** *utility*

Explanation

A dsname variable that was used in the dsname expression of a TEMPLATE definition cannot be used by Db2 HPU.

User response

Refer to the list of supported variables, correct the TEMPLATE statement, and resubmit the job.

Return Code

8

INZT033E **TEMPLATE ERROR: DSNAME GENERATED FROM TEMPLATE** *template-name* **IS INVALID**
DSN=*dsname*

Explanation

The dsname that was generated from a TEMPLATE definition is invalid. This message is usually issued when the length of the generated dsname is greater than 44 characters.

User response

Correct the TEMPLATE statement, and resubmit the job.

Return Code

8

INZT034E **TEMPLATE ERROR: TEMPLATE** *template-name1* **REDEFINES DSNAME** *dsname* **PREVIOUSLY GENERATED FROM TEMPLATE** *template-name2*

Explanation

The dsname that was generated from a TEMPLATE statement redefines a dsname that was previously generated. Each dsname generated from a TEMPLATE statement must be unique.

User response

Correct the TEMPLATE statement to ensure each dsname is unique, then resubmit the job.

Return Code

8

INZT035E **TEMPLATE ERROR: DSN VARIABLE**
var HAS NO VALUE

Explanation

A dsname variable in the dsname expression of a TEMPLATE definition cannot be substituted.

User response

Correct the TEMPLATE statement, and resubmit the job.

Return Code

8

INZT036I **TEMPLATE *template* AT POS(*line*,**
***column*) IS READ FROM LIBRARY**
ddname

Explanation

This is an informational message. A template is defined in a TEMPLATE library.

User response:

No action is required.

Return Code

0

INZT038E **TEMPLATE ERROR:**
UNSUPPORTED OPTION *option*

Explanation

An unsupported option is used in a TEMPLATE definition.

User response

Correct the TEMPLATE statement, and resubmit the job.

Return Code

8

INZT040E **TEMPLATE ERROR: DSNAME**
REQUIRES MEMBER NAME WITH
PDS OR LIBRARY DSNTYPE

Explanation

A TEMPLATE that corresponds to an HFS file is specified without option DSNTYPE HFS.

User response

Specify option DSNTYPE HFS in the TEMPLATE statement and resubmit the job.

Return Code:

8

INZT041E **TEMPLATE ERROR: DSNAME**
GENERATED FROM TEMPLATE
***template_name* IS TOO LONG**
DSN=*dsn*

Explanation

The dsname that is generated from a TEMPLATE definition is too long. The message displays the generated dsname.

User response

Correct the TEMPLATE statement and resubmit the job.

Reason Code

8

INZT043E **TEMPLATE ERROR: THE**
***option_name* TEMPLATE OPTION**
WITH THE DSN KEYWORD IS NOT
VALID.

Explanation:

The PATH options FILEDATA, PATHOPTS, PATHMODE, and PATHDISP cannot be specified with the DSN keyword in the TEMPLATE statement.

User response:

Remove the specified PATH option that is not valid.

Return Code

8

INZT044E **TEMPLATE ERROR: THE PATH**
NAME AT POS(*line,col*) IS NOT
VALID.

Explanation

A DSN file name cannot be specified as a path name in the PATH option.

User response

Correct the SYSIN, and rerun the job.

Return Code

8

INZT045E **TEMPLATE ERROR: THE DSN
OPTION AT POS(*line,col*) IS NOT
VALID.**

Explanation

A path name that is specified with the DSN option must be enclosed in single quotation marks.

User response

Enclose the path name in single quotation marks, and rerun the job.

Return Code

8

INZT047I **TEMPLATE INFORMATION: THE
option_name TEMPLATE OPTION
IS IGNORED BECAUSE THE PATH
OPTION IS SPECIFIED.**

Explanation

When the PATH option is used to create z/OS USS files, the template option is ignored.

User response

If you want to use the PATH option, remove the template option that is ignored. If you do not want to use the PATH option, remove it.

Return Code

0

INZT048E **TEMPLATE ERROR: THE
option_name TEMPLATE OPTION
CANNOT BE SPECIFIED WITH THE
PATH OPTION.**

Explanation

The specified template option is incompatible when the PATH option is used to allocate a z/OS USS file.

User response

Correct the SYSIN, and rerun the job.

Return Code

8

INZT049E **TEMPLATE ERROR:
THE *alternate_template_name*
TEMPLATE SPECIFIED IN LIMIT**

**OPTIONS OF *base_template_name*
TEMPLATE IS NOT DEFINED**

Explanation

As the alternate template specified via the LIMIT option of the indicated base template is not defined, the processing of the base template cannot be completed.

User response

Remove the LIMIT option if specified by mistake or provide the alternate template definition.

Return Code

8

INZT051E **TEMPLATE ERROR: TEMPLATE
template_name_1 AND
template_name_2 LINKED BY
LIMIT OPTION REDEFINED
DSNAME *dsname* USING
[POTENTIALY] THE SAME
UNIT OR STORAGE CLASS
*unit_or_storage_class_name***

Explanation

The indicated templates that are directly or indirectly linked by the LIMIT option of TEMPLATE statements:

- generate the same data set name
- (potentially) on the same UNIT or with the same STORAGE CLASS. This situation where TEMPLATE statements from a template switching chain do not ensure that the generated data set are distinct, in terms of data set name or location is not supported. The text message mentions POTENTIALY if the templates definitions do not allow to conclude if both templates share a common UNIT or STORAGE CLASS. This occurs if either of the following situation occurs:
 - one of the indicated TEMPLATE statements does not specify any UNIT or STORAGE CLASS.
 - one of the indicated template statements specifies a UNIT but no STORAGE CLASS and the other template specifies a STORAGE CLASS but no UNIT.

User response

Specify either distinct DSN patterns or distinct UNIT/STORAGE CLASS for one of the indicated templates.

Return Code

8

INZT101I **LISTDEF *list-name* AT
POS(*line,column*) IS READ FROM
LIBRARY *ddname***

Explanation

This is an informational message. A LISTDEF is defined in a LISTDEF library.

User response:

No action is required.

Return Code

0

INZT102E **LISTDEF ERROR: NAME *list-name*
IS TOO LONG.**

Explanation

A LISTDEF name exceeds the 18 character limit.

User response

Correct the LISTDEF statement, and resubmit the job.

Return Code

8

INZT103E **LISTDEF ERROR: INVALID DB-
SPEC KEYWORD AT POS
(*line,column*)**

Explanation

An invalid DB-SPEC keyword is used to define a LISTDEF or LISTDEFTBV.

User response

Correct the LISTDEF or LISTDEFTBV statement, and resubmit the job.

Return Code

8

INZT104E **LISTDEF ERROR: PARTITION
NUMBER OUT OF RANGE FOR
PARTLEVEL OPTION**

Explanation

A partition number in the PARTLEVEL option of the LISTDEF definition is out of range.

User response

Correct the LISTDEF statement, and resubmit the job.

Return Code

8

INZT105E **LISTDEF ERROR: INVALID DB2
IDENTIFIER *identifier* AT POS(*line,
column*)**

Explanation

An invalid Db2 identifier is used in a LISTDEF definition.

User response

Correct the LISTDEF statement, and resubmit the job.

Return Code

8

INZT106E **LISTDEF ERROR: OPTIONS ALL,
BASE, LOB, XML ARE EXCLUSIVES**

Explanation

The ALL, BASE, LOB, and XML options are exclusives in a LISTDEF definition.

User response

Correct the LISTDEF statement, and resubmit the job.

Return Code

8

INZT107E **LISTDEF ERROR: DUPLICATE
LISTDEF NAME *list-name***

Explanation

A duplicate LISTDEF or LISTDEFTBV name is used in the SYSIN.

User response

Check the syntax, correct the error, and resubmit the job.

Return Code

8

INZT108E **LISTDEF ERROR: LISTDEF *list-name* AT POS(*line*, *column*) IS NOT DEFINED**

Explanation

A LISTDEF that was used in the LISTDEF definition is not defined.

User response

Check the name of the included LISTDEF or the name of LISTDEF library that was used, correct the error, and resubmit the job.

Return Code

8

INZT109E **LISTDEF ERROR: LISTDEFDD *ddname* CANNOT BE OPEN**

Explanation

The LISTDEFDD library of LISTDEF cannot be opened.

User response

Check the syntax or the JCL for errors, and resubmit the job.

Return Code

8

INZT110E **LISTDEF ERROR: TABLESPACES OR INDEXSPACES MUST BE SPECIFIED WITH DATABASE KEYWORD**

Explanation

The filter DATABASE in the LISTDEF definition requires an INDEXSPACES or TABLESPACES keyword.

User response

Correct the LISTDEF statement, and resubmit the job.

Return Code

8

INZT111E **LISTDEF or LISTDEFTBV ERROR: INVALID PATTERN *pattern* FOR *object-type* AT POS (*line*, *column*)**

Explanation

An invalid pattern is used in the LISTDEF or LISTDEFTBV definition.

User response

Correct the LISTDEF or LISTDEFTBV statement, and resubmit the job.

Return Code

8

INZT112E **LISTDEF ERROR: INVALID OPERAND *operand***

Explanation

An invalid operand is used in a LISTDEF or LISTDEFTBV definition.

User response

Correct the LISTDEF or LISTDEFTBV statement, and resubmit the job.

Return Code

8

INZT113E **LISTDEF ERROR: UNSUPPORTED OPTION *option***

Explanation

An unsupported option is used in the LISTDEF definition.

User response

Correct the LISTDEF statement, and resubmit the job.

Return Code

8

INZU001E **SYSIN CANNOT BE OPENED**

Explanation

Db2 HPU was unable to open the SYSIN data set.

User response

Ensure that you have a SYSIN DD statement in your JCL. Otherwise, contact IBM Software Support, and supply the return and reason codes.

Return Code

16

**INZU002E EXECUTION ARGUMENTS
MISSING**

Explanation

The execution arguments are missing.

User response

Provide the missing parameters, and resubmit the job.

Return Code

16

INZU003E CANNOT DETERMINE THE SSID.

Explanation

An error was detected while determining the SSID parameter.

User response

Correct the parameters, and resubmit the job.

Return Code

16

**INZU005E ERROR CONVERTING A CONSTANT
IN AN EXPRESSION**

Explanation

An error occurred while doing operations on a literal in an expression (WHERE clause or other).

User response

Check that the literal is correctly specified. Also, ensure that there are no conversion issues. Check to see whether message INZI006E was issued.

Return Code

8

**INZU008E THE STRIP CHARACTER OF A
STRIP FUNCTION COULD NOT BE
CONVERTED**

Explanation

Db2 HPU was unable to convert the strip character of a strip function.

User response

Check that the literal is specified correctly. Also check to see if there are any conversion issues (message INZI006E).

Return Code

8 or 16

**INZU009E PART() HAS BEEN SPECIFIED BUT
THE OBJECT IS NOT PARTITIONED**

Explanation

A PART() statement has been detected, but the table space to unload is not partitioned.

User response

Correct the SYSIN.

Return Code

8

**INZU010I ITEM STARTING AT *position*
ENDING AT *position***

Explanation

This is an informational message. Indicates the position in the SYSIN of the lexical or grammatical element that is causing the message that follows this message.

User response

See the message that follows this message.

Return Code

0

**INZU011E PARTITION NUMBER IS OUT OF
RANGE**

Explanation

The partition number that was specified by the PART keyword is greater than the total number of partitions of the table space.

User response

Correct the SYSIN and resubmit the job.

Return Code

8

INZU012E **CONFLICT BETWEEN SELECT PART() AND UNLOAD PART() SPECIFICATIONS**

Explanation

The PART specification of the SELECT statement conflicts with the one in the UNLOAD block. When both are specified, the SELECT PART specification must be a subset of the UNLOAD PART specification.

User response

Correct the SYSIN.

Return Code

8

INZU014E **INVALID LEXEME AFTER KEYWORD(S) *keyword-name* VALID LEXEME(S) IS(ARE) *lexeme***

Explanation

A lexical element was followed by an invalid value.

User response

Correct the SYSIN and rerun the job.

Return Code

8

INZU015E ***name* STATEMENT UNEXPECTED KEYWORD**

Explanation

The end of the specified statement was reached without the presence of a semicolon.

User response

Check that the statement is terminated with a semicolon and that the syntax of the statement is valid.

Return Code

8

INZU016E ***name* STATEMENT SYNTAX IS INVALID**

Explanation

The specified statement is coded incorrectly.

User response

Correct the statement syntax; for example, a parenthesis or comma might be missing.

Return Code

8

INZU017E **INVALID LEXEME. VALID LEXEME(S) MAY BE *xxxxx***

Explanation

An invalid or unexpected lexeme was found.

User response

Correct the statement syntax.

Return Code

8

INZU018E **INVALID PARMLIB PARAMETER *name***

Explanation

An error occurred while retrieving the indicated PARMLIB parameter.

User response

Check the PARMLIB.

Return Code

8

INZU019E **TABLESPACE *dbname.tsname* NOT FOUND IN THE DB2 CATALOG**

Explanation

The information for the specified table space was not found.

User response

Check that the table space name, if specified in the SYSIN, is correct. Make sure that the catalog information is quiesced in the catalog.

Return Code

8

INZU020E **ERROR WHILE RETRIEVING
TABLESPACE INFO FROM THE
CATALOG (*dbname.tsname*)**

Explanation

An error occurred while retrieving the information from the catalog.

User response

Check the installation. Ensure that the proper authorizations are in place. Contact IBM Software Support, and supply the return and reason codes.

Return Code

8

INZU021E **UNSUPPORTED CONVERSION *type*
TO *type***

Explanation

An incorrect conversion type was requested.

User response

See [“USER format - deprecated”](#) on page 71 for inconsistency between input and output column type. If you specified the LIKE clause, ensure that it is compatible with the input data.

Return Code

8

INZU022E **INVALID LEXEME**

Explanation

An invalid or unexpected lexeme was found.

User response

Check the statement syntax.

Return Code

8

INZU023E **INVALID PIC SPECIFICATION.**

Explanation

An invalid PIC() specification was found.

User response

Check the statement syntax.

Return Code

8

INZU024E **COLUMN *name* IS NOT PART OF
THE *object* .**

Explanation

The indicated column used in the statement is not a column of the selected object (TABLE or VIEW).

User response

Check the statement syntax.

Return Code

8

INZU025E **INVALID OPERAND FOR
OPERATOR *name*.**

Explanation

An invalid operand was found for the specified operator.

User response

Check the statement syntax.

Return Code

8

INZU026E **MISSING PARENTHESIS.**

Explanation

A missing parenthesis has been detected.

User response

Check the statement syntax.

Return Code

8

INZU027W **CNTLCARDS DB2 NOT
SUPPORTED, WILL USE
CNTLCARDS DB2LOAD INSTEAD**

Explanation

CNTLCARDS Db2 is not supported. CNTLCARDS DB2LOAD was used instead.

User response

Only the LOAD SYSIN will be generated. To suppress the message, replace Db2 by DB2LOAD.

Return Code

4

INZU028W	CNTLCARDS OPTIONS NOT SUPPORTED, OPTION IGNORED
-----------------	--

Explanation

CNTLCARDS options are not supported. The option is ignored.

User response

The CNTLCARDS option that was specified is not supported; no SYSCNTL is generated.

Return Code

4

INZU030E	OUTPUT DDN NOT FOUND FOR PARTITION <i>number</i>
-----------------	---

Explanation

Output ddname was not found for the specified partition.

User response

Correct the syntax.

Return Code

8

INZU031E	DUPLICATE KEYWORD OR STATEMENT <i>name</i>
-----------------	---

Explanation

A duplicate specification for the specified keyword or statement has been found.

User response

Correct the syntax.

Return Code

8

INZU032E	INCOMPATIBLE KEYWORD/ STATEMENT <i>name</i> AND <i>name</i>
-----------------	--

Explanation

The two specified keywords or statements are incompatible.

User response

Correct the syntax.

Return Code

8

INZU033E	CONSTANT EXPECTED
-----------------	--------------------------

Explanation

A constant was expected.

User response

Correct the syntax.

Return Code

8

INZU035E	PARAMETER IS OUT OF RANGE (<i>rangevalue</i>)
-----------------	--

Explanation

The parameter is out of range.

User response

The specified parameter is out of range. A valid range might be given as part of the message.

Return Code

8

INZU036E	MISSING PARAMETERS FOR <i>name</i>
-----------------	---

Explanation

One or more parameters are missing.

User response

Correct the syntax.

Return Code

8

INZU037E **IN() CLAUSE MUST CONTAIN
CONSTANTS ONLY**

Explanation

A variable or an expression has been detected in an IN() clause.

User response

Correct the syntax. Change the expression to avoid having a non-constant value in an IN() clause, or authorize the processing by Db2 (DB2 YES, or DB2 FORCE).

Return Code

8

INZU038E **UNSUPPORTED TYPE
CONVERSION FOR COLUMN *name***

Explanation

Unsupported type conversion.

User response

The requested output type is incompatible with the actual input type. Correct the syntax. Check the LIKE clause and the COLUMN description of the underlying table or expressions.

Return Code

8

INZU039E **FATAL SYNTAX ERROR BEFORE
LINE *nnnn* COLUMN *nnnn***

Explanation

A fatal syntax error was detected. The syntax analysis stops and the program ends.

User response

The message contains the end of the last lexeme that was read from the syntax. This is not necessarily the cause for the failure. Check the syntax before that point.

Return Code

8

INZU040E **INVALID ORDER BY: SORT KEY
*reason***

Explanation

An ORDER BY clause cannot be processed natively by Db2 HPU for one of the following reasons:

- ***i* IS NOT A COLUMN OF TABLE**

Db2 HPU can only issue a sort on columns in the unloaded table, not on expressions. In this case, *i* is the sequence number of the sort key in the ORDER BY clause.

- **EXCEEDS 4088 BYTES LENGTH**

Because of SORT limitations, the total length of the sort keys cannot exceed 4088 bytes.

User response

Modify the ORDER BY clause or use DB2 YES to process the SELECT statement using Db2 access.

Return Code

8

INZU041E **ERROR DURING ALLOCATION OF
FIC FOR *xxxx* DSN: *xxxx***

Explanation

The dynamic allocation of a full image copy for a given table space failed.

User response

Make sure that the indicated file is accessible.

Return Code

8

INZU042E **NO GLOBAL FULL IMAGE
COPY FOUND FOR TABLESPACE
*dbname.tsname***

Explanation

No valid full image copy was found for the specified table space. If the message INZU417I is also issued, see the related explanation for this message for more details on the origin of the issue.

User response:

Ensure that Db2 can find the full image copy or copies that are required to process the unload request that you specified in the SYSIN. If you are using a partitioned table space, only *complete* FICs (no

partial copies) are considered. Use the PARTITIONED keyword or the ANYTYPE keyword to accept full image copies per partition as input.

Return Code

8

INZU043E **CONVERSION ERROR BETWEEN
CCSID *ccsid* AND CCSID *ccsid***

Explanation

Db2 HPU used or might use a conversion between the specified CCSIDs.

User response

No action is required.

Return Code

8

INZU044W *reason* **FOR TABLESPACE
dbname.tsname ORDER CLUSTER
STATEMENT IS IGNORED FOR
SELECT *select-number***

Explanation

An ORDER CLUSTER statement was specified, but is ignored for one the following reasons:

NO CLUSTER INDEX FOUND

No cluster index can be found for the table in the SELECT statement or for at least one of the tables resulting from a LISTDEF used in the SELECT statement.

CLUSTER INDEX WITH RANDOM KEY

The cluster index defined on the selected table has a random key and cannot be used for sorting the unloaded data.

CLUSTER INDEX KEY NOT SUPPORTED

FORMAT INTERNAL is specified, the table space is in basic row format (BRF), and the cluster index that is defined on the table in the SELECT statement has a column located after the first variable columns of the table.

User response

Remove the ORDER CLUSTER from the SELECT statement and resubmit the job.

Return Code

4

INZU047E **INVALID EXECUTION ARGUMENTS**

Explanation

The execution arguments are incorrect. This error occurs when the PARM parameter of the EXEC statement does not start with "EP=UTLGLCTL", and the UNLOAD statement specifies FASTUNLOAD.

User response

Correct either the execution arguments or the UNLOAD statement.

Return Code

16

INZU048E **WHERE CLAUSE IS NOT BOOLEAN**

Explanation

The WHERE clause must evaluate as Boolean.

User response

Correct the WHERE clause so it evaluates to 1 or 0.

Return Code

16

INZU049W **DATEFMT *date-format* FORMAT IS
NOT SUPPORTED**

Explanation

The *date-format* that is specified in DATEFMT is not supported. The SSID-default date format will be used.

User response

Change the date format to a compatible format, or do nothing if the Db2 default is acceptable.

Return Code

4

INZU050W **TIMEFMT *time-format* FORMAT IS
NOT SUPPORTED**

Explanation

The time format that is specified in TIMEFMT is not supported. The SSID-default time format is used.

User response

Change the time format to a compatible format, or do nothing if the Db2 default is acceptable.

Return Code

4

INZU051E **DDN *ddname* TOO LONG**

Explanation

The specified ddname is too long.

User response

Choose a shorter ddname. Most situations require a DDN of six characters or less.

Return Code

8

INZU052E **UNSUPPORTED SYNTAX**

Explanation

The syntax is not supported. This message is displayed when you use syntax that is compatible with Db2 HPU syntax, but is not syntax supported by Db2 HPU.

User response

Modify the compatible syntax to a supported syntax, or convert the statement into Db2 HPU syntax.

Return Code

8

INZU053W **TSFMT *timestamp-format* FORMAT IS NOT SUPPORTED**

Explanation

The TIMESTAMP format that is specified in TSFMT is not supported. The default TIMESTAMP format of the current Db2 subsystem is used.

User response

Change the TIMESTAMP format to a compatible format, or do nothing if the Db2 default is acceptable.

Return Code

4

INZU055W **OUTPUT-FORMAT LOAD NOT SUPPORTED, DSNTIAUL WILL BE USED INSTEAD**

Explanation

FASTUNLOAD LOAD output format is not supported. DSNTIAUL is used instead, and processing continues.

User response:

No action is required.

Return Code

4

INZU056E **TABLE *name* NOT FOUND IN TABLESPACE *tsname***

Explanation

The specified table was not found in the table space. A possible explanation is that you specified a SELECT statement with the keyword FROM *table*, and the user's name is not the same as the table's creator.

User response

Specify a fully qualified name for the table, if necessary.

Return Code

8

INZU057E **EMPTY TABLESPACE *name***

Explanation

The specified table space did not contain any tables.

User response

The table space that is being unloaded must contain at least one table. Check your object selection in the SYSIN.

Return Code

8

INZU058E **OUTPUT DDN *ddname* NOT FOUND FOR SELECT *number***

Explanation

Output ddname not found for the specified select.

User response

Correct the syntax.

Return Code

8

INZU059W	LOADDDN: <i>ddname</i> NOT FOUND. SKIP LOAD STATEMENT GENERATION FOR SELECT STARTING AT POS(<i>line,column</i>)
-----------------	--

Explanation

The LOADDDN *ddname* was not allocated. No load JCL will be generated for any statement that uses this LOADDDN.

User response

Correct the JCL, the syntax, or both.

Return Code

0

INZU060E	TOO MANY COLUMNS IN INTO CLAUSE FOR SELECT <i>number</i>
-----------------	---

Explanation

Too many columns were specified in the INTO clause compared to the sum of columns in the SELECT clause.

User response

Correct the INTO Clause.

Return Code

8

INZU061E	INVALID OR UNSUPPORTED DATA TYPE SPECIFICATION
-----------------	---

Explanation

Invalid or unsupported data type specification.

User response

Correct the INTO clause.

Return Code

8

INZU063I	UNSUPPORTED SELECT <i>reason</i>
-----------------	---

Explanation

The SELECT statement is not eligible for native processing by Db2 HPU for the indicated reason. The following reasons can be reported:

- TABLE CONTAINS COLUMN TYPE LOB OR XML: The column type LOB or XML in the select statement is not supported.
- TABLE'S LOCATION IS NOT THE CURRENT SERVER: The FROM clause specifies a table which location is not the current server.
- VIEW CHARACTERISTICS NOT ELIGIBLE: the view is not supported in native mode
- COLUMN column-name IS NOT PART OF THE VIEW: The column column-name does not exist in the view in the SELECT clause
- WHERE CLAUSE CHARACTERISTICS NOT ELIGIBLE: The WHERE clause is not supported in native mode.
- ORDER BY ON UNKNOWN COLUMN: The ORDER BY clause specifies an unknown column.
- ORDER BY ON EXPRESSION: An ORDER BY on an expression is not supported.
- ORDER BY ON GRAPHIC COLUMN WITH FIELDPROC: An ORDER BY clause on a graphic column with fieldproc is not supported.
- ORDER BY ON LOB OR XML COLUMN: An ORDER BY clause on a LOB or XML column is not supported.
- ORDER BY WITH SORT KEY LONGER THAN 4088 BYTES: The order key specified by the ORDER BY clause is not supported because its length exceeds 4088 bytes
- UNHANDLED OR NOT COMPLIANT SELECT STATEMENT: The SELECT statement cannot be understood in native mode.
- ARCHIVE TABLE NOT ELIGIBLE FOR NATIVE MOD: the SELECT statement involves an ARCHIVE table and ARCHIVE tables are not supported in native mode.

User response

Do the following action according to the indicated reason:

- TABLE CONTAINS COLUMN TYPE LOB OR XML: consider running the unload in SQL mode by adding the DB2 FORCE option or remove the XML or LOB column from the unload request if applicable.
- LOCATION NOT FOUND ON THE CURRENT SERVER: if the table to unload is actually a remote table, consider running the unload in SQL mode by specifying the DB2 FORCE option. Remove the location name or specify the location name of the current server to unload a local table.

- VIEW CHARACTERISTICS NOT ELIGIBLE: consider running the unload in SQL mode by specifying the DB2 FORCE option or reword the VIEW definition to make it supported in native mode if applicable (check the related requirements indicated in the FROM clause explanation).
- COLUMN column-name IS NOT PART OF THE VIEW: the SELECT statement specifies a column that could not be found in the view definition of the VIEW involved in the SELECT statement.
- WHERE CLAUSE CHARACTERISTICS NOT ELIGIBLE: no action is needed.
- ORDER BY ON AN UNKNOWN COLUMN: the SELECT statement specifies a column which name could not be found in the definition of the table or view involved in the SELECT statement.
- ORDER BY ON EXPRESSION: check if the expression was specified on purpose.
- ORDER BY ON GRAPHIC COLUMN WITH FIELDPROC: check if the graphic column with fieldproc was specified on purpose.
- ORDER BY ON LOB OR XML COLUMN: check if the LOB or XML column involved in the ORDER BY clause were specified on purpose.
- ORDER BY WITH SORT KEY LONGER THAN 4088 BYTES: consider running the unload in SQL mode by specifying the DB2 FORCE option or shorten the order key if applicable.
- UNHANDLED OR NOT COMPLIANT SELECT STATEMENT: run the unload in SQL mode by specifying the DB2 FORCE option to help you determine what is wrong with the SELECT statement.
- ARCHIVE TABLE NOT ELIGIBLE FOR NATIVE MOD: running the unload in SQL mode by specifying the DB2 FORCE option or remove the ARCHIVE table from the objects involved by the unload.

Return Code

0

INZU065E INCONSISTENT PARAMETER LIST

Explanation

A multi-parameters function or predicate has inconsistent parameters type.

User response

Check the syntax. Change the expression to eliminate the conflict. Use explicit conversion if necessary or possible.

Return Code

8

INZU066E THE TABLE *creator.tbname* DOES NOT EXIST

Explanation

the specified table has not be found in the Db2 catalog table SYSIBM.SYSTABLES.

User response

Correct the syntax to specify the name of a table that can be found in the Db2 catalog, or, if the data is to be unloaded from an image copy, specify the table description with the help of the DDLDDN feature.

Return Code

8

INZU067E COLUMN FORMAT SPECIFICATION MISSING

Explanation

A column format specification is expected after the comma.

User response

Correct the syntax.

Return Code

8

INZU068E INVALID COLUMN FORMAT PARAMETER

Explanation

A column format specification contains an invalid parameter.

User response

Correct the syntax.

Return Code

8

INZU069E INVALID COLUMN FORMAT IDENTIFIER

Explanation

A column format specification does not describe a proper column name or number.

User response

Correct the syntax.

Return Code

8

INZU070E *element MISSING*

Explanation

The specified element was expected at this point in the syntax.

User response

Correct the syntax.

Return Code

8

INZU071E **UNUSED FORMAT USER COLUMN SPECIFICATION, COLUMN NAME**
col_name

Explanation

A column description was given in a FORMAT USER but could not be associated with any column of the SELECT statement.

User response

Verify the SELECT statement syntax.

Return Code

8

INZU072E **UNUSED FORMAT USER COLUMN SPECIFICATION, COLUMN NUMBER**
col_number

Explanation

A column description was given in a FORMAT USER but could not be associated with any column of the SELECT statement.

User response

Verify the SELECT statement syntax.

Return Code

8

INZU073E **LIKE-TABLE FORMAT FAILED:**
SQL_order

Explanation

A LIKE formatting clause could not be processed. The SQL statement that was used to extract the LIKE information is given.

User response

Verify that the LIKE table exists.

Return Code

8

INZU074E **INVALID MASK VALUE FOR PIC():**
mask_value

Explanation

An invalid value was specified for the mask of a PIC() definition.

User response

Check the PIC() definition.

Return Code

8

INZU075E **UNUSED LIKE COLUMN SPECIFICATION, COLUMN NAME**
col_name

Explanation

A column description was given in a LIKE clause, but it could not be associated with any column of the SELECT statement.

User response

Verify the SELECT statement syntax.

Return Code

8

INZU076E **UNUSED LIKE COLUMN SPECIFICATION, COLUMN NUMBER**
col_number

Explanation

A column description was given in a LIKE clause but could not be associated with any column of the SELECT statement.

User response

Verify the SELECT statement syntax.

Return Code

8

INZU077E NO OBJECT TO UNLOAD

Explanation

An object (table or table space) to unload was not found in an UNLOAD statement.

User response

Check and modify the UNLOAD and SELECT statements, and resubmit the job.

Return Code

8

INZU078E CASE STATEMENT CANNOT CONTAIN ONLY NULL EXPRESSION

Explanation

At least one result-expression of a case statement must be not null.

User response

Correct the CASE statement.

Return Code

8

INZU079E THE TARGET TABLE *table_name* HAS AN INVALID NUMBER OF COLUMN

Explanation

The LIKE table has a wrong column number and the unloaded table does not match the LIKE table.

User response

The LIKE table must have more or as many columns than the table to be unloaded.

Return Code

8

INZU080E ERROR : SELECT FROM VIEW '*view_name*' IS NOT SUPPORTED BY THE UTILITY

Explanation

The utility does not support the specified view.

User response

See “SELECT block syntax and description” on page 201 for information about defining views.

Return Code

8

INZU081E ERROR: INTO CLAUSE OR REFORMAT OPTION IS NOT ALLOWED WITH *output-format*

Explanation

The specified INTO clause or the REFORMAT option is not compatible with the requested output format. With the Db2 HPU syntax, neither an INTO clause nor a REFORMAT option can be specified with FORMAT UPLUS-XML and FASTU-DELIMITED formats. With the Fast Unload syntax, the INTO clause must not be specified with OUTPUT-FORMAT LOAD and COMMA-DELIMITED.

User response

Remove the INTO clause or REFORMAT option or change the output format.

Return Code

8

INZU082W WARNING : CLAUSE STARTING AT (*line, column*) ENDING AT (*line, column*) IS NOT SUPPORTED BY UTILITY

Explanation

An option of Fast Unload or UNLOAD PLUS syntax is not supported by the utility.

User response

Remove the conflicting statement.

Return Code

4

INZU083E	FORMAT <i>format</i> IS NOT SUPPORTED
-----------------	--

Explanation

The specified format is not supported by Db2 HPU.

User response

Choose another format.

Return Code

8

INZU084W	WARNING:LOAD-CONTROL FASTLOAD NOT SUPPORTED, DB2LOAD WILL BE USED INSTEAD
-----------------	--

Explanation

FASTUNLOAD LOAD-CONTROL FASTLOAD is not supported; DB2LOAD will be used instead.

User response

No action is required.

Return Code

4

INZU085W	WARNING: FIRST ARGUMENT OF SAMPLE STATEMENT IS IGNORED BY UTILITY
-----------------	--

Explanation

You can use the CA FASTUNLOAD SAMPLE keyword with one or two numeric values. However, Db2 HPU only allows you to use this keyword with one value. This message is issued when a SYSIN uses two values with the SAMPLE keyword.

User response:

No action is required.

Return Code

4

INZU086E	ERROR : 'ORDER BY' ON EXPRESSION IS NOT SUPPORTED
-----------------	--

Explanation

It is not possible to sort output data according to the result of expression. Only Db2 columns are allowed in the ORDER BY clause.

User response

Either specify a Db2 column in the ORDER BY clause or authorize Db2 processing.

Return Code

8

INZU087E	ERROR : MULTIPLE SELECTS WITH ORDER BY CLAUSE UNLOADING IN THE SAME DDNAME ARE NOT ALLOWED
-----------------	---

Explanation

Multiple SELECTs on the same table are specified in the same UNLOAD clause. It is not possible to sort the results of multiple SELECT clauses when unloading into the same ddname. Only one single ORDER BY clause is allowed by ddname.

User response

Either specify different ddnames for each SELECT with the ORDER BY clause or split the unload in multiple unload clauses.

Return Code

8

INZU088E	ERROR : SELECTS ON MULTIPLE TABLES WITH ORDER BY CLAUSE UNLOADING IN THE SAME DDNAME ARE NOT ALLOWED
-----------------	---

Explanation

Multiple SELECTs on the same table are specified in the same UNLOAD clause. It is not possible to sort the result of a SELECT on one table and to get the result of a SELECT on another table by using the same ddname.

User response

Either specify a different ddname for the SELECT with the ORDER BY clause or split the UNLOAD clause into two UNLOAD clauses; one UNLOAD clause contains the SELECT with the ORDER BY clause and the other UNLOAD clause contains the remaining SELECT clauses.

Return Code

8

INZU089E	ERROR: MULTIPLE SELECTS ON A PARTITIONED TABLESPACE WITH DISTINCT ORDER BY CLAUSE UNLOADING IN THE SAME DDNAME ARE NOT ALLOWED
-----------------	---

Explanation

Multiple SELECTs on a partitioned table space are specified in the same UNLOAD. It is not possible to have different types of sorts when partitions are unloaded into the same ddname. In this case, all ORDER BY clauses should be the same.

User response

Either specify a different ddname for each type of ORDER BY clauses or split the UNLOAD clause into several UNLOAD clauses.

Return Code

8

INZU090E	UNRECOVERABLE SYNTAX ERROR STARTING AT (<i>line, column</i>) AND ENDING AT (<i>line, column</i>)
-----------------	---

Explanation

An unrecoverable syntax error occurred. The incorrect syntax was found within the area indicated by the message, but the exact reason of the error could not be determined.

User response

Check the syntax in the indicated area.

Return Code

8

INZU091E	OBID OPTIONS WITHOUT INFIL DDNAME OPTION
-----------------	---

Explanation

This error occurs in UNLOAD PLUS syntax when using the OBID option without using INFIL options to specify the IMAGE COPY ddname.

User response

Specify the IMAGE COPY ddname with INFIL options.

Return Code

8

INZU092W	OPTION NULLSTRING IS IGNORED BY THE UTILITY
-----------------	--

Explanation

The option NULLSTRING (UNLOAD PLUS syntax) used the OBID option without using INFIL options to specify the IMAGE COPY ddname.

User response

Specify the IMAGE COPY ddname with INFIL options.

Return Code

8

INZU093E	THE STRING STARTING AT (<i>line, column</i>) MUST BE ONE CHARACTER LONG
-----------------	--

Explanation

The specified string must be one character in length.

User response

Replace the string with a single character.

Return Code

8

INZU094E	DDNAME <i>ddname</i> NOT FOUND
-----------------	---------------------------------------

Explanation

The output ddname that was specified in the SYSIN was not found in the JCL.

User response

Check the output ddname in the JCL.

Return Code

8

INZU095E	SYNTAX ERROR - <i>keyword</i> KEYWORD ONLY VALID WITH <i>block</i> BLOCK
-----------------	---

Explanation

The specified keyword cannot be used out of the block that is named in the message.

User response

Verify the statement syntax.

Return Code

8

INZU096E	REQUIRED KEYWORD, <i>keyword</i>, NOT SPECIFIED, PROCESSING TERMINATED
-----------------	---

Explanation

The specified keyword was expected at this point in the syntax.

User response

Verify the statement syntax.

Return Code

8

INZU097E	SYNTAX ERROR - UNRECOGNIZED ELEMENT <i>syntax element</i> FOR <i>block</i> BLOCK
-----------------	---

Explanation

A syntax element cannot be recognized in the specified syntax block. It might be a misspelled keyword or an invalid argument for the current syntax context.

User response

Verify the statement syntax.

Return Code

8

INZU098E	SYNTAX ERROR - OPERAND, <i>operand</i>, IS USED OUT OF CONTEXT
-----------------	---

Explanation

Syntax elements, which are usually used as arguments, were found out of context. Arguments are associated with a keyword that precedes the operand.

User response

Verify the statement syntax.

Return Code

8

INZU099E	SYNTAX ERROR - EMPTY OPTIONS BLOCK
-----------------	---

Explanation

An options block cannot be empty.

User response

Verify the statement syntax.

Return Code

8

INZU100E	SYNTAX ERROR - UNLOAD KEYWORD MUST BE FOLLOWED BY TABLESPACE KEYWORD
-----------------	---

Explanation

The UNLOAD keyword must be followed by the TABLESPACE keyword.

User response

Verify the statement syntax.

Return Code

8

INZU101E	DB2 NO SPECIFIED, PROCESSING TERMINATED
-----------------	--

Explanation

An invalid or an unsupported SYSIN was detected. The selected option DB2 NO implied termination of process.

User response

Correct the SYSIN, or try DB2 YES in case of unsupported SYSIN.

Return Code

8

INZU102I	DB2 FORCE SPECIFIED WILL PROCESS THROUGH DB2
-----------------	---

Explanation

The DB2 FORCE option was specified. The UNLOAD will be processed through Db2.

User response

No action is required.

Return Code

0

INZU103W **DB2 YES SPECIFIED, WILL ATTEMPT DB2 PROCESSING**

Explanation

An invalid or an unsupported SYSIN was detected. The UNLOAD will be processed through Db2 because the DB2 YES option was specified.

User response

No action is required.

Return Code

4

INZU104I **WARNING IN SELECT STARTING AT (*line, column*), keyword AND keyword POINT THE SAME BASE DDNAME: *ddname***

Explanation

This warning occurs when two of these directives, UNLDDN, OUTDDN, and LOADDN, share the same base ddname.

User response

No action is required.

Return Code

0

INZU105I ***keyword* OPTION IS IGNORED BY THE UTILITY**

Explanation

An unsupported OPTION was encountered for FASTUNLOAD or UNLOAD PLUS syntax.

User response

No action is required.

Return Code

0

INZU106E **THE TABLESPACE TO UNLOAD CANNOT BE DETERMINED**

Explanation

Db2 HPU cannot determine which table space to unload.

User response

Specify the name of the table space to be unloaded in the SYSIN.

Return Code

8

INZU107E **UNLDDN NOT SPECIFIED**

Explanation

A physical unload without UNLDDN was found.

User response

Specify an UNLDDN clause.

Return Code

8

INZU109E **SELECT STATEMENT STARTING AT (*line, col*) IS TOO LARGE**

Explanation

The size of a SELECT statement is larger than the maximum size that is allowed by Db2.

User response

Reduce the size of the indicated SELECT statement.

Return Code

8

INZU110E **ESCAPE IS NOT ALLOWED WITH MIXED STRING IN LIKE PREDICATE**

Explanation

The ESCAPE clause is not allowed in the LIKE predicate for a mixed string.

User response

Correct the SYSIN, and resubmit the job.

Return Code

8

INZU111E	RESULT OF SQL EXPRESSION CONCAT IS TOO LONG
-----------------	--

Explanation

The result of the CONCAT SQL expression is too long. The maximum length of the resulting string is 65535.

User response

Modify SQL expression CONCAT.

Return Code

8

INZU112W	STRING IN ITEM STARTING AT (line, columns) IS TOO LONG AND IS TRUNCATED.
-----------------	---

Explanation

The string that was specified in the SYSIN is too long for the item. The string is truncated to the maximum number of characters and processing continues.

User response

Correct the string length in the SYSIN.

Return Code

4

INZU120W	CCSID TARGET OF COLUMN col_name IS 0. NO CONVERSION WILL BE DONE
-----------------	---

Explanation

The CCSID target of the specified output column has been set to 0 by the operator. The column will be unloaded in the source CCSID.

User response

No action is required.

Return Code

4

INZU121W	CCSID TARGET OF COLUMN col_name IS 0. COLUMN WILL BE UNLOADED IN EBCDIC
-----------------	--

Explanation

The CCSID target of the pointed output column has been set to 0 by the operator. The column will be unloaded in the source CCSID, which is EBCDIC CCSID due to internal conversion.

User response:

No action is required.

Return Code

4

INZU122W	charset SUBSYSTEM CCSID IS SET TO 0. NO CONVERSION WILL BE DONE FOR COLUMN col_name
-----------------	--

Explanation

The CCSID target of the selected output column is set to 0 and comes from subsystem CCSIDs. The column will be unloaded in the source CCSID. The message indicates which CCSID subsystem is set to 0.

User response

Check if the requested CCSID conversion can be avoided, modify the SYSIN, and resubmit the job.

Return Code

4

INZU123W	charset SUBSYSTEM CCSID IS SET TO 0. COLUMN col_name WILL BE UNLOADED IN EBCDIC
-----------------	--

Explanation

Check if the requested CCSID conversion can be avoided, modify the SYSIN, and resubmit the job.

System action

Modify the installation parameter to get available the CCSID pointed out.

User response:

No action is required.

Return Code

4

INZU124E **ERROR IN SELECT STARTING AT (line, column), keyword AND keyword POINT THE SAME BASE DDNAME: ddname**

Explanation

Two of these directives, UNLDDN, OUTDDN, and LOADDN, share the same base ddname.

User response

Specify a unique ddname in the SELECT statement.

Return Code

8

INZU127W **DIRECT ACCESS TO DB2 CATALOG FAILED: SWITCH TO SQL ACCESS**

Explanation

This is a warning message that indicates that an error occurred when accessing the Db2 catalog by using the DIRECT ACCESS method. The access method is switched to SQL ACCESS.

User response

Contact IBM Software Support to determine the reason of the failure.

Return Code

0

INZU128E **SYSTEM ERROR: DB2 CATALOG EXTRACTION FAILED**

Explanation

The catalog extraction failed.

User response

Contact IBM Software Support to determine the reason of the failure.

Return Code

8

INZU129E **UNLOAD FROM IC: SELECT STARTING AT (%i, %i) IS NOT SUPPORTED PROCESSING TERMINATED**

Explanation

An unload from an image copy was performed with a SELECT statement that is not supported by Db2 HPU.

User response

Correct the specified SELECT statement.

Return Code

12

INZU130I **CHECK FAILED FOR THE FIC FOR name, DEFAULT VALUE WAS TAKEN**

Explanation

Due to the parameter VUU032/ULCHKCPY in the PARMLIB, a check was done on the COPYDDN parameter, and no valid full image copy was found for the specified table space in the SYSIBM.SYSCOPY table. The FIC was considered as a NON INLINE FIC.

User response

Ensure that Db2 can find the full image copy or copies that are required to process the unload request that you specified in the SYSIN. If working on a partitioned table space, only *complete* FICs are considered (no partial copies).

Return Code

4

INZU131W *encoding ccsid_type* **SUBSYSTEM CCSID IS NOT DEFINED COLUMN *column_designation* WILL BE UNLOADED IN DEFAULT SBCS CCSID**

Explanation

The MIXED CCSID target for the *column_designation* (column name or column number) is not defined and comes from subsystem CCSIDs. The column will be unloaded in the SBCS subsystem CCSID. The message specifies which subsystem CCSID is not defined.

System action

None.

User response

Verify that the encoding scheme is correctly specified in the UNLOAD command or in the PARMLIB

parameter UNLSCHEM. If not, correct it and resubmit the job.

Return Code

4

INZU133E	LOAD STATEMENT ERROR: INVALID <i>separator</i> SEPARATOR IN FORMAT DELIMITED, MAXIMUM ALLOWABLE VALUE IS <i>limit</i>
-----------------	--

Explanation

A LOAD SYSIN generation (LOADDDN) is requested with FORMAT DELIMITED and the parmlib parameter VUU054/CTRLLIBM is set to YES. This message is issued because Db2 HPU cannot generate a LOAD SYSIN that is compatible with the Db2 LOAD utility, because the field separator (SEP) or the string delimiter (DELIM) used in the FORMAT DELIMITED is not accepted by the Db2 LOAD utility. The limit value displayed in the message text is in hexadecimal.

User response

Correct the value of the SEP or DELIM parameter in the FORMAT DELIMITED definition and resubmit the job.

Return Code

8

INZU134E	SYNTAX ERROR: INVALID CORRELATION-NAME <i>correlation- name</i>
-----------------	--

Explanation

This is a syntax error. An invalid correlation-name is specified in the select statement.

User response

Check the select statement.

Return Code

8

INZU145E	ERROR: WRONG CPU NUMBER. EXECUTION STOPPED
-----------------	---

Explanation

A module could not run on a specific CPU.

User response

This is a new or upgraded CPU. Contact IBM Software Support to obtain a new confidential code.

Return Code

8

INZU146E	ERROR: EXPIRATION DATE EXCEEDED. EXECUTION STOPPED
-----------------	---

Explanation

Db2 HPU's expiration date was reached.

User response

Contact IBM Software Support.

Return Code

8

INZU147E	ERROR : DUPLICATE COLUMN <i>column</i> IN ORDER BY CLAUSE
-----------------	--

Explanation

Duplicate column is not authorized in an ORDER BY clause.

User response

Check the syntax and remove the duplicate column.

Return Code

8

INZU168E	ERROR WHEN READING DEFAULT VALUE IN CATALOG FOR COLUMN <i>name</i>
-----------------	---

Explanation

The default value for the specified column in the Db2 catalog cannot be interpreted.

User response

Check the default value for the specified column in the catalog.

Return Code

8

INZU170E	ERROR: UNABLE TO UNLOAD MORE THAN 1296 REGISTERED
-----------------	--

IMAGE COPIES IN THE SAME EXECUTION

Explanation

The maximum number of registered image copies that Db2 HPU can unload at one time was reached. Db2 HPU is unable to allocate more than 1296 ddnames.

User response

Split the SYSIN into smaller parts so that the limit is not reached.

Return Code

8

INZU172E	ERROR: UNABLE TO QUIESCE TABLESPACE <i>dbname.tsname</i>
-----------------	---

Explanation

The QUIESCE feature requested for the indicated table space could not be honored as the QUIESCE utility method was not applicable and the STOP/START method attempted as a replacement method failed. This can happen when another utility is running concurrently against the concerned table space. As LOCK YES was specified, the feature is considered as mandatory and its failure prevents the process to continue. This message is issued not only to the SYSPRINT dataset but also to the MVS console if the VUU028/ULQSCBHBH parmlib parameter is set to FORCE,WTO.

User response

If the QUIESCE request was not intended, consider disabling it - e.g. by specifying the QUIESCE NO option. Otherwise, make sure to run the unload while the involved objects are not in a restricted state that prevents the QUIESCE utility from completing successfully.

Return Code

8

INZU176I	INFORMATION: QUIESCE IMPOSSIBLE. A STOP/START SEQUENCE IS PERFORMED ON TABLESPACE <i>dbname.tsname</i>
-----------------	---

Explanation

The QUIESCE feature was requested for the indicated table space. As the QUIESCE utility method could not be used to honor this request and as the VUU028/

ULQSCBHBH parmlib parameter is set to either FORCE or FORCE,WTO, the STOP/START method is attempted to complete the QUIESCE feature. This message is issued not only to the SYSPRINT dataset but also to the MVS console if the VUU028/ULQSCBHBH parmlib parameter is set to FORCE,WTO.

User response:

No action is required.

Return Code

0

INZU180I	UTPRINT DD CARD IN JCL IS NOT USED WHEN VUX020/SORTCLAS IS SPECIFIED IN THE PARMLIB OR WHEN SORTCLASS IS SPECIFIED IN SYSIN
-----------------	--

Explanation

The default UTPRINT DDN is not used when the VUX020/SORTCLAS parameter is specified in the PARMLIB or when SORTCLASS is specified in the SYSIN. If a sort is invoked, a UTPRTnn file is dynamically allocated.

User response:

No action is required.

Return Code

0

INZU184E	ERROR: COLUMN TYPE <i>column type</i> IS NOT SUPPORTED
-----------------	---

Explanation

Db2 HPU cannot unload columns of the indicated type. This message occurs when a SELECT statement includes a column with a specific type and the DB2 NO option was specified. The column type is the following:

- LOB or XML (IN STREAM): in-stream unloading of LOB or XML data is only supported in SQL mode.

Db2 HPU cannot unload column type BLOB, CLOB and DBCLOB. This message occurs when a SELECT STATEMENT includes a column type LOB and SPANNED YES is not used.

User response:

Remove the non supported column from SELECT statement if its selection was not intended or use the DB2 YES or DB2 FORCE option to allow the unloading of this column type. Remove the column type BLOB, CLOB, DBCLOB from the SELECT statement or specify SPANNED YES.

Return Code

8

Example

Unload the whole content of a table having a LOB column in spanned format:

```
UNLOAD TABLESPACE
SELECT *
FROM me.mytable
OUTDDN (SYSREC)
FORMAT VARIABLE ALL
OPTIONS SPANNED YES
LOADDDN LOAD
```

INZU185E **ERROR: SELECT STATEMENT STARTING AT (line, column) INCLUDES UNSUPPORTED COLUMN TYPE**

Explanation

The SELECT statement has one or more unsupported column types. Db2 HPU cannot process the statement in any mode (DB2 NO, DB2 YES, DB2 FORCE).

User response

Remove the unsupported column from the SELECT statement, and resubmit the job.

Return Code

8

INZU186E **ERROR: GRAPHIC COLUMNS WITH FIELDPROC ARE NOT SUPPORTED IN ORDER CLAUSE**

Explanation

A graphic (GRAPHIC or VARGRAPHIC type) column defined with a FIELDPROC is used in an ORDER clause (ORDER BY or ORDER CLUSTER) and the native mode was requested. Db2 HPU does not support such a request.

User response

As Db2 HPU can process a logical unload with an ORDER BY statement involving a GRAPHIC/VARGRAPHIC column in SQL mode but cannot process a logical unload with an ORDER CLUSTER clause in SQL mode, you can do the following changes in order to get the expected result. Allow Db2 HPU to use the SQL mode by specifying the DB2 YES or DB2 FORCE option and, if the unsupported ORDER clause is an ORDER CLUSTER clause, replace the ORDER CLUSTER clause by an equivalent explicit ORDER BY clause.

Return Code

8

INZU187E **LOAD STATEMENT ERROR: DUPLICATE DELIMITERS IN FORMAT DELIMITED CHARDEL = X' _hexval_', COLDEL = X' _hexval_', DECPT = X' _hexval'**

Explanation

The LOAD SYSIN GENERATION was requested with DELIMITED output format. You cannot specify the same character for more than one type of delimiter (COLDEL, CHARDEL, and DECPT).

User response

Specify a distinct delimiter in the DELIMITED (SEP, DELIM) format. SEP and DELIM delimiters must be different than the decimal separator.

Return Code

8

INZU188E **LOAD STATEMENT ERROR: NO STRING DELIMITERS SPECIFIED**

Explanation

LOAD SYSIN GENERATION was requested with DELIMITED output format requested via the LOADDDN option or COMMA-DELIMITED with Fast Unload, CSV with UNLOAD PLUS and DELIMITED with DB2 UNLOAD. No string delimiters are specified, which causes an error in the LOAD UTILITY. For example, when the string contains delimiter characters. This situation is reported via an error message because ULRDRC REJECT applies. However, the unload job continues and produces the data set containing the unloaded data and the related LOAD control cards.

User response

User response: Specify a string delimiter (option DELIM) to get generated LOAD control cards fully compliant with the LOAD utility or specify ULRDRC IGNORE so that this situation is only reported via an informational message only and a return code of 0.

Return Code

8

INZU188I **LOAD STATEMENT INFO : NO STRING DELIMITERS SPECIFIED**

Explanation

LOAD SYSIN GENERATION was requested with DELIMITED output format requested via the LOADDDN option or COMMA-DELIMITED with Fast Unload, CSV with UNLOAD PLUS and DELIMITED with DB2 UNLOAD. No string delimiters are specified, which causes an error in the LOAD UTILITY. For example, when the string contains delimiter characters. This situation is reported via an informational message only because ULRDRC IGNORE applies.

User response

Specify a string delimiter (option DELIM) to get generated LOAD control cards fully compliant with the LOAD utility.

Return Code

0

INZU188W	LOAD STATEMENT WARNING: NO STRING DELIMITERS SPECIFIED
-----------------	---

Explanation

LOAD SYSIN GENERATION was requested with DELIMITED output format requested via the LOADDDN option or COMMA-DELIMITED with Fast Unload, CSV with UNLOAD PLUS and DELIMITED with DB2 UNLOAD. No string delimiters are specified, which causes an error in the LOAD UTILITY. For example, when the string contains delimiter characters. This situation is reported via a warning message because ULRDRC WARNING applies.

User response

Specify a string delimiter (option DELIM) to get generated LOAD control cards fully compliant with the LOAD utility or specify ULRDRC IGNORE so that this situation is only reported via an informational message only and a return code of 0.

Return Code

4

INZU189E	LOAD STATEMENT ERROR: INVALID VALUE X 'hexval' FOR <i>delimiter_type</i> DELIMITER IN FORMAT DELIMITED
-----------------	---

Explanation

LOAD SYSIN GENERATION was requested with DELIMITED output format. An invalid value was specified for a LOAD UTILITY delimiter (CHARDEL,

COLDEL, or DECPT). This message indicates the incorrect value and type of delimiter used.

User response

Change the incorrect value to one that is supported by the LOAD UTILITY.

Return Code

8

INZU190I	IN SELECT POS (<i>line, column</i>), <i>nnnn</i> CONVERSION(S) NO NEEDED DUE TO EXPRESSION IN COLUMN NO <i>number</i>, FROM CCSID <i>ccsid</i> TO CCSID <i>ccsid</i>
-----------------	---

Explanation

This message is issued when a conversion is requested for a column due to an expression. Such a conversion could decrease unload performance. The column is identified by its number in the SELECT clause. The message indicates how many conversions are requested for the column due to an expression.

User response

No action is required.

Return Code

0

INZU191I	IN SELECT POS (<i>line, column</i>), <i>convname</i> CONVERSION NEEDED FOR COLUMN <i>col_name</i>, FROM CCSID <i>ccsid</i> TO CCSID <i>ccsid</i>
-----------------	---

Explanation

This message is issued when a conversion is requested for a column. The purpose of this message is to inform you that such a conversion could decrease unload performance. The column is identified by its name in the SELECT clause.

User response

No action is required.

Return Code

0

INZU192I	IN SELECT POS (<i>line, column</i>), A CONVERSION NEEDED FOR
-----------------	---

COLUMN NO *number*, FROM CCSID *ccsid* TO CCSID *ccsid*

Explanation

This message is issued when a conversion is requested for a column. The purpose of this message is to inform you that such a conversion could decrease unload performance. The column is identified by its number in the SELECT clause.

User response

No action is required.

Return Code

0

**INZU193I IN WHERE CLAUSE OF SELECT
POS (*line*, *column*), *nnn*
CONVERSION(S) NEEDED FROM
CCSID *ccsid* TO CCSID *ccsid***

Explanation

This message is issued when a conversion is requested in a WHERE clause. The purpose of this message is to inform you that such a conversion could decrease unload performance. The message tells you how many conversions are requested due to the WHERE clause.

User response

No action is required.

Return Code

0

**INZU194W FOR SELECT POS (*line*, *column*),
SYSTEM EBCDIC WILL BE TAKEN
AS DEFAULT SCHEME. REQUESTED
SCHEME ASIS IS OVERRIDDEN.**

Explanation

A SELECT was processed by Db2 and no default CCSID can be determined. Default CCSIDs are determined by the scheme that was specified in the PARMLIB (VUU023/UNLSCHEM) or in the SYSIN. When the scheme is ASIS, default CCSIDs are set to the ones of the table space of the unload task. When SELECT statements are processed by Db2, Db2 HPU sets the default CCSID to the one of the EBCDIC system scheme. These CCSIDs are used to write items such as NULL and NOT NULL indicator values, separator character and string delimiter for DELIMITED FORMAT and output record padding.

User response

Specify the correct scheme in the SYSIN according to the behavior you require for default CCSIDs.

Return Code

4

**INZU195I INFORMATION : *detail* RC FORCED
TO *rc* DUE TO USER PARAMETER
PREFERENCES SEE THE PARMLIB
PARAMETER *variable***

Explanation

This message is issued when the return code is not null (no error). This message informs you that the value of the return code is the value that was specified in the settings. *Detail* is NO ROW UNLOADED and variable is VUU24/UNLZLRC, if *rc* indicates that no rows were unloaded.

Details is SWITCH TO SQL MODE and variable is VUU069/SQLSWIRC, if *rc* indicates that at least one non supported select has been processed in SQL mode. In all other cases, *detail* is not given.

User response:

No action is required.

Return Code

0

**INZU200E LOAD STATEMENT ERROR : DATE
FORMAT INVALID FOR COLUMN
*name***

Explanation

This message is issued when LOAD SYSIN GENERATION is requested. Format of DATE type column is not compatible with the format that is allowed in Db2 LOAD.

User response:

Choose an appropriate DATE format for the UNLOAD SYSIN if you want to reload your data.

Return Code

8

**INZU201E LOAD STATEMENT ERROR : TIME
FORMAT INVALID FOR COLUMN
*name***

Explanation

This message is issued when LOAD SYSIN GENERATION is requested. Format of TIME type column is not compatible with the format that is allowed in Db2 LOAD.

User response

Choose an appropriate TIME format for the UNLOAD SYSIN if you want to reload your data.

Return Code

8

INZU202E	LOAD STATEMENT ERROR : TIMESTAMP FORMAT INVALID FOR COLUMN <i>name</i>
-----------------	---

Explanation

This message is issued when LOAD SYSIN GENERATION is requested. The format of TIMESTAMP type column is not compatible with the format that is allowed in Db2 LOAD.

User response

Choose an appropriate TIMESTAMP format for the UNLOAD SYSIN if you want to reload your data.

Return Code

8

INZU203E	LOAD STATEMENT ERROR : COLUMN VARIABLE WITHOUT HEADER COLUMN <i>name</i>
-----------------	---

Explanation

This message is issued when LOAD SYSIN GENERATION is requested. It is not possible to load a variable column without a length header.

User response

Choose an appropriate format for the UNLOAD SYSIN if you want to reload your data.

Return Code

8

INZU204E	LOAD STATEMENT ERROR: COLUMN <i>col_name</i> WITH CCSID <i>ccsid_col</i> DIFFERENT FROM LOAD CCSID <i>ccsid_load</i>
-----------------	---

Explanation:

This message is issued when LOAD SYSIN GENERATION is requested. The CCSID of the unloaded column is different from the CCSID used to load data. This situation is reported via an error message because ULRDRC REJECT applies. However, the unload job continues and produces the data set containing the unloaded data and the related LOAD control cards.

User response:

Use a single CCSID for a same UNLOAD file to get generated LOAD control cards fully compliant with the LOAD utility or specify ULRDRC IGNORE so that this situation is only reported via an informational message and a return code of 0.

Return Code:

8

INZU204I	LOAD STATEMENT INFO: COLUMN <i>col_name</i> WITH CCSID <i>ccsid_col</i> DIFFERENT FROM LOAD CCSID <i>ccsid_load</i>
-----------------	--

Explanation

This message is issued when LOAD SYSIN GENERATION is requested. The CCSID of the unloaded column is different from the CCSID used to load data. This situation is reported via an informational message only because ULRDRC IGNORE applies.

User response

Use a single CCSID for a same UNLOAD file to get generated LOAD control cards fully compliant with the LOAD utility.

Return Code

0

INZU204W	LOAD STATEMENT WARNING: COLUMN <i>col_name</i> WITH CCSID <i>ccsid_col</i> DIFFERENT FROM LOAD CCSID <i>ccsid_load</i>
-----------------	---

Explanation

This message is issued when LOAD SYSIN GENERATION is requested. The CCSID of the unloaded column is different from the CCSID used to load data. This situation is reported via a warning message because ULRDRC WARNING applies.

User response

Use a single CCSID for a same UNLOAD file to get generated LOAD control cards fully compliant with the

LOAD utility or specify ULRDRC IGNORE so that this situation is only reported via an informational message and a return code of 0.

Return Code

4

INZU205E	LOSNTAX ANALYSIS FAILED AFTER LAST VALID PARAMETER [N/A keyword]
-----------------	---

Explanation:

This message gives details about the location of the error reported by the immediately preceding message "INZU018E INVALID PARMLIB PARAMETER parmlib parameter". The parmlib parameter in question has several subparameters and all the subparameters from the beginning of the value up to the indicated subparameter are compliant. The syntax error affects the part of the value immediately at the right of this keyword.

User response:

Determine the incorrect part of the value and correct the setting of the related parmlib parameter.

Return Code:

8

INZU205W	LOAD STATEMENT WARNING : STRING DATA ARE PADDED FOR COLUMN <i>name</i>
-----------------	---

Explanation

This message is issued when LOAD SYSIN GENERATION is requested. Unloaded data is padded, so data might be different from its original values.

User response

To prevent data modification, do not use the option PADDING.

Return Code

4

INZU206E	LOAD STATEMENT ERROR : REAL LENGTH COLUMN WITH NULL INDICATOR AT END ARE NOT SUPPORTED, COLUMN <i>name</i>.
-----------------	--

Explanation

This message is issued when LOAD SYSIN GENERATION is requested. Db2 HPU cannot load a real length column with a null indicator at the end.

User response

Specify a NULL indicator at the beginning to reload such a column.

Return Code

12

INZU208E	LOAD STATEMENT ERROR : INTERNAL ERROR WHEN ACCESSING LOADDDN <i>ddname</i>
-----------------	---

Explanation

This message occurs when LOAD SYSIN GENERATION is requested.

User response

Internal error when searching for the DDN attach to the LOADDDNN name.

Return Code

12

INZU209E	LOAD STATEMENT ERROR : INCOMPATIBLE NULL POSITION FOR COLUMN <i>name</i>
-----------------	---

Explanation

This message is issued when LOAD SYSIN GENERATION is requested. Db2 HPU cannot load a nullable column with a null ID at the end with the variable format (if the file contains variable columns).

User response

Specify the option NULLPOS BEFORE for such a format.

Return Code

12

INZU211I	LOAD STATEMENT WARNING : UNABLE TO DETERMINE TABLE NAME FOR SELECT STARTING AT POS (<i>line, column</i>). LOAD STATEMENT MUST BE MODIFIED
-----------------	--

Explanation

This message is issued when LOAD statement generation (LOADDDN option) is requested. As it is not possible to determine the target table name to

be used for the LOAD statement, it is substituted with xxxxxxxx.xxxxxx.

User response

Modify the generated LOAD statement to specify the table name to LOAD or consider specifying an INTO TABLE clause so that the generated LOAD statement can be used as generated.

Return Code:

0

INZU212E	LOAD STATEMENT ERROR: COLUMN <i>col_name</i> IS A CONSTANT. LOAD STATEMENT MUST BE MODIFIED TO BE USABLE.
-----------------	--

Explanation

This message is issued when LOAD SYSIN GENERATION is requested. The column to be loaded is a constant column and does not match a column from the table to load. The LOAD statement is not usable as it is specified. This situation is reported via an error message because ULRDRC REJECT applies. However, the unload job continues and produces the data set containing the unloaded data and the related LOAD control cards.

User response

Modify the generated LOAD statement before using it with the LOAD utility or add an INTO clause that matches the UNLOAD command to get LOAD control cards compliant with the LOAD utility or specify ULRDRC IGNORE so that this situation is only reported via an informational message only and a return code of 0.

Return Code

8

INZU212I	LOAD STATEMENT INFO: COLUMN <i>col_name</i> IS A CONSTANT. LOAD STATEMENT MUST BE MODIFIED TO BE USABLE.
-----------------	---

Explanation

This message is issued when LOAD SYSIN GENERATION is requested. The column to be loaded is a constant column and does not match a column from the table to load. The LOAD statement is not usable as it is specified. This situation is reported via an informational message only because ULRDRC IGNORE applies.

User response

Modify the generated LOAD statement before using it with the LOAD utility or add an INTO clause that matches the UNLOAD command to get LOAD control cards compliant with the LOAD utility.

Return Code

0

INZU212W	LOAD STATEMENT WARNING: COLUMN <i>col_name</i> IS A CONSTANT. LOAD STATEMENT MUST BE MODIFIED TO BE USABLE.
-----------------	--

Explanation

This message is issued when LOAD SYSIN GENERATION is requested. The column to be loaded is a constant column and does not match a column from the table to load. The LOAD statement is not usable as it is specified. This situation is reported via a warning message because ULRDRC WARNING applies.

User response

Modify the generated LOAD statement before using it with the LOAD utility or add an INTO clause that matches the UNLOAD command to get LOAD control cards compliant with the LOAD utility or specify ULRDRC IGNORE so that this situation is only reported via an informational message only and a return code of 0.

Return Code

4

INZU213E	LOAD STATEMENT ERROR: COLUMN <i>col_name</i> RESULTS FROM A SQL EXPRESSION. LOAD STATEMENT MUST BE MODIFIED TO BE USABLE.
-----------------	--

Explanation

This message is issued when LOAD SYSIN GENERATION is requested. The column to be loaded results from an SQL expression and does not match a column from the table to load. The LOAD statement is not usable as it is specified. This situation is reported via an error message because ULRDRC REJECT applies. However, the unload job continues and produces the data set containing the unloaded data and the related LOAD control cards.

User response

Modify the LOAD statement before using it with the LOAD utility or add an INTO clause that matches to the UNLOAD command to get LOAD control card compliant with the LOAD utility or specify ULRDRC IGNORE so that this situation is only reported via an informational message only and a return code of 0.

Return Code

8

INZU213I	LOAD STATEMENT INFO: COLUMN <i>col_name</i> RESULTS FROM A SQL EXPRESSION. LOAD STATEMENT MUST BE MODIFIED TO BE USABLE.
-----------------	---

Explanation

This message is issued when LOAD SYSIN GENERATION is requested. The column to be loaded results from an SQL expression and does not match a column from the table to load. The LOAD statement is not usable as it is specified. This situation is reported via an informational message only because ULRDRC IGNORE applies.

User response

Modify the LOAD statement before using it with the LOAD utility or add an INTO clause that matches the UNLOAD command to get LOAD control card compliant with the LOAD utility.

Return Code

0

INZU213W	LOAD STATEMENT WARNING: COLUMN <i>col_name</i> RESULTS FROM A SQL EXPRESSION. LOAD STATEMENT MUST BE MODIFIED TO BE USABLE.
-----------------	--

Explanation

This message is issued when LOAD SYSIN GENERATION is requested. The column to be loaded results from an SQL expression and does not match a column from the table to load. The LOAD statement is not usable as it is specified. This situation is reported via a warning message because ULRDRC WARNING applies.

User response

User response: Modify the LOAD statement before using it with the LOAD utility or add an INTO clause that matches the UNLOAD command to get LOAD control card compliant with the LOAD utility or specify ULRDRC IGNORE so that this situation is only reported via an informational message only and a return code of 0.

Return Code

4

INZU214E	LOAD STATEMENT ERROR : FAILED TO access FILE <i>ddname</i>
-----------------	---

Explanation

An error occurred accessing to the LOADDDN dataset specified by the '*ddname*'. The access type can be 'OPEN', 'WRITE INTO' or 'CLOSE'.

Return Code

8

Action

Check system messages to determine the reason of the problem. If the access type is OPEN, check if several distinct ddnames do not allocate the same data set. In this case, use allocate the data set with a single DD statement and refer to its ddname in any LOADDDN option you wish.

INZU215E	LOAD STATEMENT ERROR : INVALID CONVERSION FOR COLUMN <i>col_name</i>
-----------------	---

Explanation

This message is issued when LOAD SYSIN GENERATION is requested. An invalid conversion is requested between the data type of the column in the unloaded file and the data type of the column in the table. The LOAD SYSIN cannot be generated.

User response

Modify the output field type of the UNLOAD SYSIN.

Return Code

8

INZU216I	LOAD STATEMENT CAN NOT BE GENERATED IN FORMAT <i>format</i>
-----------------	--

Explanation

This message is issued when LOAD SYSIN GENERATION is requested. The LOAD SYSIN cannot be generated in format CSV or XML (UNLOAD PLUS syntax).

User response:

No action is required.

Return Code

0

INZU217E	LOAD STATEMENT ERROR: UNABLE TO COMPUTE <i>keyword</i> FOR SELECT AT POS (<i>line, column</i>) <i>keyword</i> IS SET TO 0
-----------------	--

Explanation

This message is issued when LOAD SYSIN GENERATION is requested. Option SORTKEYS or NUMRECS is requested by an unsupported SELECT statement and cannot be computed or EXECUTE NO is specified for this unload. The default SORTKEYS or NUMRECS value is 0. This situation is reported via an error message because ULRDRC REJECT applies. However, the unload job continues and produces the data set containing the unloaded data and the related LOAD control cards.

User response

If necessary, manually change the SORTKEYS or NUMRECS value in LOAD SYSIN before using it with the LOAD utility or specify ULRDRC IGNORE so that this situation is only reported via an informational message and a return code of 0.

Return Code

8

INZU217I	LOAD STATEMENT INFO : UNABLE TO COMPUTE <i>keyword</i> FOR SELECT AT POS (<i>line, column</i>) <i>keyword</i> IS SET TO 0
-----------------	---

Explanation

This message is issued when LOAD SYSIN GENERATION is requested. Option SORTKEYS or NUMRECS is requested by an unsupported SELECT statement and cannot be computed or EXECUTE NO is specified for this unload. The default SORTKEYS or NUMRECS value is 0. This situation is reported via an informational message only because ULRDRC IGNORE applies.

User response

If necessary, manually change the SORTKEYS or NUMRECS value in LOAD SYSIN before using it with the LOAD utility.

Return Code

0

INZU217W	LOAD STATEMENT WARNING : UNABLE TO COMPUTE <i>keyword</i> FOR SELECT AT POS (<i>line, column</i>) <i>keyword</i> IS SET TO 0
-----------------	---

Explanation

This message is issued when LOAD SYSIN GENERATION is requested. Option SORTKEYS or NUMRECS is requested by an unsupported SELECT statement and cannot be computed or EXECUTE NO is specified for this unload. The default SORTKEYS or NUMRECS value is 0. This situation is reported via a warning message only because ULRDRC WARNING applies.

User response

If necessary, manually change the SORTKEYS or NUMRECS value in LOAD SYSIN before using it with the LOAD utility or specify ULRDRC IGNORE so that this situation is only reported via an informational message and a return code of 0.

Return Code

4

INZU218I	UNABLE TO GENERATE LOAD STATEMENT FOR DELIMITED FORMAT IN SELECT STARTING AT (<i>line, column</i>)
-----------------	---

Explanation

This message is issued when LOAD SYSIN GENERATION is requested. In format COMMA-DELIMITED, syntax FAST UNLOAD, the LOAD SYSIN cannot be generated.

User response:

No action is required.

Return Code

0

INZU219I	PTFLEVEL=<i>aaaaaaaa-nnnn-</i> <i>pppppppp</i>
-----------------	---

Explanation

This is an informational message that displays the number of the latest APAR (*aaaaaa*) that was applied on the INZUTILB module. The *nnnn* and *pppppppp* values, if any, are intended for internal IBM use only.

User response:

No action is required.

Return Code

0

INZU220E	THE SETTINGS FOR DB2 <i>db2id</i> IN THE PARMLIB ARE INCOMPLETE OR ARE MISSING
-----------------	---

Explanation

Db2 HPU could not find any value of VZD007/DSNEXIT associated with the subsystem or group name Db2 ID that is specified within the PARM of the EXEC card.

User response

Check that the Db2 ID that is specified within the PARM of the EXEC card is a valid Db2 subsystem or group name. Verify that the VZD007/DSNEXIT associated parameter is present.

Return Code

8

INZU221I	PARALLELISM ACTIVATED FOR PARTITION PROCESSING. MAXIMUM DEGREE OF PARALLELISM IS SET TO <i>n</i>
-----------------	---

Explanation

Parallelism of LDS processing was activated by indicating the parallelism degree. This message is issued when unloading a partitioned table space with parallelism or when several SELECT statements that were processed by using SQL are specified in the same UNLOAD block.

User response

No action is required.

Return Code

0

INZU222I	<i>ddname</i>, TOTAL NUMBER OF RECORDS WRITTEN <i>n</i>
-----------------	--

Explanation

This message indicates the total number of records that were written into an output file or, when output files are written on tape with stacking, the total number of records written on a tape (the same ddname is used for all the file written on a given tape).

User response

No action is required.

Return Code

0

INZU223I	PARALLELISM ACTIVATED FOR PARTITION PROCESSING. MAXIMUM DEGREE OF PARALLELISM IS LIMITED TO <i>n</i> BY MAXSORT PARAMETER
-----------------	--

Explanation

Parallelism of LDS processing was activated by indicating the parallelism degree. A parallelism parameter was specified in SYSIN but could not be used because SORT had to be activated. The maximum degree of parallelism was then limited by parameter MAXSORT.

User response

No action is required.

Return Code

0

INZU224I	IBM DB2 HIGH PERFORMANCE UNLOAD <i>Vn.n</i>
-----------------	--

Explanation

This informational message contains the Db2 HPU version and release number.

User response

No action is required.

Return Code

0

INZU225I	PARALLELISM ACTIVATED FOR TABLESPACE PROCESSING. MAXIMUM DEGREE OF PARALLELISM IS SET TO <i>n</i>
-----------------	--

Explanation

Parallel processing of the table space was activated because a parallelism degree was specified in the PARALLELISM option or in the PARMLIB parameter VUX030/UTLPARAL. This message is issued when multiple table spaces with parallelism are unloaded.

User response

No action is required.

Return Code

0

INZU226I	PARALLELISM ACTIVATED FOR SELECT PROCESSED BY DB2. MAXIMUM DEGREE OF PARALLELISM IS SET TO <i>n</i>
-----------------	--

Explanation

Parallel processing for Db2-processed SELECT statements was activated because a parallelism degree was specified in the PARALLELISM option or in the PARMLIB parameter VUX031/DB2PARAL. This message is issued when multiple SELECT statements are processed by Db2.

User response

No action is required.

Return Code

0

INZU227I	OPTION <i>option value</i> FOR FORMAT <i>format</i> WILL BE IGNORED BY UTILITY
-----------------	---

Explanation

The option for the SELECT statement is ignored for the specified format.

User response

No action is required.

Return Code

0

INZU228E	<i>text</i> EXPRESSION IS NOT SUPPORTED BY UTILITY
-----------------	---

Explanation

The SELECT that is coded in SYSIN contains an SQL expression (*text*) which is not natively supported by Db2 HPU, and the SYSIN specified DB2 NO. The SELECT cannot be processed natively.

User response

Specify DB2 YES in SYSIN and rerun the job.

Return Code

8

INZU230E	LOAD STATEMENT ERROR: OPTIONS <i>list of options</i> ARE NOT COMPATIBLE
-----------------	--

Explanation

Incompatible load options are specified for LOAD SYSIN GENERATION.

User response

Modify the LOAD options.

Return Code

8

INZU231E	COPYDDN CHECK ERROR: GENERIC DDN CHECK IS NOT SUPPORTED
-----------------	--

Explanation

The COPYDDN option CHECK is used with a generic ddname (for example, DDNIN*).

User response

Remove the CHECK option and specify that the image copy is INLINE by using the INLINE keyword.

Return Code

8

INZU232E	PARAMETER IS INCONSISTENT WITH ITEM AT (<i>line, column</i>) ENDING AT (<i>line, column</i>)
-----------------	---

Explanation

The parameter that was specified in the previous message has a type that is inconsistent with the parameter that is specified in this message.

User response

Change the syntax to eliminate the conflict. Be as specific as possible.

Return Code

8

INZU233W	LOAD STATEMENT WARNING: PARMLIB PARAMETER VUU039/ UNLLDER IS SET TO IGNORE. LOAD STATEMENT ERRORS FOR SELECT STARTING AT (<i>line</i>, <i>column</i>) ARE IGNORED. LOAD STATEMENT IS BYPASSED
-----------------	--

Explanation

A LOADDDN keyword requested a LOAD SYSIN generation but an error prevents it from generating a correct LOAD statement for one specific SELECT because PARMLIB parameter VUU039/UNLLDER is set to IGNORE. Processing continues.

User response:

No action is required.

Return Code

4

INZU234E	COPYDDN NOT FOUND FOR PARTITION <i>i</i>
-----------------	---

Explanation

When unloading a partitioned image copy with parallelism, this message indicates that the selected partition has no COPYDDN in JCL.

User response

Allocate the missing COPYDDN for the indicated partition in the JCL and rerun the job.

Return Code

8

INZU237I	IN <i>unload / select n</i> PARTITION <i>p</i> CANNOT BE UNLOADED IN DDN <i>ddnxxp</i> DDN <i>ddnxxp</i> IS ALSO USED AS A BASE DDN IN <i>select/unload</i> <i>n</i> PARTITION WILL BE UNLOADED IN BASE DDN <i>ddn</i>
-----------------	---

Explanation

A suffixed DDN that is used to unload a partition with parallelism is also being used as a base DDN by either a SELECT or an UNLOAD statement. To avoid mixing of data, the partition is unloaded in the base DDN instead of the suffixed DDN.

User response

Check the output data distribution to verify that it is correct. If necessary, change the base ddnames to avoid mixing the ddnames.

Return Code

0

INZU238E	UNEXPECTED UNSUPPORTED SELECT UTILITY CANNOT SWITCH TO SQL PROCESSING REASON <i>return_code / reason_code</i>
-----------------	--

Explanation

A supported SELECT statement cannot be processed natively by Db2 HPU.

- condition 1) If the return_code is 0X30000, this means the SELECT statement involves a too complex SQL expression or a too complex WHERE clause to be processed in native mode.
- condition 2) For any other return_code or if no complex SQL expression or WHERE clause is involved, this might be an internal error.

User response

- If condition 1 applies, consider running the unload in SQL mode by specifying DB2 FORCE or try to reword the SQL expression or the WHERE clause to make it simpler, if possible. For example, if the WHERE clause involved a very big number of MYCOL = myvalue predicates combined with OR, consider replacing it by a single IN predicate.
- If condition 2 applies, or if the solution for condition 1 does not solve the issue, contact IBM Software Support, and provide the content of the PARMLIB, including all members or at least the INZUTIL member and the INZDSSID member, where SSID is the name of the Db2 subsystem or group attach name on which the issue occurs, the complete job log, and the DDL of the unloaded object.

Return Code

8

INZU239I **INVALID CONVERSION
SPECIFIED FOR COLUMN
NO *no_column_in_select*,
CONVERSION IS IGNORED**

Explanation

This message indicates that an invalid conversion is specified on a column containing binary data. For example, internal numeric, internal date-time, binary, or blob. The conversion is ignored.

User response

No action is required.

Return Code

None.

INZU240I **PARMLIB VARIABLE VUU058/
ULIDENT SET TO 'IGNORE' DUE TO
DB2 VERSION PRIOR TO V9**

Explanation

The PARMLIB parameter VUU058/ULIDENT contains OVERRIDE, which can only be accepted in Db2 Version 9 or later. This parameter is changed to IGNORE for the current execution.

User response

No action is required.

Return Code

None.

INZU241I **DB2 HPU IS NOT RUNNING UNDER
KEY 7**

Explanation

The PSW key of the utility is not 7. This occurs because Db2 HPU was not invoked via a JCL EXEC statement with PGM=INZUTILB. In such a case, restrictions apply. An ABEND can occur if the unloaded table is defined with a procedure, EDITPROC or FIELDPROC, which needs to run in key 7. If no ABEND occurs in such a case, the data is correctly unloaded.

User response

If a subsequent ABEND occurs and the unload table involves an EDITPROC or a FIELDPROC, consider invoking Db2 HPU via a JCL EXEC card.

Return Code

None.

INZU242I **UNLOAD OF TABLESPACE
dbname.tsname IS SPLIT DUE TO
THE OPTION MAXPART SET TO *n*.**

Explanation

The MAXPART parameter was used to unload the indicated table space.

User response

No action is required.

Return Code

None.

INZU243E **IN SELECT STARTING AT
(*line, column*) TABLESPACE
ts_name.db_name MAXPART *n*
AND ORDER BY REQUIRE AN
OUTPUT FILE PER PARTITION**

Explanation

Db2 HPU cannot perform an ORDER BY or ORDER CLUSTER on a partitioned table because of the MAXPART parameter. The MAXPART parameter is allowed only with an ORDER BY statement when each partition is unloaded in a separate output file.

User response

Modify the SYSIN by either removing the ORDER BY or MAXPART specification, or specify an output file per partition, and rerun the job.

Return Code

8

INZU250E **INVALID DATETIME CONSTANT
*constant***

Explanation

An invalid datetime constant was specified in the SELECT statement.

User response

Correct the constant in the SYSIN, and resubmit the job.

Return Code

8

INZU251E **INVALID SEMI-COLON BETWEEN
SELECT STATEMENT**

Explanation

An unauthorized comma was found between SELECT statements.

User response

Correct the SYSIN, and resubmit the job.

Return Code

8

INZU252W **LOAD STATEMENT WARNING:
INDDN CANNOT BE DETERMINED
FOR SELECT STARTING AT (line,
column) DEFAULT SYSREC IS USED**

Explanation

The output data ddname cannot be determined. This message occurs when LOAD SYSIN GENERATION is requested. This situation can happen when using a TEMPLATE for the output data set.

User response:

No action is required.

Return Code

4

INZU255E **ESTIMATION OF SPACE
ALLOCATION FOR TEMPLATE
template-name FAILED. UTILITY
FAILED TO ESTIMATE SIZE OF
TABLESPACE dbname.tsname**

Explanation

Db2 HPU needs to estimate space allocation for output files that were allocated by using a TEMPLATE statement. This error occurs when the estimates for the space that is required to unload the table fails.

User response

Specify the SPACE parameter in the TEMPLATE definition, and resubmit the job.

Return Code

12

INZU256I **PROCESSING UNLOAD FROM
LISTDEF list-name**

Explanation

This informational message provides the LISTDEF name when an UNLOAD statement is generated from a LISTDEF.

User response:

No action is required.

Return Code

0

INZU257I **GENERATING STATEMENTS FROM
SELECT STARTING AT POS(line,
column) USING LISTDEF list-name**

Explanation

This informational message provides the LISTDEF name and the SELECT position in the SYSIN when a SELECT statement is generated from a LISTDEF.

User response:

No action is required.

Return Code

0

INZU259E **LOAD STATEMENT ERROR:
GENERATION FAILED FOR SELECT
STARTING AT POS(line, column)**

Explanation

A LOAD statement generation has failed. Subsequent messages will provide more details about the cause of the failure.

User response

Refer to the subsequent messages for more information about the cause of the error.

Return Code

8

INZU260I **GENERATING LOAD STATEMENT
FOR SELECT STARTING AT
POS(line, column)**

Explanation

This informational message is issued during the generation of a load statement that corresponds to a LOADDDN keyword.

User response:

No action is required.

Return Code

0

INZU261I	PROCESSING GLOBAL LOAD STATEMENT
-----------------	---

Explanation

This informational message is issued when generation of a GLOBAL LOAD statement begins. A GLOBAL LOAD statement occurs when several LOAD statements that correspond to several SELECT statements are written in the same output file. Subsequent messages provide more information about which SELECT statements are being written.

User response

No action is required.

Return Code

0

INZU262I	UNLOAD <i>nnnnn</i>: TABLESPACE <i>dbname.tsname</i>
-----------------	---

Explanation

This is an informational message. A physical table space UNLOAD that uses an UNLDDN keyword was requested.

User response:

No action is required.

Return Code

0

INZU263I	SELECT <i>nnnnn</i>
-----------------	----------------------------

Explanation

This informational message indicates the SELECT statement that informational or error messages will be issued for. Subsequent messages provide additional information. The sequential number corresponds to the occurrence of the SELECT statement in an UNLOAD statement.

User response

No action is required.

Return Code

0

INZU264E	UNSUPPORTED SELECT WITH LISTDEF <i>list-name</i>
-----------------	---

Explanation

A LISTDEF and a SELECT statement are not compatible. Some options are restricted when you use a LISTDEF in a SELECT statement. For example, a WHERE clause is not allowed. Refer to “Fast select, fast listdef and fast listdeftbv select blocks syntax and description” on page 206 for more information. This message indicates the name of the LISTDEF. Message INZU010I precedes this message and contains the position of the SELECT.

User response

Modify the SELECT statement, and resubmit the job.

Return Code

8

INZU265W	TEMPLATE OPTIONS LIMIT IS IGNORED BY UTILITY
-----------------	---

Explanation

This message indicates that the LIMIT option specified for a TEMPLATE statement was ignored by Db2 HPU.

User response

Remove the LIMIT option from template to avoid warning or add TEMPLATE_LIMIT(YES) to your setting of the VUU030/ULOPTNS parmlib parameter to enable this feature if a Db2 HPU statement is used.

Return Code

4

INZU266E	INVALID ORDER BY IN SELECT FROM A LISTDEF
-----------------	--

Explanation

A LISTDEF is used in a SELECT statement that specifies an ORDER BY clause. When using a LISTDEF in a SELECT statement, you can use an ORDER CLUSTER clause, but not an ORDER BY clause.

User response

Modify the SELECT statement, and resubmit the job.

Return Code

8

INZU267I	OPTION PART HAS NO EFFECT ON UNLOAD/SELECT GENERATED FROM LISTDEF
-----------------	--

Explanation

The PART keyword of the UNLOAD statement has no effect in SELECT or UNLOAD statements that use a LISTDEF. To control partition unloading, use the PARTLEVEL option of the LISTDEF.

User response:

No action is required.

Return Code

0

INZU268E	INVALID USE OF UNLDDN KEYWORD. TABLESPACE NAME OR LISTDEF MUST BE SPECIFIED
-----------------	--

Explanation

The UNLDDN keyword was used without specifying a table space name or a LISTDEF.

User response:

Specify a table space name or a LISTDEF in the UNLOAD statement.

Return Code

8

INZU269E	UNDEFINED VARIABLE <i>var</i> IN TEMPLATE <i>template-name</i>
-----------------	---

Explanation

An undefined variable is used in a DSN TEMPLATE expression.

User response

Correct the variable name or define it with the TEMPLATESET option.

Return Code

8

INZU270E	PHYSICAL UNLOAD AND LOGICAL UNLOAD ARE MUTUALLY EXCLUSIVE WHEN USING LISTDEF
-----------------	---

Explanation

Db2 HPU cannot process physical UNLOAD and SELECT statements when they both use a LISTDEF in the same UNLOAD command.

User response

Code separate UNLOAD commands, one for the physical unload and one for the SELECT statements.

Return Code

8

INZU271E	INVALID USE OF DDLDDN : COPYDDN MUST BE SPECIFIED
-----------------	--

Explanation

DDLDDN is allowed only with the COPYDDN option.

User response

Correct the SYSIN, and resubmit the job.

Return Code

8

INZU272E	DDL FOR TABLESPACE <i>dbname.tsname</i> WAS NOT FOUND IN <i>ddname</i>
-----------------	---

Explanation

A CREATE TABLESPACE statement was not found in the DDLDDN file for the specified table space. When a table space is unloaded from image copy with DDLDDN, the DDL file must contain the CREATE TABLESPACE of the unloaded table space.

User response

Check the CREATE TABLESPACE clause in the DDLDDN file or check the name of the table space in the SYSIN.

Return Code

8

INZU273E	ORIGINOBID IS MANDATORY TO UNLOAD DROPPED MULTI-TABLES TABLESPACE FROM FIC
-----------------	---

Explanation

The ORIGINOBID keyword must be used in the SELECT statements when the table space is multiple tables and the DDLDDN keyword is specified.

User response

Specify the ORIGINOBID in the SELECT statement, and resubmit the job.

Return Code

8

INZU274I	UNLOAD <i>nnnnn</i> IS PROCESSED THROUGH DB2
-----------------	---

Explanation

This is an informational message. A SELECT statement is processed through Db2. The UNLOAD number *nnnnn* corresponds to the occurrence of the UNLOAD statement in the SYSIN.

User response:

No action is required.

Return Code

0

INZU275I	SELECT <i>sssss</i> IN UNLOAD <i>uuuuu</i> IS PROCESSED THROUGH DB2
-----------------	--

Explanation

This is an informational message. A SELECT statement is processed through Db2. The UNLOAD number *uuuuu* corresponds to the occurrence of the UNLOAD statement in the SYSIN, and the SELECT number *sssss* corresponds to the occurrence of the SELECT statement in the UNLOAD.

User response

No action is required.

Return Code

0

INZU276E	SPACE ALLOCATION IS REQUIRED IN TEMPLATE <i>template-name</i>
-----------------	--

Explanation

Db2 HPU needed to evaluate the amount of data to be stored in the associated data set in order to set the allocation because the SPACE option was not

specified in the template definition. However, Db2 HPU could not determine the expected amount of data. This error usually occurs when Db2 HPU processes a logical unload that includes an unsupported SELECT statement.

User response

Check the template definition, define the space allocation, and resubmit the job.

Return Code

8

INZU277I	PROCESSING UNLOAD <i>nnnnn</i> FROM TABLESPACE <i>dbname.tsname</i>
-----------------	--

Explanation

This is an informational message. Db2 HPU is processing the *dbname.tsname* table space unload.

User response:

No action is required.

Return Code

0

INZU278I	UNLOAD STATEMENT FROM SYSIN STARTING AT POS(<i>line, column</i>)
-----------------	---

Explanation

This is an informational message. A physical unload (using UNLDDN) was requested from a table space name that is explicitly specified in the SYSIN.

User response

No action is required.

Return Code

0

INZU279I	SELECT STATEMENTS USING SINGLE TABLE SPECIFICATION
-----------------	---

Explanation

This is an informational message. Db2 HPU is processing a SELECT statement from a table name that is explicitly specified in the SYSIN. Message INZU280I follows this message.

User response

No action is required.

Return Code

0

INZU280I **SELECT *nnnnn* STARTING AT
POS(*line, column*)**

Explanation

This is an informational message. Db2 HPU is processing a SELECT statement from a table name that is explicitly specified in the SYSIN.

User response

No action is required.

Return Code

0

INZU281I **UNLOAD STARTING AT POS(*line,*
column)**

Explanation

This informational message provides the UNLOAD command position in the SYSIN. This message is issued for each UNLOAD command that is coded in the SYSIN.

User response

No action is required.

Return Code

0

INZU282I **OUTPUT DDNAME=*ddname***

Explanation

A JCL allocated ddname is used to process a physical or logical unload. This message is issued after message INZU280I or INZU278I.

User response

No action is required.

Return Code

0

INZU283E **ERROR IN TEMPLATE LIBRARY
*ddname***

Explanation

An error occurred when parsing a TEMPLATE library. Previous messages provide the reason of failure. The unload stopped because this error prevented to find the definition of a mandatory DDname (i.e., specified either by the OUTDDN or UNLDDN option) that was not allocated by a DD statement.

User response

Refer to the previous messages to determine the reason of the failure and provide a well formed TEMPLATE library.

Return Code

8

INZU283W **ERROR IN TEMPLATE LIBRARY
*ddname***

Explanation

An error occurred when parsing a TEMPLATE library. Previous messages provide the reason of the failure. However, the unload continues because this error did not prevent to find the definition of any mandatory DDname (i.e., specified either by the OUTDDN, UNLDDN or COPYDDN option) that was not allocated by a DD statement. If it prevented to find the definition of a non mandatory DDname (e.g. specified by the LOADDDN option), the related dataset was not written.

User response

Search for previous messages to check if the production of any optional output dataset was aborted and provide a wellformed TEMPLATE library to define the optional ddname in question, if any, or remove the useless TEMPLATE library.

Return Code

4

INZU284E **ERROR IN LISTDEF LIBRARY
*ddname***

Explanation

An error occurred when parsing a LISTDEF library. Previous messages provide the reason of the failure. This error prevented the unload to continue as a list name specified by a "FROM LIST (list-name)" clause (fast listdef select block) was undefined.

User response

Refer to the previous messages to determine the reason of the failure and provide a well-formed LISTDEF library with the missing the list-name definition.

Return Code

8

INZU287I	NO TABLE FOUND IN LISTDEF <i>list-name</i> FOR SELECT STARTING AT POS(<i>line</i>, <i>column</i>)
-----------------	--

Explanation

A SELECT statement from a LISTDEF or LISTDEFTBV is coded in the SYSIN, but the generated list does not contain a table. The SELECT statement that uses this LISTDEF or LISTDEFTBV cannot generate any SELECT statements.

User response:

No action is required.

Return Code

0

INZU288I	NO TABLESPACE FOUND IN LISTDEF <i>list-name</i> FOR UNLOAD STARTING AT POS(<i>line</i>, <i>column</i>)
-----------------	---

Explanation

A physical UNLOAD statement that uses a LISTDEF is coded in the SYSIN, but the generated list does not contain a table space with at least one table. The UNLOAD statement that uses this LISTDEF does not generate a physical UNLOAD.

User response

No action is required.

Return Code

0

INZU289I	PROCESSING UNLOAD <i>nnnnn</i> FROM UNDETERMINED TABLESPACE
-----------------	--

Explanation

An unsupported SELECT statement is processed through Db2. This message is followed by one INZU280I message for each unsupported SELECT

statement. All unsupported SELECT statements are processed with the same unload number.

User response:

No action is required.

Return Code

0

INZU290I	TABLESPACE UNLOADED FROM IMAGE COPY
-----------------	--

Explanation

An UNLOAD is being performed from an image copy. A subsequent message provides the file name of the image copy that was used.

User response:

No action is required.

Return Code

0

INZU291I	TABLESPACE UNLOADED FROM LAST IMAGE COPY
-----------------	---

Explanation

An UNLOAD is performed from the most recent full image copy of the table space that was found in the SYSIBM.SYSCOPY when COPYDDN LAST_IC was used in the SYSIN.

User response

No action is required.

Return Code

0

INZU292I	TABLESPACE UNLOADED FROM IMAGE COPY <i>n</i>
-----------------	---

Explanation

An UNLOAD is performed from the *n*th most recent full image copy of the table space that was found in the SYSIBM.SYSCOPY, when COPYDDN *n* is used in the SYSIN.

User response

No action is required.

Return Code

0

INZU293E	UNLOAD FROM IMAGE COPY STARTING AT POS(<i>line</i>, <i>column</i>). NO OUTPUT DDNAME FOUND FOR PARTITION <i>n</i>
-----------------	--

Explanation

An output file is missing that is needed to unload a partitioned image copy with parallelism. The partition for which the ddname is identified. This type of unload requires one distinct file for each unloaded partition.

User response

Add the missing DDNAME.

Return Code

8

INZU297I	LOGICAL RECORD LENGTH OF THE OUTPUT FILE <i>name</i> IS SET TO 32756. RECORDS MIGHT BE TRUNCATED
-----------------	---

Explanation

The maximum length of the output record exceeds the physical limit. PARMLIB parameter VUU020/ULTR32K is set to YES and the output file record format is variable.

User response:

No action is required.

Return Code

0

INZU298E	LOGICAL RECORD LENGTH OF THE OUTPUT FILE <i>ddname</i> IS <i>lrecl</i> AND EXCEEDS THE PHYSICAL LIMIT
-----------------	--

Explanation

The maximum length of the output record exceeds the physical limit. This problem usually occurs when a fixed output format is used and when unloading tables in 32KB-page table space.

User response

Use one of the following methods to reduce the length of the output record:

- Use a variable format (VARIABLE ALL, VARIABLE END, DELIMITED).
- Reduce the length of larger columns by forcing the length in USER format or by using the SUBSTR() function.
- Unload only the necessary columns.

Return Code

8

INZU299E	DUPLICATE COLUMN DEFINITIONS. USE EITHER INTO-CLAUSE, FORMAT USER OR LIKE CLAUSE TO SPECIFY COLUMN OUTPUT FORMAT.
-----------------	--

Explanation

Output column definitions cannot be specified in both the INTO clause and FORMAT USER clause or in the INTO clause with the LIKE clause.

User response

Suppress one of the format definitions, and resubmit the job.

Return Code

8

INZU304E	UNABLE TO RETRIEVE TABLESPACE OR DATABASE CCSID FROM THE DB2 CATALOG
-----------------	---

Explanation

The table space or database CCSID retrieval failed.

User response

Check the SQLCODE and SQL messages in the job.

Return Code

8

INZU305E	UNSUPPORTED ROW_VALUE_EXPRESSION
-----------------	---

Explanation

A row_value_expression occurs in a SELECT statement, and DB2 NO is used in the UNLOAD command. Db2 HPU does not natively support the row_value_expression.

User response

Specify DB2 YES or DB2 FORCE, or modify the expression and rerun the job.

Return Code

8

INZU306E	INPUT IMAGE COPY IS NOT SUPPORTED WHEN UNLOADING COLUMN TYPE LOB OR XML
-----------------	--

Explanation

An unload from an image copy requested by the "COPYDDN ddname" option could not be performed because an XML or LOB column is involved. This is an unsupported request.

User response

If unloading the XML or LOB columns is not needed, change your SELECT statement to select only non XML and non LOB columns. If you actually intend to unload LOB or XML data from an image copy, change your UNLOAD command to comply with the following requirements:

- the UNLOAD command requests the data be unloaded from the latest image copy by specifying the COPYDDN LAST_IC (or COPYDDN -1) option.
- the Db2 catalog references FlashCopy image copies for the XML/LOB tablespace(s) and the nodeid indexes associated with the involved XML/LOB column(s) that are consistent with the more recent FlashCopy image copy of the base tablespace.

Return Code

8

INZU307E	COPYDDN -n IS NOT SUPPORTED WHEN UNLOADING COLUMN TYPE LOB OR XML
-----------------	--

Explanation

The COPYDDN -n option was specified for a logical unload requesting a LOB or XML column be unloaded. For the later situation, only the LAST_IC option is supported by Db2 HPU.

User response

Specify COPYDDN LAST_IC or COPYDDN -1.

Return Code

8

INZU308E	NO ELIGIBLE FLASHCOPY WAS FOUND FOR COLUMN <i>column_name</i> FROM TABLE <i>qualifier.table_name</i>
-----------------	---

Explanation

Unloading of an XML or a LOB column from FlashCopy image copies was requested but the mandatory set of copies for the indicated column (see the requirements for using COPYDDN LAST_IC or COPYDDN -1 when a LOB or XML column is involved) was not found in the Db2 catalog.

User response

Create a set of FlashCopy image copies that fulfills the requirements for the COPYDDN LAST_IC or COPYDDN -1 feature when a LOB or XML column is involved.

Return Code

8

INZU309E	COPYDDN OPTION ANYTYPE IS NOT SUPPORTED WHEN UNLOADING COLUMN TYPE LOB OR XML
-----------------	--

Explanation

The requested ANYTYPE option of the COPYDDN feature is invalid since an XML or LOB column must be unloaded. In such a case, only GLOBAL or PARTITIONED keywords are supported by Db2 HPU.

User response

Replace the ANYTYPE option by either GLOBAL or PARTITIONED according to the available set of images copies.

Return Code

8

INZU310E	CCSID <i>ccsid</i> IS NOT <i>ccsid_class</i>.
-----------------	--

Explanation

A target CCSID with an irrelevant class was specified.

User response

Specify a CCSID from the indicated class.

Return Code

8

INZU311E **CONVERSION INTO DBCS CCSID
ccsid IS NOT SUPPORTED FOR
COLUMN *column_name***

Explanation

This message indicates that an invalid conversion into a DBCS CCSID was requested.

User response

Specify a SBCS or VBCS CCSID at the target CCSID/

Return Code

8

INZU312I ***z/OS version.release.mod* -
AVAILABLE MEMORY: 24 BIT:
24bit-mem KB 31 BIT: 31bit-
mem KB 64 BIT: [64bit-mem KB
(LIMITED BY memlimit-source)] |
[NO LIMIT]**

Explanation

This message informs about the z/OS version and about the available memory when Db2 HPU is starting.

The memlimit-source is one of the following:

- **SMFPRMxx PARMLIB MEMBER** Memlimit set in SMFPRMxx, or system default of 2GB if no other memlimit specification is found
- **JCL** Memlimit set on the JOB or EXEC statement
- **IEFUSI OR SMFLIMxx PARMLIB MEMBER** Memlimit set by the IEFUSI exit or SMFLIMxx parmlib member
- **AUTHORIZED APPLICATION MODIFICATION** Memlimit set by an authorized application
- **IEFSMFIE (IEFUSI SET REGION SIZE)** No memlimit (REGION=0M and no memlimit in IEFUSI), but IEFUSI exit specifies a maximum REGION size. The system sets the memlimit approximately to the IEFUSI region size.

User response:

None.

Return Code

0

INZU313I **THE *process-type* PROCESS USES
ZIIP PROCESSORS**

Explanation

While processing the SELECT statement mentioned by the preceding INZU443I message, the workload of the indicated part of the process is offloaded to zIIP processors.

The possible process types are listed and explained below:

- **READING:** the part of the unload processing in charge of retrieving the data to unload, either by reading it from a tablespace LDS or from an image copy dataset in native mode or by fetching it through Db2 in SQL mode
- **FORMATTING:** the part of the unload processing in charge of applying the requested output format to the data retrieved by the READING process.

User response

None.

Return Code

0

INZU314I **THE *process-type* PROCESS IS NOT
ELIGIBLE TO ZIIP PROCESSORS
USAGE *exclusion reason***

Explanation

While processing the SELECT statement mentioned by the preceding INZU443I message, the workload of the indicated part of the process could not be offloaded to zIIP processors.

The possible process types are listed and explained below:

- **READING:** the part of the unload processing in charge of retrieving the data to unload, either by reading it from a tablespace LDS or from an image copy dataset in native mode or by fetching it through Db2 in SQL mode
- **FORMATTING:** the part of the unload processing in charge of applying the requested output format to the data retrieved by the READING process.

The possible exclusion reasons are listed and explained below:

- for a READING process:
 - **TABLE WITH FIELDPROC:** the table involved in the unload has a fieldproc
 - **TABLE WITH EDITPROC:** the table involved in the unload has an editproc
 - **SQL MODE USED:** the unload is processed in SQL mode

- INDEX SCAN FEATURE USED: the indexscan feature is put into action
- INPUT DATA ENCRYPTED: the LDS of the tablespace involved in the unload or the input image copy dataset is encrypted
- VUU030/ULOPTNS SET TO FIX(APAR_PH36904, [VERBOSE]): the value set for the VUU030/ULOPTNS parmlib parameter contains FIX(APAR_PH36904,[VERBOSE])
- INTERNAL FORMAT REQUESTED: the internal format (requested by the FORMAT INTERNAL or INTERNAL_FORMAT option) applies to the concerned unload
- for a FORMATTING process
 - USER EXIT CALLED: the unload command specifies either the OUTEXIT Db2 HPU option or the UNLOADEXIT UNLOAD-PLUS option
 - LOB READ IN SQL MODE AND STORED INTO A SPANNED DATASET: the unload involving LOB data is processed in SQL mode and the output dataset is a spanned dataset, i.e. the SPANNED YES option is specified
 - INTERNAL FORMAT REQUESTED: the internal format (requested by the FORMAT INTERNAL or the INTERNAL_FORMAT option) applies to the concerned unload

User response

No action is required but you may want to maximize the use of the zIIP processors by making the exclusion reason false.

For the exclusion reasons from the following list, you can do so without any significant change of the unload (same input and same output can be kept) by applying the related piece of advice indicated below:

- SQL MODE USED: if applicable, consider using the native mode by specifying the DB2 NO option
- INDEX SCAN FEATURE USED: consider disabling the indexscan feature by specifying the INDEXSCAN NO option
- VUU030/ULOPTNS SET TO FIX(APAR_PH36904, [VERBOSE]): if FIX(APAR_PH36904,[VERBOSE]) was specified to circumvent the VSAM APAR OA62028, consider applying the related fix and remove FIX(APAR_PH36904,[VERBOSE]): from the value of the VUU030/ULOPTNS parmlib parameter

For the other exclusion reasons, check whether the indicated characteristic of the unload that prevents the zIIP processors to be used is a requirement for the concerned unload.

Return Code

0

INZU315I **ZIIP *ppp*% REQUESTED - ACTUAL
USAGE WAS SRB TIME : *srb-time*
ZIIP TIME : *ziip-time***

Explanation

This message displays the following information about the zIIP processors usage for the whole Db2 HPU step:

- *ppp*: zIIP percentage requested by either the ZIIP option in the unload command, if any, and VUX039/ZIIP parmlib parameter otherwise
- *srb-time*: the total CPU time accumulated by the SRB tasks (eligible to zIIP processors) for the entire Db2 HPU step. It is expressed in microseconds.
- *ziip-time*: the total Integrated Information Processor (zIIP) time for the entire Db2 HPU step. It is expressed in microseconds.

User response

None.

Return Code

0

INZU351I ******* EXECUTE MODE SET TO
NO *******

Explanation

This message indicates that the unload was performed in EXECUTE NO mode.

User response

No action is required.

Return Code

0

INZU352I **DATA SET GENERATED.
TEMPLATE=*template_name*
DDNAME=*ddname* DSN=*dsname***

Explanation

This message provides information about a data set that was generated from a TEMPLATE in EXECUTE NO mode.

User response

No action is required.

Return Code

0

INZU353I	DATA SET GENERATED FOR PARTITION <i>n</i> TEMPLATE=<i>template_name</i> DDNAME=<i>ddname</i> DSN=<i>dsname</i>
-----------------	---

Explanation:

This message provides information about a data set that was generated to unload data from the partition of a table space. The data set was generated from a TEMPLATE in EXECUTE NO mode.

User response:

No action is required.

Return Code

0

INZU354E	AUTOTAG OVERFLOW. IN SELECT STARTING AT POS(<i>line,col</i>) MAXIMUM AUTOTAG VALUE <i>integer</i> REACHED
-----------------	--

Explanation

The generated value for the autotag has reached the maximum limit.

User response

Increase the size of the autotag.

Return Code

8

INZU355E	AUTOTAG ERROR FOR SELECT <i>num_select</i> STARTING AT POS(<i>line,col</i>). NO AUTOTAG/AUTOTAG CONFLICT. MERGING RECORDS WITH INCONSISTENT AUTOTAG SPECIFICATIONS INTO OUTPUT DDN=<i>ddd</i> NOT ALLOWED
-----------------	--

Explanation

The AUTOTAG option in one SELECT statement is set to a value other than zero, and the AUTOTAG option in a different SELECT statement is set to zero or is not specified. These inconsistent AUTOTAG values are shared by the same output file. This output file is allocated under ddname *ddd*. The location of one of

the conflicting SELECT statements is provided in the message.

User response

Ensure that an output data set is the target of SELECT statements with compatible AUTOTAG specifications by either separating the output data sets of the conflicting statements or by making their AUTOTAG specifications consistent. To make the AUTOTAG specifications consistent, either add or remove the AUTOTAG specifications in the UNLOAD statement.

Return Code

8

INZU356E	AUTOTAG ERROR FOR SELECT <i>num_select</i> STARTING AT POS(<i>line,col</i>). DIFFERENT SIZES MERGING RECORDS WITH INCONSISTENT AUTOTAG SPECIFICATIONS INTO OUTPUT DDN=<i>ddd</i> NOT ALLOWED
-----------------	---

Explanation

Inconsistent sizes of AUTOTAG fields are requested for SELECT statements that have the same output file. The output file is allocated under ddname *ddd*. The location of one of the conflicting SELECT statements is provided in the message.

User response

Ensure that an output data set is the target of SELECT statements with compatible AUTOTAG specifications by either separating the output data sets of the conflicting statements or by making their AUTOTAG specifications consistent. To make the AUTOTAG specifications consistent, specify the same AUTOTAG specifications in the UNLOAD statement.

Return Code

8

INZU357E	IN SELECT POS(<i>line, col</i>), SQLPART OPTION IS INVALID FOR TABLE SPACE <i>dbname.tsname</i>
-----------------	--

Explanation

The SQLPART option is available only on an index-partitioned table space or a table-partitioned table space.

User response

Remove the SQLPART option and run the job again.

Return Code

8

INZU358E	IN SELECT POS(<i>line, col</i>), INVALID SQLPART OPTION TABLE SPACE CANNOT BE DETERMINED
-----------------	---

Explanation

The SQLPART option is available only for SELECT statements for which tables and table spaces can be determined.

User response

Remove the SQLPART option, or modify the SELECT statement and run the job again.

Return Code

8

INZU359E	IN SELECT POS(<i>line, col</i>), INVALID OUTDDN SQLPART OPTION REQUIRED SAME PROPERTIES TO BOTH OUTPUT DDN
-----------------	---

Explanation

DDN1 and DDN2 of OUTDDN(DDN1, DDN2) must be built identically. If OUTDDN uses templates, DDN1 and DDN2 must both be templates with the &PART variable to unload partitions in distinct files, or DDN1 and DDN2 must be templates without the &PART variable to unload partitions in one file. If OUTDDN uses files that are allocated in JCL, each partition or range of partitions must be unloaded in the same build as ddname (for example, DDN100i, ddn DDN200i).

User response

Modify the definition of the output file to ensure that DDN1 and DDN2 are built the same way.

Return Code

8

INZU360I	SELECT STATEMENT PROCESSING THROUGH DB2
-----------------	--

Explanation:

This message indicates that the SELECT statement is processed through Db2.

User response:

No action is required.

Return Code

0

INZU362E	UNLOAD <i>nnnn</i> FROM TABLE SPACE <i>dbname.tsname</i> FAILED POS(<i>line, column</i>)" RC = 0xnnnnn
-----------------	---

Explanation

This message indicates that an unload that was natively processed by Db2 HPU failed. This unload was skipped to allow the next unload to process. The indicated reason code is meant for advanced diagnosis by the IBM support.

User response

Check for other Db2 HPU messages or system messages that might explain why the unload failed. Fix the problem, and run the job again. If you can't find the cause of the issue, contact your IBM support.

Return Code

8

INZU363E	UNLOAD <i>nnnn</i> FROM DB2 FAILED POS(<i>line, column</i>)" RC = 0xnnnnn
-----------------	--

Explanation

An unload that was processed through Db2 failed. This unload was skipped to allow the next unload to process.

User response

Check for other Db2 HPU messages or system messages that might explain why the unload failed. Fix the problem, and run the job again.

Return Code

8

INZU364E	UNSUPPORTED DEFAULT VALUE FOR COLUMN <i>colname</i> IN LIMIT KEY OF PARTITION <i>part number</i> OF TABLE SPACE <i>dbname.tsname</i>
-----------------	---

Explanation

Db2 HPU cannot build the SQL filter because the default value for the LIMIT KEY of a partition is unsupported.

User response

Specify an explicit partition limit for the indicated columns, or remove the SQLPART option.

Return Code

8

INZU365E	SELECT STARTING AT POS(<i>line</i>, <i>column</i>) CANNOT BE PROCESSED
-----------------	---

Explanation:

A SELECT statement cannot be processed.

User response:

See other Db2 HPU messages that were issued before INZU365E to determine why the SELECT statement cannot be processed. Fix the problem, and run the job again.

Return Code

8

INZU366E	AUTOTAG OBID IN SELECT STARTING AT POS(<i>line</i>,<i>column</i>) CANNOT BE PROCESSED BECAUSE THE TABLE CANNOT BE DETERMINED
-----------------	---

Explanation

This message indicates that AUTOTAG OBID statement cannot be processed because the table cannot be determined.

User response

Remove the AUTOTAG OBID request for such SELECT statement and consider using the AUTOTAG int option instead.

Return Code

8

INZU366I	<i>utility</i> RETURN CODE <i>rc</i> (REASON CODE <i>rs</i>)
-----------------	---

Explanation

This informational message contains the utility return and reason code when an error occurs. The reason code is intended to be used only by support personnel for diagnosis if the cause of the error cannot be determined.

User response

Refer to the SYSPRINT for information about the return code. If you cannot determine the cause of the error, contact IBM Software Support and supply the return and reason codes.

Return Code

8, 12, or 16

INZU368I	PHYSICAL AND LOGICAL UNLOAD FROM GLOBAL FIC WITH PARTITION FILTERING WILL BE PROCESSED IN TWO SEPARATE TASKS
-----------------	---

Explanation

A physical unload and a logical unload were requested while unloading from a global image copy with partition filtering or using one output file per partition. The physical unload and the logical unload are run separately. The input image copy is read twice to process the UNLOAD command.

User response

No action is required.

Return Code

None.

INZU369W	WARNING : CLAUSE INTO OR REFORMAT IS IGNORED WITH FORMAT USER
-----------------	--

Explanation

The FORMAT USER is requested and incompatible REFORMAT or INTO clause is also specified. As a consequence, the formatting specification from the REFORMAT or INTO clause are ignored.

User response

- Case 1: if the output format is the expected one and you want the unload to complete with a completion code of zero, consider the following changes:
 - if an INTO clause is ignored, remove it.
 - if a REFORMAT clause is ignored, remove it if it does not apply to any other logical unload that does not request the USER format. Otherwise, rewrite the UNLOAD command so that the REFORMAT clause does not apply to any logical unload requesting the USER format.

- Case 2: if the output format is not the expected one because the INTO or REFORMAT clause is ignored, consider the following changes:
 - if an INTO clause is ignored, merge the USER format and the INTO clause format specifications into a single INTO clause that specifies the actual desired output format.
 - if a REFORMAT clause is ignored, replace the USER format by another format clause and an INTO clause.

Return Code

4

INZU370I **LDS ALLOCATION FAILED FOR [TABLE SPACE|INDEX SPACE] dbname.spacename [PART nn], DB2 CATALOG IS ACCESSED TO UPDATE LDS NAME**

Explanation

Dynamic allocation of the LDS that corresponds to the table space or index space, and partition has failed. Db2 HPU will refresh the IPREFIX information from the Db2 catalog before dynamic allocation is reissued.

User response

No action is required.

Return Code

None.

INZU371I **THE LDS NAME HAS NOT BEEN MODIFIED BY THE SWITCH PHASE OF AN UTILITY**

Explanation

Message INZU370I was previously issued, but the value of the IPREFIX that was read from the Db2 catalog is identical to the value that was initially read. Dynamic allocation is not reissued.

User response

No action is required.

Return Code

None.

INZU372I **OBID REPORT FOR UNLOAD unload-number**

Explanation

This message is part of the OBID report. It contains the number for the unload that unloaded the image copy.

User response

No action is required.

Return Code

None.

INZU373I **IMAGE COPY INFORMATION: SSID ssid, DBID n X'nnnn' PSID n X'nnnn'**

Explanation

This message is part of the OBID report. It contains the SSID and the DBID/PSID that identifies the table space.

User response

No action is required.

Return Code

None.

INZU374I **n OBID(s) ENCOUNTERED IN THE IMAGE COPY**

Explanation

This message is part of the OBID report. It contains the number of OBIDs that were found in the image copy.

User response

No action is required.

Return Code

None.

INZU375I **OBID n X'nnnn'**

Explanation

This message is part of the OBID report. It contains an OBID that identifies a table that was found in the image copy.

User response

No action is required.

Return Code

None.

INZU376I UNLOAD *uu* SELECT *ss* [PARTITION *pp*] NUMBER OF RECORDS WRITTEN *n*

Explanation

This message indicates the total number of records that were written for each logical unload (SELECT statement and OUTDDN option) or each physical unload (UNLDDDN option) into the output file that is specified in message INZU222I.

The unload (physical or logical) the message is related to is referred to as follows:

- UNLOAD *uu*: the number of the UNLOAD command it belongs to
- SELECT *ss* with:
 - *ss* = 0 for a physical unload
 - *ss* > 0 for a logical unload, where *ss* is the number of the SELECT statement
- PARTITION *pp*: when the unload request each partition be unloaded into a dedicated dataset, the partition number the message relates to is also mentioned. When the unload requests the data be unloaded to a single output dataset regarding of the partition, this field is empty.

User response

No action is required.

Return Code

None.

INZU377E INVALID PADDING SPECIFICATION. PADDING_STRICT IS SET IN PARMLIB PARAMETER VUU030/ULOPTNS

Explanation

An old style of syntax for PADDING OPTIONS was used, but PARMLIB parameter VUU030/ULOPTNS uses only the new style of syntax.

User response

Change the SYSIN to match the PADDING (SBCS padding [, DBCS padding [, record padding]]) syntax.

Return Code

8

INZU378I DEPRECATED PADDING SYNTAX: THIS SYNTAX WILL BE NOT SUPPORTED IN NEXT RELEASE. PLEASE UPDATE HPU SYSIN TO CONFORM TO NEW BEHAVIOUR OR USE FLAG PADDING_STRICT IN PARMLIB PARAMETER VUU030/ULOPTNS

Explanation

The PADDING 'c'/x'hh'/x'hhhh' syntax was used, and PADDING_STRICT(NO) was specified in PARMLIB parameter VUU030/ULOPTNS to support the PADDING 'c'/x'hh'/x'hhhh' syntax. However, the PADDING 'c'/x'hh'/x'hhhh' syntax will not be supported in later releases.

User response

Consider using the PADDING (SBCS padding [, DBCS padding [, record padding]]) syntax for PADDING to manage the padding of both CHAR and GRAPHIC data types. Change the SYSIN syntax.

Return Code

0

INZU379E INVALID PADDING CHARACTER 'c' / X'hh'

Explanation

An invalid SBCS, DBCS, or record padding character was specified.

User response

Change the padding specification. SBCS and record padding characters must be 1-byte string literals, and the DBCS padding character must be a 2-byte string literal. String literals include 'c', X'hh', G'SI_graphic_char_SO', GX'hhhh', and UX'hhhh'.

Return Code

8

INZU380I INFORMATION: DEFAULT OUTPUT FORMAT IS SET TO *format* DUE TO PARMLIB PARAMETER VUU045/ULFORMAT

Explanation

This message specifies the default format that will be used by Db2 HPU when FORMAT has not been specified for a SELECT statement.

User response

No action is required.

Return Code

None.

INZU381I	THE COPYDDN KEYWORD IS NOT VALID. DB2 NO MUST BE SPECIFIED. THIS SYNTAX IS DEPRECATED AND WILL NOT BE SUPPORTED IN LATER RELEASES.
-----------------	---

Explanation

The UNLOAD statement specifies COPYDDN and none of the following conditions is fulfilled:

- the DB2 NO option is specified
- no DB2 option is specified and ULSEDB2 is set to NO.

As the unload from an image copy can only be performed in native mode (DB2 NO), this is an ambiguous request. In versions up to V3R2, Db2 HPU ignored the COPYDDN option in such a case. From version V4R1, a more straightforward behavior considering such a request as invalid can be enabled by specifying COPYDDN_STRICT(YES) in the VUU030/ULOPTNS parmlib parameter.

As the Db2 HPU settings specified does not specify COPYDDN_STRICT(NO), for compatibility reasons, the former ambiguous behavior - i.e. the data might not be unloaded from the image copy but from the "online" table - applies to the current unload.

User response

As the former behavior corresponding to COPYDDN_STRICT(NO) is deprecated and will be removed in a future Db2 HPU release, consider changing the unload statement and/or the Db2 HPU settings to meet the enhanced behavior requirements as follows. If unloading from an image copy is desired, specify the DB2 NO option or make sure the ULSEDB2 parmlib parameter is set to NO. The latter change should be done only after checking that no other job with COPYDDN option and without a DB2 option exists. If the unload from the online table is desired, remove the unintended or superfluous COPYDDN option. More generally speaking, consider setting COPYDDN_STRICT(YES) to make sure such an ambiguous request (unload from image copy and SQL

mode) can no longer be specified. Be aware that this setting change must be done after reviewing all the unload jobs specifying an UNLOAD statement with the COPYDDN option.

Return Code

0

INZU382E	THE COPYDDN OPTION AND THE DB2 YES OR DB2 FORCE OPTIONS ARE INCOMPATIBLE.
-----------------	--

Explanation

The COPYDDN keyword cannot be specified with DB2 YES or DB2 FORCE when COPYDDN_STRICT(YES) is specified for the VUU030/ULOPTNS PARMLIB parameter. To unload from an image copy, both DB2 NO and the COPYDDN keyword must be specified.

User response

To unload from an image copy, specify COPYDDN and DB2 NO in the SYSIN.

Return Code

8

INZU384I	THE DB2 PARAMETER WAS FORCED TO NO BECAUSE COPYDDN WAS SPECIFIED.
-----------------	--

Explanation

The DB2 parameter was forced to NO for one of the following reasons:

- A value for the DB2 parameter was not specified in the SYSIN.
- A request was made for data to be unloaded from an image copy by using the COPYDDN parameter.
- COPYDDN_STRICT(YES) was specified for the VUU030/ULOPTNS PARMLIB variable.

User response

No action is required.

Return Code

0

INZU385I	THE UNLOAD PROCESS IS SERIALIZED BECAUSE OF TAPE MANAGEMENT.
-----------------	---

Explanation

The unload process identified by the preceding INZU277I message and by the following INZU280I message, in case of a logical unload (SELECT), involves a TEMPLATE requesting an output file to be allocated on tape (tape devices are defined by the TAPEUNIT option). As serialization of all unload processes sharing the same tape output template is requested to satisfy tape writing constraints, the mentioned unload process will not be run concurrently to any other unload process using the same template. However, each of these unloads can be run with a parallelism degree up to the value of UNCNT of the related TEMPLATE which is reminded by the INZU225I message and can be run concurrently with the unload processes that do not involve the same TEMPLATE.

User response

No action is required.

Return Code

0

INZU386E	THE FOLLOWING UNIT IS DUPLICATED IN THE TAPEUNIT OPTION: <i>unit_name</i>.
-----------------	---

Explanation

The definition of a tape unit or a storage class is duplicated in the TAPEUNIT option.

User response

Remove one of the duplicate definitions.

Return Code

8

INZU387E	THE ORDER BY CLAUSE IS NOT SUPPORTED WHEN DATA IS UNLOADED IN FORMAT INTERNAL. THE TABLE SPACE IS IN BASIC ROW FORMAT, AND THE <i>column_name</i> COLUMN IN THE <i>table_name</i> TABLE IS POSITIONED AFTER A VARYING-LENGTH COLUMN.
-----------------	---

Explanation

The ORDER BY clause cannot be processed in the INTERNAL format because the records of the table space are in basic row format (BRF), and the specified

column that is used in the ORDER BY clause is after a variable length column.

User response

No action is required.

Return Code

8

INZU388W	THE INDEX KEY IS NOT SUPPORTED WHEN DATA IS UNLOADED IN FORMAT INTERNAL. THE TABLE SPACE IS IN BASIC ROW FORMAT AND THE INDEX KEY <i>column_name</i> COLUMN IN THE <i>table_name</i> TABLE IS POSITIONED AFTER A VARYING-LENGTH COLUMN. CLUSTER INDEX KEY NOT SUPPORTED
-----------------	--

Explanation

The ORDER CLUSTER clause cannot be processed in the INTERNAL format because the records of the table space are in basic row format (BRF), and the specified column that is used in the key of the clustering index is after a variable length column. The ORDER CLUSTER clause is ignored for the SELECT statement. This message is preceded by message INZU044W.

User response

No action is required.

Return Code

4

INZU389E	THE FOLLOWING CLAUSE IS INCOMPATIBLE WITH FORMAT INTERNAL: <i>clause_name</i>.
-----------------	---

Explanation

The clause cannot be used with the INTERNAL format.

User response

Remove the clause, or unload the data in another type of format.

Return Code

8

INZU390E	FORMAT INTERNAL AND ANOTHER FORMAT CANNOT BE
-----------------	---

SPECIFIED WITHIN THE SAME UNLOAD COMMAND.

Explanation

The INTERNAL format cannot be used with other format types in the same UNLOAD command.

User response

Use FORMAT INTERNAL for all logical unloads that are processed natively in the same UNLOAD command, or split the unload by using at least two UNLOAD commands.

Return Code

8

INZU391E	FORMAT INTERNAL IS NOT SUPPORTED FOR SELECT STATEMENTS THAT ARE PROCESSED BY DB2.
-----------------	--

Explanation

FORMAT INTERNAL cannot be used for a SELECT statement that is processed by Db2.

User response

Specify a different type of format for SELECT statements that are processed by Db2.

Return Code

8 or 0 if a later INZU538I message has been issued for the same unload task

Note: When an ALTERNATE FORMAT is specified for the INTERNAL format and the message INZU538I is present, this error message is actually ignored but its text explains the reason why the INTERNAL format has been generated for the SELECT statement in question.

INZU392E	FORMAT INTERNAL IS NOT SUPPORTED FOR THE FOLLOWING REASON: <i>reason</i>. THE TABLE NAME IS <i>table_name</i>.
-----------------	---

Explanation

The INTERNAL format cannot be used because of one of the following reasons:

XML OR LOB COLUMN

The specified table contains a LOB column or an XML column.

FIELDPROC ON A COLUMN

A column in the specified table is defined with a FIELDPROC.

User response

Specify a different type of format.

Return Code

8 or 0 if a later INZU538I message has been issued for the same unload task

Note: When an ALTERNATE FORMAT is specified for the INTERNAL format and the message INZU538I is present, this error message is actually ignored but its text explains the reason why the INTERNAL format has been generated for the SELECT statement in question.

INZU393I	THE VALUE FOR THE MAXPART PARAMETER IS FORCED TO 1.
-----------------	--

Explanation:

The MAXPART parameter was forced to 1 to unload the specified table space.

User response

No action is required.

Return Code

0

INZU394I	DATA FROM THE IMAGE COPY WILL BE UNLOADED WITHOUT PARTITION INFORMATION BECAUSE OF THE FOLLOWING REASON: <i>reason</i>.
-----------------	--

Explanation

An output file per partition has been requested for a table space that was unloaded from an image copy. The structure of the image copy file or the structure of the unloaded table space in the Db2 catalog or in the DDLDDN file does not allow unloading per partition. Db2 HPU cannot generate an output file per partition. All the unloaded rows will be written in the file that corresponds to the first selected partition. The message text indicates one of the following reasons:

- THE IMAGE COPY CONTAINS DATA FROM A NONPARTITIONED TABLE SPACE. THE SPECIFIED TABLE SPACE IS A PARTITIONED TABLE SPACE.
- THE IMAGE COPY CONTAINS DATA FROM A PARTITIONED TABLE SPACE. THE SPECIFIED TABLESPACE IS A PARTITION-BY-GROWTH TABLE SPACE.

User response

No action is required.

Return Code

None.

INZU395E **THE IMAGE COPY CANNOT BE USED FOR THIS TABLE SPACE FOR THE FOLLOWING REASON: *reason*.**

Explanation

The input image copy file has a structure that is not compatible with the unloaded table space as described in the Db2 catalog or in the DDLDDN file. Db2 HPU cannot unload from such image copy. The message text indicates one of the following reasons:

**THE IMAGE COPY CONTAINS DATA FROM A PARTITIONED TABLESPACE
THE SPECIFIED TABLESPACE IS A NON-PARTITIONED TABLESPACE**

The image copy contains data coming from a partitioned table space and the table space specified in SYSIN is not partitioned.

**THE IMAGE COPY CONTAINS DATA FROM A PARTITIONED-BY-GROWTH TABLESPACE
THE SPECIFIED TABLESPACE IS A NON-PARTITIONED-BY-GROWTH TABLESPACE**

The image copy contains data from a partitioned-by-growth table space and the table space specified in SYSIN is either not partitioned or partitioned differently.

**THE IMAGE COPY CONTAINS DATA FROM A PARTITIONED TABLESPACE OF *number* PARTITIONS
THE SPECIFIED TABLESPACE IS A PARTITIONED TABLESPACE AND HAS LESS PARTITIONS : *number***

The image copy contains data from a partitioned table space that has more partitions than the table space specified in SYSIN.

**THE IMAGE COPY CONTAINS DATA FROM A PARTITIONED TABLESPACE OF *number* PARTITIONS
THE SPECIFIED TABLESPACE IS A PARTITIONED TABLESPACE AND HAS MORE PARTITIONS : *number* AND UNLOAD BY PARTITION HAS BEEN REQUESTED**

The image copy contains data from a partitioned table space that has fewer partitions than the table space that is specified in SYSIN and an output file per partition was requested. In this case, only an unload of a subset of the partitions that are in the image copy or an unload into a single output data set is allowed.

THE IMAGE COPY CONTAINS SEVERAL VERSIONS FOR THE TABLE *table__name* WHILE THE TARGET TABLE HAS NO VERSION

The image copy contains data from a partitioned table space that has versions while the target table has no version.

User response

Correct the structure mismatch either by providing another input image copy or by unload another table space. If the structures are compatible (both are partitioned but the table space specified in SYSIN has a bigger number of partition), consider changing the list of partitions to be unloaded or request a single output data set to be created.

Return Code

8

INZU398E **DB2 YES CANNOT BE SPECIFIED FOR A TABLE WITH CONTROLLED ACCESS ON A ROW OR COLUMN. THE TABLE NAME IS *table_name*, AND THE COLUMN NAME IS *column_name*.**

Explanation

Access to the specified table is controlled at the row or column level. For such a table, output depends on whether data is accessed natively or by Db2. DB2 YES is restricted because it does not explicitly set the type of access mode to be used.

User response

Specify DB2 NO or DB2 FORCE. For a table whose access is controlled at the column level, consider removing the protected column from the SELECT statement.

Return Code

8

INZU399E **A TABLE WITH CONTROLLED ACCESS ON A ROW OR COLUMN CANNOT BE UNLOADED IN NATIVE MODE. THE TABLE NAME IS *table_name*, AND THE COLUMN NAME IS *column_name*.**

Explanation

Access to the specified table is controlled at the row or column level. According to the specified value of

VUU062/ULACCTRL, unloading data in native mode (when DB2 NO is specified) is restricted for this table.

User response

Specify DB2 YES or change the setting of the VUUXXX/ULACCTRL parameter to allow data to be unloaded in native mode. For a table whose access is controlled at the column level, consider removing the protected column from the SELECT statement.

Return Code

8

INZU400I	THE FOLLOWING OUTPUT CCSID FOR AN XML COLUMN MIGHT NOT MATCH ENCODING XML STANDARDS: <i>ccsid</i>.
-----------------	---

Explanation

The chosen CCSID for an XML column might generate XML with an encoding name that does not match XML standards.

User response

Check the output CCSID for the XML data.

Return Code

0

INZU401E	UNLOADING A VIEW WITH FORMAT INTERNAL IS NOT SUPPORTED.
-----------------	--

Explanation

FORMAT INTERNAL cannot be used to unload a view.

User response

Specify a different type of format.

Return Code

8 or 0 if a later INZU538I message has been issued for the same unload task

Note: When an ALTERNATE FORMAT is specified for the INTERNAL format and the message INZU538I is present, this error message is actually ignored but its text explains the reason why the INTERNAL format has been generated for the SELECT statement in question.

INZU402E	SELECT WITH COLUMN LIST IS NOT SUPPORTED WHEN DATA IS UNLOADED IN FORMAT INTERNAL.
-----------------	---

Explanation

FORMAT INTERNAL cannot be used with a partial selection of the columns of the table.

User response

Specify a SELECT * statement

.

Return Code

8

INZU403E	FLASHCOPY AND NON FLASHCOPY CANNOT BE MIXED. FLASHCOPY : <i>dsname</i> NON FLASHCOPY : <i>dsname</i>.
-----------------	--

Explanation

A FlashCopy and a non-FlashCopy have been specified as input for a single UNLOAD statement for a partitioned table space. Db2 HPU cannot process both image copies.

User response

Issue one UNLOAD statement with the FlashCopy as input and a separate UNLOAD statement with the non-FlashCopy as input.

Return Code

8

INZU404E	LOB AND XML FILES CANNOT BE UNLOADED ON TAPE.
-----------------	--

Explanation

Db2 HPU cannot unload LOB and XML files on tape.

User response

Specify a DASD output file for LOB and XML files.

Return Code

8

INZU405E	LOADDDN CANNOT BE GENERATED ON TAPE TEMPLATE
-----------------	---

Explanation

The LOADDDN cannot use a template that explicitly defines the dataset on a TAPE unit. A TEMPLATE statement explicitly defines a data set on tape if it

specifies the STACK option or a unit name mentioned by the Db2 HPU TAPEUNIT feature (either through the VZM010/TAPEUNIT or the TAPEUNIT option from the GLOBAL OPTIONS block).

User response

Change the template parameters so that it does not explicitly define a tape dataset by removing any STACK option or by specifying a unit name not mentioned by the TAPEUNIT feature.

Return Code

8

INZU406E THE REQUESTED QUIESCE OF THE TABLESPACE COULD NOT BE PERFORMED. CHECK DB2 STATUS OF THE TABLESPACE AND RELATED INDEXES.

Explanation

The QUIESCE feature was requested for the table space mentioned in a preceding INZI195I or INZI196I message. The needed QUIESCE utility could not be performed because of the Db2 status of the table space (ACHKP, AUXW, COPY) or its related indexes. Performing the QUIESCE utility was mandatory because the following conditions were fulfilled:

- the QUIESCE YES feature was mandatory as either of the following was true:
 - the VUU028/ULQSCBHH parmliib parameter was neither set to TRY nor to TRY,WTO
 - the LOCK YES feature was requested
- the VUU028/ULQSCBHH parmliib parameter was neither set to FORCE nor to FORCE,WTO which prevents to honor the QUIESCE YES feature by running a STOP/START sequence instead of the QUIESCE utility. As the mandatory QUIESCE utility cannot be performed, the unload stops.

Note: This message is issued not only to the SYSPRINT dataset but also to the MVS console if the VUU028/ULQSCBHH parmliib parameter is set to TRY,WTO or HONOR,WTO.

User response

Remove the QUIESCE YES feature if not intended. Otherwise, perform the relevant Db2 operation to remove the restricted status that prevented the QUIESCE utility from completing successfully. This restricted state is indicated by a preceding INZI195I or INZI196I message. Also consider setting the VUU028/ULQSCBHH parmliib parameter to FORCE

or FORCE,WTO so that a STOP/START sequence is attempted when the QUIESCE utility fails because of the Db2 restricted state of the object. Doing so enlarges the number of cases where the QUIESCE feature can be honored.

Return Code

8

INZU407W UNLOAD n SELECT n [PARTITION n] MAX_EXPECTED_ROWS (n) IS LESS THAN THE UNLOADED ROWS (n).

Explanation

The number of effective unloaded rows is higher than the number of expected rows that is specified in the MAX_EXPECTED_ROWS keyword. Further processing might be affected because the sort resources or the size of the output data set might be insufficient. The unload (physical or logical) the message is related to is referred to as follows:

- the number of the UNLOAD command it belongs to and
- SELECT 0 for a physical unload
- the number of the SELECT statement for a logical unload

The numbers are related to the writing sequence and the SELECT sequence numbers relate a given UNLOAD command

User response

Modify the value of the MAX_EXPECTED_ROWS keyword so that it reaches at least the number of unloaded rows.

Return Code

4

INZU408I INDEX SCAN ACCESS HAS BEEN DISABLED DUE TO MAX_EXPECTED_ROWS SPECIFICATION.

Explanation

The index scan access to sort rows by using the cluster index has been disabled because the MAX_EXPECTED_ROWS keyword has been specified in the SELECT statement.

User response

If necessary, remove the MAX_EXPECTED_ROWS keyword to enable the index scan access. The index scan access is more efficient than the sort utility, but it depends on the number of output rows.

Return Code

0

INZU409E	INTERNAL ERROR WHEN PREPARING DB2SORT INVOCATION - REASON 0xnnnn
-----------------	---

Explanation

Db2 HPU unexpectedly failed when preparing the Db2 Sort utility invocation.

User response

Contact IBM Software Support.

Return Code

8

INZU410E	INSUFFICIENT RESOURCES FOR DB2SORT INVOCATION. THE NUMBER OF SORTS TO PROCESS IS <i>n</i> MAXSORT IS SET TO <i>p</i> DB2SORT CAN PROCESS A MAXIMUM OF <i>q</i> SORTS IN PARALLEL
-----------------	---

Explanation

Not enough resources are available to process the requested sorts with Db2 Sort. The number of sorts to be processed in parallel (i.e. $\min(p, n)$) is greater than the number of sorts that Db2 Sort can handle in parallel (q).

User response

Reduce the sort parallelism degree by decreasing the MAXSORT parameter value p to a value that is lower than q . If a partitioned table space is used, consider reducing the unload tasks parallelism by decreasing the first operand in the PARALLELISM keyword or by using the MAXPART keyword.

Return Code

8

INZU411W	THE REQUESTED QUIESCE OF THE TABLESPACE COULD NOT
-----------------	--

BE PERFORMED. CHECK DB2 STATUS OF THE TABLESPACE AND RELATED INDEXES.

Explanation

The QUIESCE feature was requested for the table space mentioned in a preceding INZI195I or INZI196I message. The needed QUIESCE utility could not be performed because of the Db2 status (ACHKP, AUXW, COPY) of the table space or its related indexes. As the VUU028/ULQSCEBH parmlib parameter is set to either TRY or TRY,WTO, the STOP/START method is not used to complete the QUIESCE feature.. This message is issued not only to the SYSPRINT dataset but also to the MVS console if the VUU028/ULQSCEBH parmlib parameter is set to TRY,WTO. As LOCK NO applies to the unload, the QUIESCE feature is considered as not mandatory and the unload is processed further.

User response

If the QUIESCE request was not intended, consider disabling it - e.g. by specifying the QUIESCE NO option. Otherwise, make sure to run the unload while the involved objects are not in a restricted state that prevents the QUIESCE utility from completing. Also consider setting the VUU028/ULQSCEBH parmlib parameter to FORCE or FORCE,WTO so that a STOP/START sequence is attempted when the QUIESCE utility fails because of the Db2 status. Doing so enlarges the number of cases where the QUIESCE feature can be honored.

Return Code

4

INZU415I	DB2 PARAMETER SET TO FORCE BECAUSE SQLID WAS SPECIFIED.
-----------------	--

Explanation

The DB2 parameter was forced to FORCE for the following reason: a request was made to change the CURRENT SQLID.

User response

No action is required

Return Code

0

INZU416E	THE SQLID KEYWORD AND THE DB2 YES OR DB2 NO OPTIONS ARE INCOMPATIBLE
-----------------	---

Explanation

The SQLID keyword cannot be specified with DB2 YES or DB2 NO. To specify an SQLID, both DB2 FORCE and the SQLID keyword must be specified.

User response

Remove the undesired SQLID option or specify DB2 FORCE in the SYSIN.

Return Code

8

INZU417I	IMAGE COPIES PRIOR TO BRA rba CANNOT BE USED FOR UNLOADING database.tablespace
-----------------	---

Explanation

This message informs that a line describing a DROP COLUMN materialization is found for the tablespace. Image COPY created with a smaller rba value cannot be used for UNLOAD. Database, tablespace and RBA are those that are printed in the Db2 message DSNU556I when trying to do a recover with a too old image copy.

User response

If the message INZU042E is also issued, look at the explanation for this message.

Return Code

None

INZU418E	THE POSITION OF A LOB/XML COLUMN IN THE SELECT LIST-OF-COLUMNS/* IS INCOMPATIBLE WITH SPANNED YES OPTION, PROCESS CANNOT CONTINUE BECAUSE ENFORCE_COLUMN_ORDER YES WAS SPECIFIED.
-----------------	--

Explanation

The SPANNED YES option was requested. This option requires the LOB or XML data to be placed at the end of the result table (defined by the column list of the SELECT clause and by the optional INTO clause). As some LOB or XML columns positions do not meet this requirement, the unload can only be processed if ENFORCE_COLUMN_ORDER NO which allows Db2 HPU to rearrange the columns of the result table. As ENFORCE_COLUMN_ORDER YES applies to the unload in progress, the processing stops.

If INZU417I message has been previously issued, see the related explanation for more details on the origin of the issue.

User response

Use the value NO of the parameter ENFORCE_COLUMN_ORDER, or change the order of selected columns so that the LOB/XML columns are the last columns of the SELECT statement.

Return Code

8

INZU419I	THE POSITION OF A LOB/XML COLUMN IN THE SELECT <i>columnlist</i> IS INCOMPATIBLE WITH SPANNED YES OPTION, COLUMNS WERE REORDERED BECAUSE ENFORCE_COLUMN_ORDER NO WAS SPECIFIED.
-----------------	--

Explanation

The SPANNED YES option was requested. This option requires the LOB or XML data to be placed at the end of the result table (defined by the column list of the SELECT clause and by the optional INTO clause). As some LOB or XML columns positions do not meet this requirement and ENFORCE_COLUMN_ORDER NO applies to the unload in progress, Db2 HPU rearranges the columns of the result table to allow the unload to be processed.

User response

None

Return Code

0

INZU420I	SPANNED YES OPTION APPLIES TO SELECT STARTING AT (x,x) ENDING AT (x,x). OUTPUT FILE HAS RECFM VBS.
-----------------	---

Explanation

As the SPANNED YES option is specified for a logical unload (SELECT clause) which result table has LOB data columns, the mandatory VBS RECFM is needed for the OUTDDN output data set. Further processing will make sure this requirement is fulfilled.

User response

None

Return Code

0

INZU421W	SPANNED YES AT POS (x,x) WILL BE IGNORED BECAUSE THERE IS NO LOB DATA TO BE UNLOADED IN SPANNED FORMAT
-----------------	---

Explanation

The SPANNED YES option is specified for a logical unload which result table has no LOB data. SPANNED YES does not apply in such a case and is therefore ignored.

User response

Consider removing the SPANNED YES option of you actually do not mean to unload any LOB data.

Return Code

4

INZU422E	THE FORMAT REQUESTED FOR THE LAST SELECTED COLUMN, WHICH IS NOT A LOB OR AN XML, IS NOT COMPATIBLE WITH THE SPANNED YES OPTION.
-----------------	--

Explanation

The requested format prevents from unloading data with the SPANNED YES option (i.e. into a SPANNED file).

User response

Select one of the formats supported when SPANNED YES option is requested or remove the SPANNED YES option of it is not intended.

Return Code

8

INZU423I	SPANNED YES AT POS (x,y) WILL BE IGNORED BECAUSE OF clause.
-----------------	--

Explanation

This message informs that the requested clause (ex. FORMAT DELIMITED) is not compatible with the SPANNED YES option. As SPANNED option was

specified at the GLOBAL level, it is ignored. The place of the clause indicated by this message is given by an immediately preceding INZU010I message.

User response

None

Return Code:

0

INZU424E	SPANNED YES AT POS (x,y) IS INCOMPATIBLE WITH clause
-----------------	---

Explanation

The requested clause (ex. FORMAT DELIMITED) is not compatible with the SPANNED YES option. As the SPANNED option was not specified at the GLOBAL level, the ambiguous request cannot be performed. The place of the clause indicated by this message is given by an immediately preceding INZU010I message.

User response

Either remove the SPANNED YES option or do not specify the mentioned clause.

Return Code

8

INZU425E	AT POS (x,x) failure-cause WHEN SPANNED YES OPTION IS SPECIFIED
-----------------	--

Explanation

A situation prevents a logical unload with the SPANNED YES option to be performed.

The failure cause can be one of the following:

1. HFS FILE NOT ALLOWED: The OUTDDN file allocation (either via JCL DD card of TEMPLATE) HFS file.
2. CCSID CONVERSION NOT ALLOWED FOR LOB/XML COLUMN: the unload command requires a CCSID conversion for a LOB or XML column
3. MORE THAN ONE XML COLUMN OR XML COLUMN AND LOB COLUMN NOT SUPPORTED. XML data can be unloaded into a spanned output dataset only if a single XML column and no LOB column must also be unloaded into the spanned output dataset.
4. OUTFREQROWS NOT ALLOWED FOR SELECT PROCESSED BY DB2
5. SORT EXTERNAL NOT ALLOWED

- 6. USE OF BOTH LENGHT REAL AND LENGTHBYTE NO NOT ALLOWED
- 7. MULTI-BYTES LENGTH INDICATOR NOT ALLOWED

User response

Consider removing the cause of the failure or the SPANNED YES option.

- 1. do not allocate the OUTDDN file as an HFS file
- 2. remove the CCSID conversion request that affects the LOB or XML columns
- 3. specify a REFORMAT or an INTO clause for XML columns to unload XML data as LOBFILEs so that not more than one XML column is unloaded into the spanned output dataset.
- 4. remove the UTFREQROWS option
- 5. remove the SORT EXTERNAL option
- 6. remove either the LENGTH REAL or the LENGTHBYTE NO option
- 7. specify a one-byte NULL indicator field

Return Code

8

INZU426E	SPANNED DATASET <i>dsname</i> CANNOT BE USED TWICE FOR SELECT STARTING AT (<i>x,x</i>) ENDING AT (<i>x,x</i>) AND SELECT STARTING AT (<i>x,x</i>) ENDING AT (<i>x,x</i>)
-----------------	---

User response

A dataset used as the output of a logical unload (i.e. a SELECT statement) specifying the SPANNED option is also specified at the output dataset for another logical unload. This is forbidden as a spanned dataset cannot be shared by two unloads. A separate dataset must be specified for each dataset to be written in spanned format.

User response

Specify distincts ouput datasets

Return Code

8

INZU427I	LOAD OPTIONS <i>options</i> IS TRANSFORMED INTO A COMMENT BECAUSE ITS DISALLOWED BY DB2 WHEN OPTION SPANNED YES IS USED.
-----------------	---

Explanation

A LOADOPT clause was specified for an unload request which output is to be written in SPANNED format. The mentioned option specified by the LOADOPT is not supported by the Db2 LOAD utility when the data to be loaded is a file with RECFM=VBS (spanned file). This incompatible option was transformed into a comment in the generated LOAD command.

User response

None

Return Code

None

INZU428E	THE UNLOAD COMMAND, INCLUDING SELECT STARTING <i>position</i>, REQUESTS TO UNLOAD THE LOB COLUMN <i>column name</i> INTO INCOMPATIBLE OUTPUT FORMATS.
-----------------	--

Explanation

At least two logical unloads from a single UNLAD command request the same LOB column be unloaded in spanned instream format on one hand and in a different format on the other hand (i.e. non-spanned in-stream or LOB file).

User response

Separate the two conflicting logical unloads into two distinct UNLOAD commands.

Return Code

8

INZU429E	XMLSET ERROR: INVALID VARIABLE/STRING - <i>string</i> - IN XMLTAG DEFINITION
-----------------	---

Explanation

An invalid variable or string is used to define an XML tag.

Operator response

None

System programmer response

Check XML tag definition.

Return Code:

INZU430E **XMLSET ERROR: DUPLICATED
DEFINITION OF VARIABLE - string**
-

Explanation

An XMLSET variable is duplicated

Operator response

None

System programmer response

Check XMLSET option.

Return Code

8

INZU431E **XMLSET ERROR: VARIABLE string
HAS NO VALUE**

Explanation

A XML variable in XMLSET statement cannot be substituted.

Operator response

Check XMLSET statement.

System programmer response

None

Return Code:

8

INZU432E **XMLSET ERROR: EMPTY TAG FOR
string VARIABLE**

Explanation

The resulting XML tag in XMLSET statement is empty.

User response

Correct the XMLSET statement.

Return Code

8

INZU433E **ERROR: CLAUSE INTO IS NOT
ALLOWED WITH FORMAT XML**

Explanation

Unload plus does not allow INTO clause with FORMAT XML.

User response

Remove the INTO clause or choose another format.

Return Code

8

INZU434E **XMLSET ERROR: INVALID
VARIABLE - string -**

Explanation

An invalid variable is used in XMLSET statement. Allowed variables are COLUMN, RECORD

User response

Correct the XMLSET options.

Return Code

8

INZU435E **NON LOB DATA ARE TOO LONG
TO BE UNLOADED IN SPANNED
FORMAT**

Explanation

The length of non-LOB data exceeds the maximum supported value. This mainly occurs when unloading data from table in 32 kB page table spaces, or when a LOB column is converted into the VARCHAR data type

User response

Consider one or more of the following options to reduce the length of the non-LOB data:

- Reduce the length of larger columns by specifying a smaller length (if the USER format is used or by adding an INTO clause).
- Use the SUBST() SQL scalar function
- unload only the necessary columns

Return Code

8

INZU437E **ALL TABLE ARE NOT IN SAME
TABLESPACE**

Explanation

An IBM UNLOAD statement involving tables belonging to distinct table spaces was verified, which is not allowed. When an IBM UNLOAD statement is specified, all involved tables must belong to the same table space.

Action

Consider splitting up the unload statement into separate statements involving only tables from the same table space.

Return Code

8

INZU439W	MULTI ROW FETCH (<i>rows number</i>) HAS BEEN FORCED DUE TO QUERY ACCELERATION REQUEST.
-----------------	--

User response

The QUERY_ACCELERATION parameter is specified with a value different from NONE and the UNLEOWSET or its default VUU035/UNLROWSET is set to 1. In this case, the multi-row fetch mode is forced with the number of rows (*rows number*) specified in the message.

User response

Consider specifying ULROWSET to the value mentioned in the message if you do not want the warning message and its related return code 4 be issued.

Return Code:

4

INZU440W	QUERY ACCELERATION IGNORED IN THE CURRENT DB2 VERSION
-----------------	--

Explanation

The QUERY_ACCELERATION parameter is specified but it is ignored because the current Db2 version is prior to V10 NFM.

User response

Consider removing the QUERY_ACCELERATION option if you do not want the warning message and its related return code 4 be issued.

Return Code

4

INZU441I	PART OPTION IS IGNORED AS A DATA-UNLOAD PROCESS USE SQL MODE
-----------------	---

Explanation

The PART keyword is specified but as the request is processed by SQL, the keyword is ignored.

User response

Remove the PART keyword.

Return Code

None

.

INZU442E	OPTION <i>option</i> IS NOT SUPPORTED BY THE UTILITY
-----------------	---

Explanation

An UNLOAD statement with either the IBM UNLOAD or FASTUNLOAD or UNLOAD PLUS syntax was specified and an option incompatible with this syntax was specified. Db2 HPU stops as it cannot process the ambiguous statement.

Action

Remove the unsupported option from the unload statement.

Return Code

8

INZU443I	SELECT <i>sequential_number</i> STARTING AT <i>POSline</i>, <i>column</i>)FOR TABLE <i>tname</i>
-----------------	---

Explanation

This message is issued before other messages to identify to which part of the statement the subsequent messages refer to. The *sequential_number* is sequence number of the SELECT statement in the UNLOAD statement.

Action

None

.

Return Code

0

**INZU445E FORMAT DELIMITED REQUIRES
ONE AND ONLY ONE FROM TABLE**

System action:

An IBM UNLOAD statement requesting output data in DELIMITED format has been specified. The statement cannot be processed because the unload statement involves several tables, which is incompatible with the IBM UNLOAD DELIMITED format. With the IBM UNLOAD DELIMITED format, only one table can be unloaded at a time.

Action:

Consider splitting up the unload statement into separate statements involving only one table.

Return Code

8

**INZU447E AN ERROR OCCURRED DURING
UNLOAD PROCESSING - REFER
TO PREVIOUS EXPLANATION
MESSAGES**

Explanation

An error occurred while unloading the data. The error usually affects only some of the records to be processed. More details about the error is given by previous messages that may be

- either INZnnnx messages
- or messages formatted as follows: "*reason code* brief-root-cause affected-column data-value". The explanation of these reason codes are given below:
 - 221: DATA TRUNCATION: formatting the data led to data truncation
 - 222: CONVERSION ERROR: the requested data type conversion cannot be performed as the converted value is not compliant with the target data type. For example, the conversion from a INTEGER data into a SMALLINT data is requested but the INTEGER column contains values larger than the maximum value of a SMALLINT data.
 - 226: CONVERSION ROUTINE ERROR: an error occurred while performing the requested or implied CCSID conversion.
 - 227: EXPRESSION EVALUATION ERROR: an error occurred when evaluation a scalar function (SQL expression ?) involving the indicated column
 - 234: DATA LOST: the formatting of the data implied significant data loss.
 - 250: OPTIMIZATION NOT ALLOWED: the optimized algorithm applicable when non nullable string output fields CCSID must be converted could not performed because the related

requirement, i.e. that source data does not contain any '0x00' bytes, was not fulfilled.

- 260 : DATE / TIME EXIT ERROR : the call of a DATE or TIME exit required to get the internal value of a DATE or TIME data returned an error code

User response

Determine the root cause of the issue and consider the solution

- indicated by the INZnnnx message if any
- indicated below if a *reason code* brief-root-cause message was issued :
 - 221: DATA TRUNCATION: change the unload request if the data truncation is undesirable or allow the data truncation if desired either by specifying the relevant value for
 - the parmlib variable VUU067/UCLNVTRC that applies to any unload syntax
 - the CONVERSION_TRUNCATION_ALLOWED option of the Db2 HPU native syntax
 - the TRUNCATE option of the Db2 UNLOAD utility
 - 222: CONVERSION ERROR: correct the unload statement not to request such an unsupported data type conversion
 - 226: CONVERSION ROUTINE ERROR: if the requested or implied CCSID conversion is desired, check the value of the source data and correct it if it does not have a value that can be converted from the source CCSID to the target one).
 - 227: EXPRESSION EVALUATION ERROR: check whether if the use of scalar function against the indicated column is intended. If so check why the indicated value is not supported by the scalar function and consider either to correct it or change the SQL expression to process the specific value differently. Consider running the unload in SQL mode to get more detailed explanation on the root cause.
 - 234: DATA LOST: change the unload request to avoid the data loss or, if it is acceptable, specify it through:
 - the parmlib variable VUUH71_LOSSCHAR that applies to any job and any unload syntax
 - the parmlib variable VUUH72_LOSSNUM that applies to any job and any unload syntax
 - the CHARACTER_LOSS option of the Db2 HPU native syntax
 - the NUMERIC_LOSS option of the Db2 HPU native syntax
 - 250: OPTIMIZATION NOT ALLOWED: if the '0x00' bytes in the data is a normal situation, specify

the OPTIM_LEVEL 0 in the GLOBAL option block to disable the optimized algorithm and solve the failure.

- 260: DATE / TIME EXIT ERROR : this issue might come from one of the following reasons:
 - the involved DATE/TIME data is invalid
 - the exit unduly returns an error for a valid data
 - the exit used by Db2 HPU is not the right one

The first two assumptions can be checked by running the involved SELECT statement through Db2. Check the third assumption by making sure the load module with the name of the involved DATE/TIME exit found in the first location of the list below, browsed in the sequence of the list, is the correct one:

- the first library of the list - may be a list with a single item - specified for the "DSNEXIT library" specified through Tools Customizer
- the library or concatenation of libraries allocated through the STEPLIB statement of the Db2 HPU step
- the library or concatenation of libraries allocated through the JOBLIB statement of the job the Db2 HPU step belongs to.
- the LINKLIST or LPA

The load module of the exit should be the same or be an exact copy of the load module used by Db2. If all three conditions are fulfilled, contact IBM technical support.

Return Code

8

INZU448E	SECOND OR THIRD ARGUMENT OF SUBSTR OUT OF RANGE
-----------------	--

Explanation

An error was encountered during the SELECT/WHERE clause evaluation. The line concerned was discarded.

User response

Check the SELECT/WHERE clause, SUBSTR function.

Return Code

8

INZU449E	INVALID FILED NAME <i>name</i> FOR CONSTANT
-----------------	--

System action

An IBM UNLOAD statement that selects a constant named with the same name as the name of a column from the unloaded table was specified. This is not supported.

Action

Consider naming the constant with a different name.

Return Code

8

INZU449W	OPTION <i>option</i> IS NOT SUPPORTED BY THE UTILITY
-----------------	---

Explanation

An unload statement with either the IBM ULOAD or FASTUNLOAD or UNLOAD PLUS syntax was specified and an option incompatible with the chosen syntax was specified. The unexpected option is ignored.

Action

Consider removing the unexpected option to get a return code 0.

Return Code

4

INZU450I	THE IMAGE COPY USED TO UNLOAD THE TABLE <i>table name</i> CONTAINS DATA FROM SEVERAL TABLES AND ORIGINOBID 0 WAS SPECIFIED. THIS AMBIGUOUS REQUEST CAN LEAD TO UNPREDICTABLE RESULTS. CHECK THE OBID REPORT GENERATED IN SYSPRINT AND SPECIFY THE OBID OF THE TABLE TO BE UNLOADED.
-----------------	--

Explanation

A request to unload the data from an image copy has been done. Db2 HPU has detected that the image copy contains the data of several tables. As ORIGINOBID 0 has been specified, Db2 HPU unload the data from the first table encountered while reading the image copy. As this first table might not be the relevant one, this might lead to unpredictable results. Specifying an explicit value for ORIGINOBID is strongly recommended. In this case, Db2 HPU issues an OBID report which list the OBID of the tables contained in the image copy.

User response

Specify the obid of the table to be unloaded.

Return Code

0

INZU451E	OPTION FORMAT INTERNAL IS NOT VALID WHEN USED WITH MORE THAN ONE TABLE IN THE SAME DATASET.
-----------------	--

Explanation

Unloading data from several SELECT statements in INTERNAL format was requested. As the LOAD utility can only load the data from a single table, merging output from several SELECT statements is not allowed

Return Code

8

Action

Specify separated output data sets.

INZU452E	LOGICAL RECORD LENGTH OF OUTPUT RECORD EXCEEDED THE LIMIT FOR TABLE <i>table_name</i>
-----------------	--

System action

An IBM UNLOAD statement has been specified and the output record exceeds the maximal output record length.

Action

The unload request is not supported as is. To circumvent the size limit issue, consider the following changes according to the context:

- with an inline LOB unload, use the SPANNED option ;
- if the table has varchar columns unloaded, with their maximum size, try to unload the varchar data on their actual size. This might solve the issue especially if the varcolumns are significantly oversized.

Return Code

8

INZU454I	MAXERR IGNORED FOR <i>control_type</i> LOSS CONTROL AS REJECT MODE HAS BEEN REQUESTED.
-----------------	---

Explanation

As data loss control for the indicated control type (CHARACTER or NUMERIC) is processed in REJECT mode (see VUU071/LOSSCHAR or VUU072/LOSSNUM in parmlib or LOSSCHAR or LOSSNUM in SYSIN), the MAXERR option specified in SYSIN is ignored. This parameter is only relevant in WARNING mode.

User response

none

Return code

0

INZU463E	ERROR WHEN GENERATING THE CREATE TABLE STATEMENT OF THE TABLE : <i>creator.table</i> RETURN CODE : <i>rc</i> REASON CODE : <i>reason</i> SQLCODE : <i>sqlcode</i>
-----------------	--

Explanation

An error occurred when generating the CREATE TABLE statement requested by the LOADDDL TABLE option.

User response

If the SQLCODE is -805, check that the Db2 HPU BIND job, i.e. corresponding to the INZBIND template, has been run successfully for the Db2 subsystem or data sharing group involved. For any other situation, contact IBM Software Support.

Return Code

8

INZU464W	NO CREATE TABLE STATEMENT HAS BEEN GENERATED FOR SELECT <i>number</i> AS THE NAME OF THE TABLE HAS NOT BEEN IDENTIFIED
-----------------	---

Explanation

The CREATE TABLE statement requested by the LOADDDL TABLE option was not written into the LOADDDN data set because the name of the table has not been identified. The LOADDDL TABLE does not support this situation. The unload process continues and the LOADDDN data set contains the LOAD statement only. This is the case when the unload is processed in SQL mode and the table description has not been obtained from the Db2 catalog.

User response

If the SQL statement is supported in native mode, specify DB2 NO to get the LOADDDL TABLE option be processed successfully. Otherwise, consider removing the LOADDDL TABLE option to prevent this message from being issued.

Return Code

4

INZU465W NO CREATE TABLE STATEMENT HAS BEEN GENERATED FOR SELECT *number* AS THE TYPE OF THE TABLE *creator.table name* IS NOT SUPPORTED.

Explanation

The CREATE TABLE statement requested by the LOADDDL TABLE option was not written into the LOADDDN data set because the type of the table is not supported. The unload process continues and the LOADDDN data set contains the LOAD statement only.

User response

Check if the Db2 object involved in the unload is an actual table, i.e. created by a CREATE TABLE statement. You can check this in the Db2 catalog after the table has been created. For such a table, the value of the TYPE column from the SYSIBM.SYSTABLES catalog table is 'T'. If this is not the case, rewrite the SELECT statement to use an actual table instead of a view or an alias or any other object. If rewriting the SELECT statement is not possible, remove the LOADDDL TABLE option to prevent this message from being issued.

Return Code

4

INZU469E LIBRARY *library_name* IS EMPTY

Explanation

Db2 HPU needed to get from the library *library_name* the mandatory definition of:

- case 1) either a LISTDEF name mentioned by a FROM LIST(*listdef_name*) clause
- case 2) or the "ddname" specified by an OUTDDN(*ddname*), UNLDDN(*ddname*) or "COPYDDN *ddname*" option

as this definition was not provided by any other mean listed hereafter:

- case 1) a LISTDEF option in the unload command
- case 2) either of the following:
 - a DD statement
 - a TEMPLATE statement in the unload command

and the indicated library specified as:

- case 1) either a LISTDEF library (LISTDEFDD *library_name* option or allocated under the SYSLISTD *ddname*)
- case 2) or a TEMPLATE library (TEMPLATEDD *library_name* option or allocated under the SYSTEMPL *ddname*)

is the ultimate place - in the order of precedence - where the required definition can be provided.

As the indicated library is empty, the mandatory definition of the LISTDEF name or *ddname* is not available which prevents the processing to continue.

User response

Make sure to provide the missing definition:

- case 1) of the concerned LISTDEF name
- case 2) of the concerned *ddname*

either through the library indicated by the message if its emptiness is not intended or by any other mean.

Return Code

8

INZU469W LIBRARY *library_name* IS EMPTY

Explanation

This message indicates that the library *library_name* specified as a LISTDEF (LISTDEFDD *library_name* option) or TEMPLATE library (TEMPLATEDD *library_name* option) is empty. However, the unload continued because this error did not prevent to find the definition of either of the following:

- the list-name referred to by a SELECT FROM LIST (*list-name*) clause.
- any mandatory DDname (i.e., specified either by the OUTDDN, UNLDDN or COPYDDN option) not allocated by a DD statement.

If the error prevented to find the definition of a non mandatory DDname (e.g. specified by the LOADDDN option), the related dataset was not written.

User response

Consider removing the useless LISTDEF library if any. Search for previous messages to check if the

production of any optional output dataset was aborted and provide a non empty TEMPLATE library to define the optional ddname in question.

Return Code

4

INZU474I **DATA TYPE FOR TARGET COLUMN *column-name* NOT SPECIFIED BY THE COLUMN-LEVEL FORMATTING REQUEST, DEFAULT TYPE *type-name* APPLIES.**

Explanation

A logical unload requests column-level formatting (e.g. an INTO clause or the USER format option) but does not specify any output data type for the mentioned column of the resulting table. Therefore, the indicated default data type is assumed as an output data type for this column, according to the rules applicable to the mentioned reformatting feature (INTO clause or USER format). This default data type is determined by the SQL rules that apply to the SQL expression that describes the column of the resulting table.

User response

none

Return code

0

INZU475E **FLASH COPY DATASET MUST BE ALLOCATED FOR EACH UNLOADED PARTITION**

Explanation

COPYDDN ddname FLASHCOPY was specified for an unload involving a partitioned table space and the required Flash image copy data set of at least one partition is not allocated.

User response

Allocate a FlashCopy data set for each partition to unload if FlashCopy data set are to be used and remove the type FLASHCOPY option from the COPYDDN option otherwise.

Return Code

8

INZU476I **PARALLELISM ACTIVATED FOR PARTITION PROCESSING.**

MAXIMUM DEGREE OF PARALLELISM IS LIMITED TO *n* BY ZIIPMXPL PARAMETER.

Explanation

The processing of partitions/LDS is done with parallelism and the related tasks are offloaded to zIIP processors. The maximum degree of parallelism for LDS reading tasks is limited by the parmlib parameter VUX042/ZIIPMXPL or by its counterpart ZIIPMXPL option from the Technical Parameters options block.

User response

No action is required.

Return code

0

INZU478I **ATTRIBUTES '*attributes-list*' HAS BEEN ADDED TO THE DB2 STATEMENT**

Explanation

A logical unload has been processed in SQL mode. Any involved SQL SELECT statement has been submitted to Db2 with the indicated attributes.

User response

No action is needed. Take this information into account for analysis and fine tuning of the Db2 performance.

Return code

0

INZU479I **MULTI-ROW FETCH READ ACTIVATED WITH *nb-rows* ROWS PER FETCH.**

Explanation

A logical unload has been processed in SQL mode. The involved SQL SELECT statement has been submitted to Db2 with the multi-row fetch feature put into action with the number of rows per fetch as indicated. The number of rows per fetch is driven by either the UNLROWSET option from the OPTIONS block or by the VUU035/ULROWSET parmlib parameter

User response

No action is needed. Take this information into account for analysis and fine tuning of the Db2 performance.

Return code

0

**INZU480I MONO-ROW FETCH READ
ACTIVATED.****Explanation**

A logical unload has been processed in SQL mode. The involved SQL SELECT statement has been submitted to Db2 with the single-row fetch feature as requested by either the UNLROWSET 1 option or the value 1 set for the VUU035/ULROWSET parameter.

User response

No action is needed. Take this information into account for analysis and fine tuning of the Db2 performance.

Return code

0

**INZU481I PART RANGE OPTIMIZATION
ENABLE FOR *dbname.tsname*****Explanation**

This message informs that OPTIMIZATION_PART_RANGE is set to YES and an attempt to reduce the set of partitions from the mentioned table space is made as at least one SELECT statement from a table belonging to this table space has a WHERE clause that might exclude some partitions. The optimization process is based on the output of an EXPLAIN PLAN statement.

User response

None

Return Code

0

**INZU484I THE VSAM DATA SET DOES
NOT EXIST FOR TABLE SPACE
*dbname.tsname*****Explanation**

Table space *dbname.tsname* was created with DEFINE NO, and Db2 has not defined the underlying LDS files. No rows are unloaded for this object.

User response

No action is required.

Return Code

None.

**INZU485I NUMBER OF PARTITIONS
SELECTED PASSED FROM *number*
TO *number* PARTITIONS TO READ:
*n1, n2, [n4 - n5]...*****Explanation**

When the option OPTIMIZE_PART_RANGE is set to YES, this message indicates that the SELECT statement specified by preceding INZU280I has been successfully optimized, i.e. the number of partitions that will be read has been decreased according to the specified WHERE clause. It indicates how many and which partitions remain selected for processing. The list of partitions consists in partition numbers and/or partition ranges ([Part_Start - Part_End]) separated by comas.

User response

None.

Return Code

0

**INZU486I NO OPTIMIZATION FOUND.
number_of_partitions PARTITIONS
KEPT****Explanation**

When option OPTIMIZE_PART_RANGE is set to YES, this message indicates that the analysis of the SELECT statement specified by INZU280I led to no optimization. The number of partitions to unload remains the same. Optimization may be disabled to avoid useless query.

User response

As the impossibility to optimize the query might change even if the related table data is updated, consider disabling the OPTIMIZE_PART_RANGE for this unload statement. As disabling this feature affects all the unload sysin, make sure this does not disable the actual optimization of another unload statement.

Return Code

0

**INZU487W PART RANGE OPTIMIZATION
FAILED FOR *dbname.tsname* OR
*creator.tablename***

Explanation

This message informs that OPTIMIZATION_PART_RANGE cannot be performed for the mentioned resource. This message specifies the tablespace or the table for which the EXPLAIN PLAN statement failed thus preventing the optimization from completing successfully. The reason may be an invalid userid (specified by parameter VUM035/EXPLNUSR) or the lack of the required EXPLAIN tables. The unload process continues with the OPTIMIZE_PART_RANGE feature disabled.

User response

Check if the VUM035/EXPLNUSR parmlib parameter is correctly set and if the specified userid has the necessary privilege to run the EXPLAIN PLAN statement. Check if the PLAN_TABLE and DSN_PGRANGE_TABLE exist.

Return Code

4

INZU488W	NO PARTITION TO UNLOAD, SELECT <i>select_number</i> IS CANCELED
-----------------	--

Explanation

When option OPTIMIZE_PART_RANGE is set to YES, this message indicates that the SELECT statement specified by INZU280I has been successfully optimized but the result of the optimization is that the WHERE clause predicates imply that no data would ever be returned by this statement regardless of the data of the involved tables. For example, this can occur if a non-sense trivial predicate such as $1 = 2$ is specified or if the combination of several non trivial predicates, such as $(x > 10 \text{ AND } x < 5)$ systematically returns no row.

User response

Correct the WHERE clause of the involved SELECT statement or remove it if it was non intentionally specified.

Return Code

4

INZU492W	WARNING: DATA FROM COLUMN <i>column</i> WAS TRUNCATED TO <i>n</i> BYTES FROM <i>m</i>
-----------------	--

Explanation

Data from a column has been truncated. Truncation occurs for instream BLOB, CLOB, and DBLOB data types to limit the record size to the maximum size allowable.

User response

To avoid truncation, use LOB file reference (datatype BLOBF, CLOBF, DBCLOBF) in a REFORMAT option, INTO clause, or USER FORMAT definition.

Return Code

4

INZU493W	WARNING: CLONE KEYWORD IGNORED : <i>text</i>
-----------------	---

Explanation

The CLONE keyword has been ignored. The CLONE keyword has no effect when the table space has no clone or when no physical unload (UNLDDN) is requested. The CLONE keyword is supported only for physical unloads. The text field might contain one of the following messages:

- THE TABLESPACE DOES NOT CONTAIN ANY CLONE TABLE
- ONLY SUPPORTED FOR PHYSICAL UNLOAD

To unload a CLONE table using a SELECT statement, specify the name of the CLONE table in the SELECT.

User response:

No action is required.

Return Code

4

INZU494E	ERROR: LOBFILE TYPE FOR COLUMN <i>colname</i> NOT ALLOWED
-----------------	--

Explanation

LOB file data types (CLOBF, DBCLOBF, BLOBF) are supported only for CLOB, DBCLOB, and BLOB columns. You cannot convert any other data type to a LOB file, and you cannot mix a LOB type with a non-corresponding LOB file type (for example you cannot convert a BLOB column into a CLOBF data type).

User response

Check the conversion that is specified in the INTO clause, the REFORMAT option of USER format

definition. Correct the invalid conversion, and resubmit the job.

Return Code

8

INZU495E	ERROR: INCORRECT LOBFILE TEMPLATE <i>template name</i> FOR COLUMN <i>col</i>: MANDATORY VARIABLE MISSING. THE TEMPLATE MUST CONTAIN AT LEAST ONE OF THE FOLLOWING ITEMS <i>reason</i>.
-----------------	---

Explanation

A TEMPLATE statement is used to unload LOB data in a LOB file reference, but the DSN template does not contain either the &UNIQ or a user variable set to the :RECNUM predefined variable.

User response

Modify the TEMPLATE definition, and resubmit the job.

Return Code

8

INZU496E	ERROR: INCORRECT OUTPUT TYPE FOR COLUMN <i>colname</i>. OUTPUT TYPE MUST BE A CHAR OR VARCHAR LONG ENOUGH (<i>n</i> CAR.) TO CONTAIN LOB FILE NAME
-----------------	---

Explanation

A LOB file field (subtype BLOBF, CLOBF, or DBCLOBF) is either not a CHAR or VARCHAR, or is not long enough to contain the LOB file reference. This message indicates the required length, which corresponds to the maximum length of the TEMPLATE statement that was used in the LOB file specification, is indicated in the message.

User response

No action is required.

Return Code

8

INZU497E	ERROR: INCORRECT LOBFILE TEMPLATE <i>template name</i> FOR COLUMN <i>col</i>. VARIABLE &UNIQ OR USER DEFINED VARIABLE
-----------------	--

RECNUM BASED ON : MUST ONLY BE PART OF THE MEMBER NAME

Explanation

The syntax contains an invalid TEMPLATE specification for a LOB file data type. The &UNIQ variable or a user variable that is set to the :RECNUM predefined variable cannot be used in the name of the PDS. They should be used in the member name.

User response

Modify the template definition, and resubmit the job.

Return Code

8

INZU498E	ERROR: INCORRECT LOBFILE TEMPLATE <i>template name</i> FOR COLUMN <i>col</i>. VARIABLE &PA. &TSNAME. OR &SPACENAME. MUST BE PART OF THE DATASET NAME
-----------------	---

Explanation

The template is invalid for a LOBFILE: because a separate output file is used for each partition. The template that is used for LOB file reference should contain either the partition number (variable &PA.) or the space name (&TS. or &SN. variable).

User response

Modify the template definition, and resubmit the job.

Return Code

8

INZU499E	ERROR: INFORMATION WAS NOT FOUND IN THE <i>table_name</i> TABLE FOR THE FOLLOWING <i>column_type</i> COLUMN: <i>column_name</i>.
-----------------	---

Explanation

Db2 HPU did not find information in the specified catalog table for a LOB column or an XML column. The table name is SYSIBM.SYSAUXRELS for a LOB column and SYSIBM.SYSXMLRELS for an XML column.

User response

Determine if the definition of the unloaded object is complete. If the object definition is complete, contact IBM Software Support.

Return Code

8

INZU501E	ERROR: PARTITIONS CANNOT BE UNLOADED IN SEPARATE PDS MEMBERS
-----------------	---

Explanation

Unloading a partitioned table space in a PDS file with a separate member for each partition is not supported.

User response

Modify the template definition and resubmit the job.

Return Code

8

INZU502W	WARNING: DATA AFTER CONVERSION CAN BE TOO LONG FOR FIELD <i>column name</i>, TABLE <i>table name</i>
-----------------	---

Explanation

The size of the output field might be too short to contain the converted data when that data is converted in UTF8. As the data can be expand from one character to four characters, the target length must be equal or higher than the source length * 4.

User response

Accept the truncation or make one of the following changes:

- increase the length of the output field using a REFORMAT or INTO specification to get a target length equal to the source length * 4
- specify UNICODE_EXPANSION_RATIO 4 or set the VUU068/ULUNIEXP parmlib parameter to 4 to automatically resize the output length. Be aware that the latter has an impact of any Db2 HPU job that involves an encoding conversion into UTF8.

Return Code

4

INZU503E	ERROR: 'ORDER BY' ON LOB OR XML COLUMN IS NOT SUPPORTED
-----------------	--

Explanation

You cannot sort output data using an LOB or XML column as sort criteria.

User response

Modify the SYSIN and resubmit the job.

Return Code

8

INZU504I	INFORMATION : COLUMN TYPE <i>type</i> IS NOT SUPPORTED NATIVELY
-----------------	--

Explanation

A SELECT statement included a column type that Db2 HPU cannot natively unload. If DB2 YES is also specified, the SELECT statement is processed using SQL access.

User response

No action is required.

Return Code

0

INZU505E	ERROR: SORT SIZE CANNOT BE ESTIMATED FOR SELECT STARTING AT POS (<i>n,n</i>)YOU MUST SPECIFY THE ESTIMATED NUMBER OF ROWS TO BE SORTED INSTEAD OF 'VSAMSIZE' KEYWORD
-----------------	---

Explanation

Db2 HPU cannot estimate the number of rows to be sorted because of the characteristics of the SELECT statement. The VSAMSIZE keyword is accepted only with natively supported SELECT statements that are processed in DB2 FORCE.

User response

Specify the SORT size parameter of the SORT SYSIN KEYWORD or modify the SELECT statement.

Return Code

8

INZU506W	WARNING: EXTERNAL SORT CANNOT BE PROCESSED FOR SELECT STARTING AT POS (<i>n,n</i>)THE COLUMN (<i>column name</i>) OF THE 'ORDER BY' CLAUSE CANNOT BE FOUND IN THE SELECTED COLUMNS
-----------------	---

Explanation

External sort is not supported because a column that was specified in the ORDER BY clause is not in the list of selected columns.

User response

The SORT is processed internally by Db2.

Return Code

4

INZU507I	HIDDEN OPTION IGNORED FOR SELECT PROCESSED BY DB2 STARTING AT POS (n,n)
-----------------	--

Explanation

The hidden columns cannot be unloaded when the SELECT statement is processed by Db2. The HIDDEN option is ignored.

User response

No action is required.

Return Code

0

INZU508I	TABLE <i>creator name</i> HAS BEEN LOCKED IN SHARE MODE DURING UNLOAD PROCESS [LIMITED TO UNLOADED PARTITIONS]
-----------------	---

Explanation

The LOCK YES parameter changed the access to the specified table. The text "LIMITED TO UNLOADED PARTITIONS" is indicated when the lock was performed only for a subset of partitions of the involved table space

User response

No action is required.

Return Code

0

INZU509W	UNIT NAME SPECIFIED IN TEMPLATE <i>templatename</i> IS IGNORED WHEN USING LOB FILE REFERENCE VARIABLES IN SQL
-----------------	--

Explanation

The TEMPLATE definition for *templatename* specifies a UNIT name. This template is used to generate a LOB file reference by using a file reference variable that is processed by Db2. In such a case, the UNIT name is not used to create the file that is pointed to by the file reference. To create the file on a specific unit, use DFSMS ACS routines to assign a unit name based on the dsname of the output file.

User response

Modify the TEMPLATE definition and resubmit the job.

Return Code

4

INZU510W	WARNING: EXTERNAL SORT CANNOT BE PROCESSED FOR SELECT STARTING AT POS (line, col)SORT KEY EXCEEDS 4088 BYTES LENGTH
-----------------	--

Explanation

An ORDER BY clause with a sort key that is longer than 4088 bytes was specified in a SELECT statement. SORT EXTERNAL is ignored and the SORT is processed by Db2.

User response:

No action is required.

Return Code

4

INZU511W	WARNING: EXTERNAL SORT CANNOT BE PROCESSED FOR SELECT STARTING AT POS (line, col)THE ORDER BY CLAUSE CONTAINS AN EXPRESSION
-----------------	--

Explanation

SORT(EXTERNAL) is ignored and the ORDER BY clause is processed by Db2.

Return Code

4

INZU512I	INFORMATION: IN SELECT STARTING AT POS(line, col), SORT(EXTERNAL) OPTION IS SET BY UTILITY TO PERFORM ORDER BY
-----------------	---

Explanation

The utility set the SORT(EXTERNAL) option to ORDER BY a SELECT statement because an SQL-partitioned UNLOAD with an ORDER BY statement is performed in a single output file. The SORT(EXTERNAL) option allows sorting data after SQL unloads partitions.

User response

No action is required.

Return Code

None.

INZU513E	ERROR: 'IFERROR NULL' CANNOT BE SPECIFIED FOR THE COLUMN <i>name</i>. THERE IS NO NULL INDICATOR IN THE OUTPUT FILE FOR THIS COLUMN
-----------------	--

Explanation

A column format option that specifies IFERROR NULL is defined for an output field that does not contain a null-byte indicator.

User response

Either specify NULLBYTE YES to force the null-byte indicator, or specify a different value in the IFERROR option.

Return Code

8

INZU515E	ERROR: EXPRESSION WITH DECFLOAT DATA CANNOT BE NATIVELY PROCESSED WITHOUT DECIMAL-FLOATING-POINT FACILITY HARDWARE
-----------------	---

Explanation

An expression that uses a DECFLOAT operand cannot be processed natively by Db2 HPU because the Decimal-Floating-Point Facility is not available on the current processor.

User response

Modify the expression in the SELECT statement to allow native processing by Db2 HPU, or specify DB2 FORCE to use Db2 processing.

Reason Code

8

INZU516E	NO CONSISTENT (SAME RBA) FULL IMAGE COPY FOUND FOR EACH REQUESTED PARTITION OF THE TABLE SPACE <i>dbname.tsname</i>
-----------------	--

Explanation

The CONSISTENT keyword was used, but Db2 HPU did not find consistent input full image copies for the unloaded partitions.

User response

If a consistent image copy is not necessary, remove the CONSISTENT keyword. If a consistent input image copy is necessary, contact your DBA to ensure that such copies are created for the unloaded object. If you suspect a problem in Db2 HPU, contact IBM Software Support.

Return Code

8

INZU517E	NO FULL IMAGE COPY FOUND FOR EACH REQUESTED PARTITION OF THE TABLE SPACE <i>dbname.tsname</i>
-----------------	--

Explanation

The PARTITIONED keyword was used, but Db2 HPU could not find a partitioned full image copy for each unloaded partition.

User response

Ensure that a copy data set is available for each partition to be unloaded, or remove the PARTITIONED keyword from the UNLOAD statement, if unloading from a global image copy is appropriate.

Return Code

8

INZU518E	THE <i>template_name</i> XML TEMPLATE FOR THE <i>column_name</i> COLUMN IS INCORRECT. THE &PA. VARIABLE MUST BE PART OF THE PDS OR THE LIBRARY NAME.
-----------------	---

Explanation

When XML data is natively unloaded from a partitioned table space in a PDS or PDSE, the template definition

must contain the &PA. variable. When XML data is unloaded by using Db2 (DB2 FORCE), &PA. is not required.

User response

Correct the template definition, and rerun the job.

Return Code

8

INZU519E *datatype* **FORMAT format-string**
CONTAINS AN INVALID ELEMENT:
element

Explanation

The requested format contains an invalid element. The allowed elements are:

- for DATE type: DD, MO, YY, YYYY
- for TIME type: HH, MI, SS
- for TIMESTAMP type: DD, MO, YY, YYYY, HH, MI, SS, NN, NNNN, NNNNNN

User response

Remove the irrelevant element from the format.

Return Code

8

INZU520E **MM ELEMENT IS INVALID, PLEASE**
USE MO FOR MONTHS OR MI FOR
MINUTES

Explanation

The MM element is not accepted to avoid misunderstandings, since it can stand for either months or minutes.

User response

Replace MM by MO for month or MI for minutes according to your need.

Return Code

8

INZU521E *datatype* **FORMAT format-string**
MUST BEGIN WITH A VALID
ELEMENT: element_list

Explanation

The format does not start with a correct element. The allowed elements are:

- for DATE type: DD, MO, YY, YYYY
- for TIME type: HH, MI, SS
- for TIMESTAMP type: DD, MO, YY, YYYY, HH, MI, SS, NN, NNNN, NNNNNN

User response

Correct the format.

Return Code

8

INZU522E *element* **ELEMENT CAN BE USED**
ONLY ONCE.

Explanation

A format-string contains the indicated element more than once, which is not allowed.

User response

Correct the format by removing any duplicate of the indicated element from the format string.

Return Code

8

INZU523I **PARALLELISM ACTIVATED FOR**
TABLESPACE PROCESSING.
MAXIMUM DEGREE OF
PARALLELISM IS LIMITED TO *n* BY
ZIIPMXPU PARAMETER.

Explanation

The processing of table spaces is done with parallelism and the related tasks are offloaded to zIIP processors. The maximum degree of parallelism for unloaded tasks is limited by the VUX043/ZIIPMXPU parmlib parameter or by its counterpart ZIIPMXPU option from the Technical Parameters options block.

User response

No action is required.

Return Code

0

INZU529W **APPLCOMPAT *string* IS IGNORED FOR DB2 VERSION PREVIOUS TO V11 NFM.**

Explanation

The request to set the CURRENT APPLICATION COMPATIBILITY, either via the APPLCOMPAT option specified in the GLOBAL OPTIONS block or the VUM036/APPLCOMP parmlib parameter was ignored because it is not supported by the Db2 HPU is run against.

User response

Check if the unload statement makes sense and gives an acceptable result without the CURRENT APPLICATION COMPATIBILITY being supported. Modify your unload statement and/or your setting of VUM036/APPLCOMP accordingly.

Return Code

4

INZU530I **LOAD STATEMENT : INDDN FROM LOADOPT IGNORED BECAUSE OF LOADINDDN(YES).**

Explanation

This message indicates that both the LOADINDDN YES and INDDN options or parameters have been specified. In this case, only the LOADINDDN option is taken into account.

User response

If you want the INDDN load option to be processed, then you need to specify LOADINDDN NO in an option block of the unload statement.

Return Code

0

INZU531I **CHECK IF THE SEMICOLON REQUIRED AT THE END OF GLOBAL STATEMENT IS CORRECTLY LOCATED.**

Explanation

The terminating semicolon character of the GLOBAL statement might be missing.

User response

Check the global statement

Return Code

0

INZU532I **BIF_COMPATIBILITY SETTINGS : *native_mode_value* FOR NATIVE MODE AND *sql_mode_value* FOR SQL MODE AS A RESULT OF THE SETTING FOR BIF_COMPATIBILITY AND BIF_COMPATIBILITY_FROM_DB2_SETTINGS IN VUU030/ULOPTNS PARMLIB PARAMETER AND DB2 BIF_COMPATIBILITY SETTINGS**

Explanation

This message informs that the BIF COMPATIBILITY values used for native and SQL modes are different, which might lead the Db2 HPU output to be undesirably depending on the execution mode (SQL mode vs native mode). *native_mode_value* and the *sql_mode_value* can be either V9_DECIMAL_VARCHAR or CURRENT.

The mentioned value explains what the behavior for CHAR and VARCHAR function is in terms of equivalent settings of Db2 BIF_COMPATIBILITY parameter. The indicated situation results from the settings of the following parameters:

- for the native mode, the Db2 HPU BIF_COMPATIBILITY and Db2 HPU BIF_COMPATIBILITY_FROM_DB2_SETTINGS subparameters of the Db2 HPU parmlib parameter VUU030/ULOPTNS
- for the SQL mode, the Db2 BIF_COMPATIBILITY parameter of the concerned Db2 subsystem.

User response

Unless you have specific needs requiring the mentioned discrepancy between SQL and native modes, consider changing the value of some of the following parameters

- the Db2 HPU BIF_COMPATIBILITY or Db2 HPU BIF_COMPATIBILITY_FROM_DB2_SETTINGS subparameters of the Db2 HPU parmlib parameter VUU030/ULOPTNS to change the native mode behavior
- the Db2 BIF_COMPATIBILITY parameter of the concerned Db2 subsystem to change the SQL mode behavior For Db2 version V11 NFM and later, the most efficient way to ensure consistency is to set the Db2 HPU BIF_COMPATIBILITY_FROM_DB2_SETTINGS (V11_AND_LATER) in the parmlib parameter VUU030/ULOPTNS.

Return Code

0

INZU533I **SQL MODE - COMMON
PROCESSING: 'sql-statement'
STATEMENT EXECUTED.**

Explanation

At least one logical unload will be processed in SQL mode. Before submitting any SQL SELECT statement to Db2, the indicated statement has been executed.

User response

No specific action is required but this information can help understand how the SELECT statement will be processed by Db2 as the indicated SQL statement is meant to have an impact on the processing of the SELECT statement either in terms of performance or in terms of retrieved data.

Return Code

0

INZU534I **SQL MODE - SELECT #
select-number PROCESSING:
'sql-statement' STATEMENT
EXECUTED.**

Explanation

The indicated SQL statement has been run before the processing in SQL mode of the indicated SELECT statement.

User response

No specific action is required but this information can help understand how the SELECT statement will be processed by Db2 as the indicated SQL statement is meant to have an impact on the processing of the SELECT statement either in terms of performance or in terms of retrieved data.

Return Code

0

INZU535E **PARAMETER VUU024/UNLZLRC :
'RETURN CODE IF SELECT
STATEMENT RETRIEVES NO ROW'
(current-value1) MUST BE LOWER
THAN OR EQUAL TO 'RETURN
CODE IF ZERO ROW IS UNLOADED'
(current-value2)**

Explanation

The “Return code if SELECT statement retrieves no row (VUU024/UNLZLRC)” parmlib parameter was set to a value greater than the value specified for the “Return code if zero row is unloaded (VUU024/UNLZLRC)” parmlib parameter, which is not supported.

User response

Change the settings so that the value of the “Return code if SELECT statement retrieves no row (VUU024/UNLZLRC)” parmlib parameter is less or equal to the value specified for the “Return code if zero row is unloaded (VUU024/UNLZLRC)” parmlib parameter.

Return Code

8

INZU537E **TEMPLATE ERROR: TEMPLATE
template_base_name IS
INCOMPATIBLE WITH
alternate_template TEMPLATE**

Explanation

A base template and its alternate template specified through the LIMIT option are not compatible due to one of the following inconsistent situation:

- The data set name pattern for one of them includes the &PART variable while the other does not. This is not supported as the same policy concerning partitions, i.e. whether the data set name depends on the partition number or not, must apply to all the TEMPLATE statements chained via the LIMIT option.
- one of the TEMPLATE statement request stacking with the STACK YES option while the other TEMPLATE statement does not or explicitly specifies STACK NO.

User response

Change the TEMPLATE statements to solve the inconsistent situation and make sure:

- the data set name patterns of the indicated templates are consistent regarding the use of the &PART variable. To do so, either add the &PART variable to the data set name pattern that does not include it or remove it from the data set name pattern that includes it.
- the indicated TEMPLATE statements are consistent regarding the stacking.

Return Code

8

**INZU538I SWITCH TO THE ALTERNATE
FORMAT *alternate_format* FOR
THE SELECT # *select-number*
TABLESPACE *dbname.tsname***

Explanation:

FORMAT INTERNAL was specified along with the ALTERNATE FORMAT sub-option for a SELECT statement specifying a FROM LISTDEF clause. As the INTERNAL format is not suitable or supported for the indicated table space, the related data is unloaded in the indicated alternate format.

User response:

None. If you don't understand why the alternate format was chosen, search for preceding error messages (either INZU392E, INZU401E or INZU391E) that gives an explanation.

Return Code

0

**INZU539E ALTERNATE FORMAT IS ONLY
ALLOWED UNLOADING FROM
LISTDEF**

Explanation

The ALTERNATE FORMAT option is specified and the required FROM LIST clause is missing. As specifying two formats via the ALTERNATE FORMAT option does not make much sense for a SELECT statement specifying a FROM table_name clause, ALTERNATE FORMAT is allowed only if a FROM LIST clause is specified.

User response

Remove the ALTERNATE FORMAT option and replace the FORMAT INTERNAL specification by the format specified as an alternate format if the internal is not suitable for the single SELECT statement involved. If you want to take benefit from the run time determination of the relevant format for a single unload statement, replace the FROM table_name clause by a FROM LIST(listdef_name) clause with the name of a LISTDEF statement matching only the table to unload.

Return Code

8

**INZU540E ALTERNATE FORMAT IS ONLY
ALLOWED FOR INTERNAL FORMAT**

Explanation

ALTERNATE FORMAT was specified but the required FORMAT INTERNAL option is missing.

User response

Either specify FORMAT INTERNAL or remove the unintended ALTERNATE FORMAT option.

Return Code

8

**INZU541I DISPLAY OF IMPLICIT
PARAMETERS ACTIVATED IN DDN
ddname.**

Explanation

This message indicates that the values of the implicit parameters are written to the indicated ddname as requested by the value specified either by the VUU083/DISPPARM parmlib parameter or the SYSIN DISPLAY_PARMLIB option from the technical parameters options block.

User response

None

Return Code

0

**INZU542E FORMAT DELIMITED ERROR FOR
SELECT *select_number* STARTING
AT POS(*line,column*) MERGING
INCONSISTENT RECORDS WITH
OPTION TITLE ON INTO OUTPUT
DDN=*outdd* IS NOT ALLOWED**

Explanation

This message is issued when the indicated outdd output ddname for a SELECT statement in DELIMITED format with the TITLE ON option is merged with the output of another unload. This operation is not allowed.

User response

Remove the TITLE ON option from DELIMITED format block or specify an output dedicated to the unload with the TITLE ON option.

Return Code

8

INZU543W **TEMPLATE WARNING: IN
TEMPLATE *template_name* LIMIT
OPTION IS IGNORED FOR
*data_set_type***

Explanation

The LIMIT option of the indicated TEMPLATE statement was ignored as it is not supported for the data set type to be allocated. The data set types for which the LIMIT option of the TEMPLATE statements is not supported are:

- LOB file (LOB file reference)
- XML file (LOB file reference)
- LOAD control file (which generation is requested by the LOADDDN option).

User response

Remove the LIMIT option from the TEMPLATE statement if it is not used for other data sets for which the LIMIT option is supported. Otherwise, specify a specific TEMPLATE statement with no LIMIT option for the indicated data set type.

Return Code

4

INZU544W **THE OUTPUT FIELD WILL BE
EXPANDED WITH A RATIO OF *ratio*
AS REQUESTED BY THE SETTING
OF THE PARMLIB PARAMETER
VUU068/ULUNIEXP. THE OUTPUT
FIELD MIGHT NOT BE LONG
ENOUGH FOR FIELD *column-name*,
TABLE *table-name***

Explanation

This message indicates that the output length for the specified field has been expanded as requested by the parmlib parameter VUU068/ULUNIEXP to a size that can be too short to unload the converted data.

User response

If you are sure that the output length is large enough, no action is required. If you want to avoid the return code 4, set the UNICODE_EXPANSION_RATIO in the HPU command to the same value than the parmlib parameter VUU068/ULUNIEXP. If the output length is not suitable as truncation can occur, set the expansion ratio to 4, either setting the UNICODE_EXPANSION_RATIO parameter in the HPU command, either setting the parmlib parameter VUU068/ULUNIEXP.

Return Code

4

INZU545I **THE OUTPUT FIELD WILL BE
EXPANDED WITH A RATIO OF
ratio AS REQUESTED BY THE
SETTING OF THE PARAMETER
UNICODE_EXPANSION_RATIO.
THE OUTPUT FIELD MIGHT NOT
BE LONG ENOUGH FOR FIELD
column-name, TABLE *table-name***

Explanation

This message indicates that the output length for the specified field has been expanded as requested by the keyword UNICODE_EXPANSION_RATIO in the HPU command to a size that can be too short to unload the converted data.

User response

if you are sure that the output length is large enough, no action is required, otherwise set the parameter UNICODE_EXPANSION_RATIO to 4.

Return Code

0

INZU546I **THE OUTPUT FIELD WILL BE
EXPANDED WITH A RATIO OF
ratio AS REQUESTED BY THE
SETTING OF THE PARAMETER
UNICODE_EXPANSION_RATIO OR
THE PARMLIB PARAMETER
VUU068/ULUNIEXP. FIELD
column-name, TABLE *table-name***

Explanation

This message indicates that the output length for the specified field has been expanded as requested by the keyword UNICODE_EXPANSION_RATIO in the HPU command or by the setting of the parmlib parameter VUU068/ULUNIEXP.

User response

None

Return Code

0

INZU547W ***lob/xml* NOT CORRECTLY
UNLOADED DUE TO
INCONSISTENCY WITH BASE**

TABLESPACE. REASON *abend-reason*. INCORRECT DATA WAS WRITTEN INTO *output-location*

Explanation

For a specific row, the unload of LOB or XML data in native mode failed because of an inconsistency between the base table space and the LOB or XML related table space. This situation can occur if the consistency of these table spaces has not been ensured by having the Db2 buffer flushed to the underlying data sets (e.g. by specifying the QUIESCE YES option in the UNLOAD command) and no concurrent update of the object occurs during the unload (e.g. by specifying the LOCK YES option in the UNLOAD command). The output-location indicates the location of the LOB or XML data affected by the issue. The output-location is specified as indicated in the table below:

<i>Table 36.</i>	
output-location	the incorrect data was written to
DSN=dataset-name(member-name)	the indicated PDS member
path-name	the indicated path
DSN=dataset-name - RECORD NUMBER = nnn	the nnn th record of the indicated data set name that was allocated through a TEMPLATE statement
DDN=ddname - RECORD NUMBER = nnn	the nnn th record of the data set allocated through a JCL DD statement which ddname is indicated

The mentioned reason code, i.e. *abend-reason*, is meant for Advanced troubleshooting by the IBM support if you suspect the reported situation is not true; especially if you have made sure of the consistency of the involved table spaces. If the VUU084/ULLOBBHV parmlib is set to IGNORE, the unload process continues and the subsequent INZU548I message sums up the number of such errors encountered during the unload.

If the VUU084/ULLOBBHV parmlib is set to STOP, the unload process will stop as reported by the subsequent INZU549E message.

User response

Unless this situation where the base table data is correct and some of the LOB or XML data is incorrect is acceptable for the subsequent use of the output data, no action is required. Otherwise, submit the job again after having ensured of the table spaces consistency or run the unload in SQL mode by specifying the DB2 FORCE option.

Return Code

4

INZU548I	<i>nn</i> LOB/XML NOT CORRECTLY UNLOADED DUE TO INCONSISTENCY BETWEEN LOB/XML TABLESPACE AND <i>dbname.tsname</i> BASE TABLESPACE
-----------------	--

Explanation

This message indicates how many times the situation reported by the INZU547W message – i.e. inconsistent LOB or XML unloaded without stopping the unload processing - was encountered during the unload of a base table contained in the indicated table space. Db2 HPU does not issue the INZU547W message every time it encounters the situation as the maximum number allowed for these messages is set by the VUU085/ULLOBBHM parmlib parameter. This message allows you to determine the amount of inconsistent LOB or XML data actually in the unloaded data.

User response

None.

Return Code

0

INZU549E	INCONSISTENCY BETWEEN LOB/XML TABLESPACE AND BASE TABLESPACE. PROCESSING STOPS ACCORDING TO PARAMETER VUU084/ULLOBBHV.
-----------------	---

Explanation

For a specific row, the unload of LOB or XML data in native mode failed because of an inconsistency between the base table space and the LOB or XML related table space. This situation can occur if the consistency of these table spaces has not been ensured by having the Db2 buffer flushed to the underlying data sets (e.g. by specifying the QUIESCE YES option in the UNLOAD command) and

no concurrent update of the object occurs during the unload (e.g. by specifying the LOCK YES option in the UNLOAD command). As the parameter VUU084/ULLOBBHV is set to STOP, the unload processing stops.

User response

Submit the job again after having ensured of the table spaces consistency or run the unload in SQL mode by specifying the DB2 FORCE option. You may also want to skip this error and let the unload process continue by setting the VUU084/ULLOBBHV to IGNORE.

Return Code

8

INZU550E	TAPEUNIT PARAMETER: DEFAULT UNIT COUNT CAN NOT BE GREATER THAN THE MAXIMUM NUMBER OF DEVICES FOR ONE UNIT.
-----------------	---

Explanation

This message is displayed when TAPEUNIT(unit(maximum_devices_number, default_devices_number)) is specified either in parmlib or in sysin, and default_devices_number is greater than the maximum number of devices for this unit. default_devices_nb must be less than or equal to maximum_devices_number.

User response

Change the TAPEUNIT parameter/option to ensure that default_devices_number is less than or equal to max_devices_nb.

Return Code

8

INZU551E	THE "SET CURRENT APPLICATION COMPATIBILITY = applcomp_string." STATEMENT REQUESTED THROUGH APPLCOMPAT OPTION OR VUM036/APPLCOMP PARAMETER FAILED. SEE PRECEDING DB2 MESSAGES FOR DETAILS.
-----------------	--

Explanation

A request to set the CURRENT APPLICATION COMPATIBILITY register was made either by specifying the APPLCOMPAT applcomp_string or by setting the VUM036/APPLCOMP parmlib

parameter to applcomp_string. The attempt to run the corresponding "SET CURRENT APPLICATION COMPATIBILITY = applcomp_string" statement failed. The unload process stops.

User response

Check the SQL messages issued above for more details about the reason why the statement failed. If an SQLCODE=-713 error is reported, replace the value of applcomp_string by a value supported by your Db2 subsystem. For any other sql code error, refer to related Db2 documentation to determine the relevant solution.

Return Code

8

INZU552E	DICTIONARY TYPE <i>type</i> (0Xhextype) IS NOT RECOGNIZED
-----------------	--

Explanation

An invalid or unexpected dictionary type was found within a dictionary page of an LDS of the table space being processed. The value of the related HPGZLD field is displayed as an EBCDIC value - "type" field of the message text - and in hexadecimal representation - "hextype" field of the message text. This suggests that the LDS might be corrupted.

User response

Check if the object involved in the unload can be correctly handled by Db2. If applicable, consider running the current unload with the DB2 FORCE option and report the issue to your IBM support.

Return Code

8

INZU553I	LOCK IS NOT PERFORMED FOR SELECT <i>no</i> AT POS(<i>line,col</i>) AS VUU088/ULLOCKMO IS SET TO NATIVE_ONLY
-----------------	--

Explanation

The LOCK feature requested for the indicated SELECT statement processed in SQL mode is not honored because the VUU088/ULLOCKMO parmlib parameter is set to NATIVE_ONLY that disables the LOCK feature in SQL mode.

User response

Set VUU088/ULLOCKMO to ALL to allow Db2 HPU to perform the LOCK feature or remove the LOCK feature request (e.g. by specifying LOCK NO) to prevent this message from being issued.

Return Code

0

INZU554E	LOCK CANNOT BE PERFORMED FOR SELECT <i>number</i> AT POS(<i>line,col</i>)
-----------------	--

Explanation

the specified SELECT is processed in SQL mode. In order to determine the table to lock, an EXPLAIN statement has been processed but it terminated in error.

User response

See previous message to determine the reason of the error.

Return Code

8

INZU555W	THE PARMLIB PARAMETER VUU074/ULLOCKTE IS FORCED TO LOCK DUE TO UNSUPPORTED SELECT TO LOCK
-----------------	--

Explanation

The SQL LOCK technique was chosen to honor the LOCK feature despite the setting of the VUU074/ULLOCKTE parameter that requests another technique. This occurred because Db2 HPU can only use one locking technique per Db2 HPU invocation (i.e. JCL step) and the LOCK feature requested for a SELECT statement processed in SQL mode can only be honored with the SQL LOCK technique.

User response

As the setting of VUU074/ULLOCKTE is ignored if different from LOCK when the LOCK feature is requested for both SELECT statements processed in SQL mode and SELECT statements processed in SQL mode, consider running unload steps only involving SELECT statements processed with the same mode (either native or SQL). If the LOCK feature is actually not desired for SELECT statements processed in SQL mode, consider disabling the feature for the SQL mode only by setting VUU088/ULLOCKMO to NATIVE_ONLY.

Return Code

4

INZU556E	THE DDNAME <i>ddname</i> DOES NOT ALLOCATE AN IMAGE COPY OF THE EXPECTED PARTITION NUMBER (<i>part-num</i>)
-----------------	--

Explanation

According to the UNLOAD command, the mentioned ddname must allocate the image copy data set for the indicated partition number but Db2 HPU determined that the allocated data set does not contain the image copy of a partition with the expected number.

User response

Change the DD statement to allocate the indicated partition number or correct the UNLOAD command (e.g. the COPYDDN option or the PART/SQLPART option) so that the ddname in question is associated to the partition number of the currently allocated data set.

Return Code

8

INZU557I	OPTIONAL 'ORDER CLUSTER' CLAUSE IGNORED FOR <i>location_of_select_statement</i>
-----------------	--

Explanation

The indicated SELECT statement being processed specifies an ORDER CLAUSE incompatible with the SQL mode that applies to this SELECT statement. As either ORDER CLUSTER OPTIONAL was specified or ORDER CLUSTER MANDATORY was not specified and ORDER_CLUSTER_BHV(OPTIONAL) is specified in the value of the VUU030/ULOPTNS parmlib parameter, the ORDER CLAUSE is considered as optional. As a consequence, Db2 ignores the ORDER CLUSTER clause by removing it before passing the SELECT statement to Db2.

User response

None.

Return Code

0

INZU558I	[RESTART RESTARTABLE] MODE DISABLED: THE PARMLIB
-----------------	---

PARAMETER VUU091/RSTTMPL IS MISSING

(NOT USING TEMPLATE) MAKES THE STEP NOT ELIGIBLE TO RESTART FEATURE

Explanation

The RESTART or RESTARTABLE mode was requested - either by specifying the RESTART option in the PARM attribute of the Db2 HPU EXEC statement or by setting the "Enable RESTART mode (VUU090/RSTENABL)" parmlib parameter - but could not be activated because the "RESTART dataset template (VUU091/RSTTMPL)" parmlib parameter is not set. The Db2 HPU step is run in regular mode instead of the requested mode.

User response

Set the "RESTART dataset template (VUU091/RSTTMPL)" parmlib parameter to specify a template for the name of the restart dataset.

Return Code

0

INZU559I **RESTARTABLE MODE DISABLED: A RESTART DATASET *dataset name* ALREADY EXISTS RELATED TO THE JOB : *jobname(jobid)***

Explanation

The RESTARTABLE mode was requested - either by specifying the RESTART(ENABLE) option in the PARM attribute of the Db2 HPU EXEC statement or by setting the "Enable RESTART mode (VUU090/RSTENABL)" parmlib parameter - but could not be activated because the RESTART dataset to be used already exists. This dataset was created by the job which jobname and jobid is indicated. The Db2 HPU step is run in regular mode instead of the requested restartable mode.

User response

If you don't need to restart the indicated job, as the restart dataset is no longer needed, consider deleting the indicated dataset or, if relevant, consider changing the UID option in the PARM attribute of the Db2 HPU exec statement so that the RESTART dataset is created with a different name.

Return Code

0

INZU560I **RESTARTABLE MODE DISABLED: UNLOAD WITH OUTPUT DATASET ALLOCATED BY DD STATEMENT**

Explanation

The RESTARTABLE mode was requested - either by specifying the RESTART(ENABLE) option in the PARM attribute of the Db2 HPU EXEC statement or by setting the "Enable RESTART mode (VUU090/RSTENABL)" parmlib parameter - but could not be activated because the unload uses output datasets (specified through the OUTDDN, UNLDDN or LOADDN options) that are not allocated through TEMPLATE statements. The Db2 HPU step is run in regular mode instead of the requested restartable mode.

User response

No action is needed unless you want the Db2 HPU step to be restartable. In this case, remove the DD statements meant to allocated output datasets and replace them by allocation through TEMPLATE statements.

Return Code

0

INZU561I **RESTARTABLE MODE DISABLED: UNABLE TO ALLOCATE THE RESTART DATASET *dsname***

Explanation

The RESTARTABLE mode was requested - either by specifying the RESTART(ENABLE) option in the PARM attribute of the Db2 HPU EXEC statement or by setting the "Enable RESTART mode (VUU090/RSTENABL)" parmlib parameter - but could not be activated because the indicated RESTART dataset used to save restart information could not be allocated. The Db2 HPU step is run in regular mode instead of the requested restartable mode.

User response

Refer to the INZI330E message that indicates the allocation parameter and the allocation error code to determine the reason of the allocation error

Return Code

0

INZU562I **[RESTART|RESTARTABLE] MODE DISABLED: THE PARMLIB PARAMETER VUU091/RSTTMPL IS INCORRECT : *template &UID AND***

&SSID ARE MANDATORY, OTHER VARIABLE EXCEPT &ZUSER ARE PROHIBITED

Explanation

The RESTART or RESTARTABLE mode was requested - either by specifying the RESTART option in the PARM attribute of the Db2 HPU EXEC statement or by setting the "Enable RESTART mode (VUU090/RSTENABL)" parmlib parameter - but could not be activated because the setting for VUU091/RSTTMPL is incorrect as it does not include at least one of the &UID and &SSID mandatory variables. The Db2 HPU step is run in regular mode instead of the requested mode.

User response

Correct the setting of the "RESTART dataset template (VUU091/RSTTMPL)" parmlib parameter.

Return Code

0

INZU563I	RESTART MODE : THE RESTART DATASET <i>dataset name</i> IS USED TO RESTART PROCESSES FROM <i>jobname(jobid)</i>
-----------------	---

Explanation

As the RESTART of a job was requested - by specifying the RESTART(YES[,CONSISTENT]) option in the PARM attribute of the Db2 HPU EXEC statement - and the Db2 HPU step is restartable, the process is resumed taking the information from the indicated RESTART dataset into account to start only the unload tasks that had not completed successfully at the end of the last run.

User response

No action is needed. If the RESTART mode was not intentionally requested, remove the RESTART(YES..) option to run the step from scratch and to create a set of new output datasets.

Return Code

0

INZU564I	RESTART MODE DISABLED : THE RESTART DATASET <i>dataset name</i> DOES NOT EXIST
-----------------	---

Explanation

The RESTART mode was requested - by specifying the RESTART(YES[,CONSISTENT]) option in the PARM attribute of the Db2 HPU EXEC statement - but the Db2 HPU step cannot be performed in RESTART mode as the indicated expected restart dataset does not exist. It is run in regular mode instead, thus attempting to create a set of new output datasets.

User response

None. If you expected this Db2 HPU step to be restartable, check if a previous run of this step was run in RESTARTABLE mode and make sure no process unduly removed the restart dataset.

Return Code

0

INZU565I	[RESTART RESTARTABLE] MODE : THE RESTART DATASET <i>dsname</i> HAS BEEN ALLOCATED
-----------------	--

Explanation

As the RESTART or RESTARTABLE mode was requested - either by specifying the RESTART option in the PARM attribute of the Db2 HPU EXEC statement or by setting the "Enable RESTART mode (VUU090/RSTENABL)" parmlib parameter - and the Db2 HPU step is eligible to the RESTART feature, the indicated RESTART dataset has been successfully allocated. The dataset was created if the RESTARTABLE mode applied or the existing dataset was allocated for reading and writing

User response

None.

Return Code

0

INZU566E	RESTART MODE ERROR : THE RESTART DATASET <i>dsname</i> GENERATED BY THE HPU JOB <i>jobname(jobid)</i> CONTAINS UNEXPECTED DATA
-----------------	---

Explanation

As the RESTART of a job was requested - by specifying the RESTART(YES[,CONSISTENT]) option in the PARM attribute of the b EXEC statement - and the b step is eligible to the RESTART feature, b was restarted in RESTART mode but the indicated RESTART

dataset contains unexpected thus invalid data. As a consequence, the process stops.

User response

Make sure the indicated RESTART dataset was created by a previous run of this Db2 HPU step by checking the INZU565I message in the output of that run mentions the same dataset name and that the indicated jobname and jobid are those of that previous run and, as far as possible, that the dataset was not altered since then. If so, contact your IBM support and provide the RESTART dataset and the joblog of the run in restart mode. If you cannot make sure the RESTART dataset is the correct one and was not corrupted and that dataset might not be useful to restart another step, delete it - or simply rename it - and restart the current step in regular (no RESTART option in the PARM attribute of the EXEC statement) or restartable mode.

Return Code

8

INZU567E	RESTART MODE ERROR : THE RESTART DATASET <i>dsname</i> GENERATED BY THE HPU JOB <i>jobname(jobid)</i> IS NOT RELATED TO THE SAME REQUEST.
-----------------	--

Explanation

As the RESTART of a job was requested - by specifying the RESTART(YES[,CONSISTENT]) option in the PARM attribute of the Db2 HPU EXEC statement - and the Db2 HPU step is eligible to the RESTART feature, Db2 HPU was restarted in RESTART mode but the indicated RESTART dataset contains data for another unload request, i.e. the Db2 HPU command is not strictly identical to the one used in the Db2 HPU run that generated the restart dataset indicated by the INZU565I message. Consequently, the process stops.

User response

Make sure the indicated RESTART dataset was created by a previous run of this Db2 HPU step by checking the INZU565I message in the output of that run mentions the same dataset name and that the indicated jobname and jobid are those of that previous run and, as far as possible, that the dataset was not altered since then. Also check that the Db2 HPU command used for running the step in restart mode is identical enough to the one used for the initial run – see “RESTART feature/RESTART mode/ Conditions to restart a Db2 HPU step” for details. If you cannot make sure the RESTART dataset is the correct one and was

not corrupted and that dataset might not be useful to restart another step, delete it - or simply rename it - and restart the current step in regular (no RESTART option in the PARM attribute of the EXEC statement) or restartable mode.

Return Code

8

INZU568I	RESTART MODE : THE OBJECT <i>object_name</i> THAT CURRENTLY MATCHES A SPECIFIED LIST IS IGNORED BY THE CURRENT RUN OF THIS STEP SINCE IT DID NOT EXIST AT THE TIME OF THE INITIAL RUN
-----------------	--

Explanation

The indicated object that currently matches the list of objects (LISTDEF or LISTDEFTBV) involved in one of the unloads requested through a SELECT * FROM LIST statement did not exist when the step was initially run. It has very likely been created since then. It will be ignored by the current run of the step.

User response

None.

Return Code

0

INZU569I	[RESTARTABLE RESTART] MODE : THE RESTART DATASET <i>dsname</i> HAS BEEN DELETED AS IT HAS BECOME USELESS
-----------------	---

Explanation

The indicated RESTART dataset was deleted as it had become useless for either of the following reasons:

- the step, run in the indicated mode, has completed successfully and all the output datasets expected for this Db2 HPU step have been written.
- the step run in RESTARTABLE mode started no unload process. This is the case when the Db2 HPU request is not valid.

User response

None.

Return Code

0

INZU570E [RESTARTABLE|RESTART] MODE :
THE RESTART DATASET
dsname THAT HAS BECOME
USELESS COULD NOT BE DELETED
AS EXPECTED. RC=*return*
code. CONSIDER DELETING IT
MANUALLY TO PREVENT OTHER
STEPS WITH SAME UID RUN
AGAINST SAME DB2 SUBSYSTEM
OR GROUP IN RESTARTABLE
MODE FROM FAILING.

Explanation

The deletion of the indicated RESTART dataset that has become useless failed. The fact that this dataset was not deleted could prevent other steps with same SSID and UID to be run in restartable mode. the indicated return code is for IBM use only.

User response

Delete the indicated restart dataset manually.

Return Code

8

INZU571E INPUT IMAGE COPY CONTAINS
DATA FROM PARTITION
WHICH NUMBER *partition-number*
EXCEEDS THE ALLOWED
MAXPARTIONS *maxpartitions*

Explanation

When reading an image copy to unload, a page from an unexpected partition has been read. This occurs when the image copy has been taken for a PBG tablespace with a MAXPARTITIONS high than the one of the target tablespace (the tablespace specified in the unload command).

User response

Specifies the maximum number of partitions contained in the image copy by setting the COPYDDN sub-parameter IC_MAXPARTITIONS for this specific job or setting the parmlib parameter VUU093/ICMAXP for a global setting. If you don't know the MAXPARTITIONS of the tablespace belonging to the image copy, you can specify the maximum value : 4096. Take in consideration that specifying the maximum value leads to a memory consumption higher than an optimal value.

Return Code

8

INZU572F FATAL ERROR: SYSPRINT IS NOT
ALLOCATED

Explanation:

SYSPRINT has not been allocated before INZUTILB started.

User response:

Allocate a SYSPRINT ddname to get the Db2 HPU report

Return Code

16

INZU573E RESTART MODE ERROR : THE
UID OF RESTARTED STEP (*uid*)
IS DIFFERENT FROM THE
UID STORED IN THE RESTART
DATASET (*uid*)

Explanation

As the RESTART of a job was requested - by specifying the RESTART(YES[,CONSISTENT]) option in the PARM attribute of the Db2 HPU EXEC statement - and the Db2 HPU step is eligible to the RESTART feature, Db2 HPU was started in RESTART mode but the UID specified in the PARM attribute of the restarted step is not the same as the UID stored in the restart file. This can occur if the RESTART dataset name for this step is the same as the RESTART data set created for another Db2 HPU step. This can especially occur if the UIDs of the two steps are different but the RESTART dataset template - specified by the VUU091/RSTTMPL parmlib parameter - does not ensure the uniqueness. This is more likely to occur if this template specifies a substring from &UID.

User response

Make sure the RESTART dataset indicated by the previous INZU563I message was the one created by the initial run of the Db2 HPU step. If this is the case, report the issue to your IBM support. Otherwise, consider running the step in regular mode by removing the RESTART option from the PARM attribute of the EXEC statement..

Return Code

8

INZU574I [RESTARTABLE|RESTART] MODE
DISABLED: MANDATORY UID
NOT SPECIFIED IN THE PARM

ATTRIBUTE. DEFAULT VALUE NOT VALID FOR [RESTARTABLE|RESTART] MODE.

Explanation

The RESTARTABLE mode was requested by specifying the RESTART(ENABLE) option in the PARM attribute of the Db2 HPU EXEC statement or by setting the "Enable RESTART mode (VUU090/RSTENABL)" parmlib parameter but the UID option from the PARM attribute of the Db2 HPU EXEC statement was not specified. Consequently, the step is run in regular mode instead of RESTARTABLE mode.

User response

Specify a UID option in the PARM attribute of the Db2 HPU EXEC statement.

Return Code

0

INZU575I	DATA FROM PARTITIONS WITH NUMBERS UP TO <i>number</i> GREATER THAN THE TARGET MAXPARTITIONS ATTRIBUTE <i>maxpartitions</i> HAVE BEEN UNLOADED
-----------------	--

Explanation

Rows have been unloaded from partitions greater than the MAXPARTITIONS parameter of the target tablespace. It only occurs when setting the COPYDDN sub-parameter IC_MAXPARTITIONS for this specific job or if the VUU093/ICMAXP parmlib parameter is set to a value greater than the MAXPARTITIONS parameter of the target tablespace.

User response

No action is required. Nevertheless loading those data into the target tablespace can fail if the data cannot be stored into the number of partitions related to the MAXPARTITIONS parameter of the target tablespace.

Return Code

0

INZU576I	INFORMATION : SELECT <i>n</i> STARTING AT POS (<i>n,p</i>) NO OUTPUT FORMAT SPECIFIED. DEFAULT <i>format</i> APPLIES ACCORDING TO PARMLIB PARAMETER VUU045/ULFORMAT
-----------------	--

Explanation

As no FORMAT option was specified for the SELECT statement which location is indicated, the data for this SELECT is unloaded with the default format specified by the VUU045/ULFORMAT parmlib parameter which value is reminded by the message text.

User response

No response is necessary but consider specifying an explicit output format should you want to make the output format of this unload non setting dependent by specifying a FORMAT option for this SELECT in question.

Return Code

None

INZU578I	MAXIMUM DEGREE OF PARALLELISM IS LIMITED TO <i>n</i> DUE TO INLINE IMAGE COPY TO SORT
-----------------	--

Explanation

This messages informs that parallelisation at tablespace processing level is activated, but the maximum degree of parallelism for tablespace processing must be limited to the indicated value (*n*) because all the following conditions are fulfilled:

- the sort of an INLINE image copy is involved
- the related SELECT statement specifies an ORDER clause
- a MAXSORT limit applies

User response

None.

Return Code

0

INZU579I	THE TYPE OF THE IMAGE COPY OF THE TABLESPACE <i>dbname.tsname</i> COULD NOT BE DETERMINED. THE PAGES OF THE IMAGE COPY WILL BE SORTED AS THE PARMLIB PARAMETER VUU094/SORTIC IS SET TO YES
-----------------	---

Explanation

The type of the input image copy provided for the unload of the indicated tablespace could not be determined. According to the setting of the

VUU094/SORTIC parmlib parameter, the image copy is processed as an image copy requiring the sort of its pages to correctly take into account potential duplicates pages.

User response

None.

Return Code

0

INZU580I **AVAILABLE MEMORY : *available-lowmem* KB (24 bit) available-highmem KB (31 bit) ESTIMATED MEMORY : *estimated-lowmem* KB (24 bit) *estimated-highmem* KB (31 bit) REQUIRED TO PROCESS UNLOAD *unload-number* FROM [UNDETERMINED]*dbname.tsname*] TABLESPACE SELECT *select-number* STARTING AT POS(4, 1) [FOR TABLE *creator.tbname*] (*n times*)**

Explanation

Specifies the estimated amount of memory necessary to unload data from the specified tablespace or to process an SQL statement in SQL mode.

This is a rough estimate because some needs are difficult to evaluate, especially when sorting is required. Nevertheless, it gives an order of magnitude which allows to detect situation which can lead to random termination depending on the speed of the parallel processing and thus the memory requirement at a given time:

- a parameter REGION close to the limit
- a requested parallelism for Db2 HPU processes too high

Even if this message is not followed by an INZU581E message, a failure caused by a memory outage issue might occur because of the memory fragmentation - due to allocation/free sequences - that more likely occurs when unloading multiple tablespaces consecutively within a single Db2 HPU step.

User response

None if the job regularly runs without any memory problems. For a new job being tuned, consider making sure the requested memory is available for this Db2 HPU step by setting the REGION parameter and controlling any other mechanism that might limit the memory available to Db2 HPU step accordingly. If the

overall available memory is greater than the indicated estimate but the step fails due to a memory outage, consider giving the step more memory especially if the it involves several tables or partitions which makes the actual memory consumption more dependent on the run due to memory fragmentation.

Return Code

0

INZU581E **NOT ENOUGH MEMORY TO RUN THE UNLOAD. THE PROCESS IS NOT STARTED AS REQUESTED BY THE SETTING OF VUU097/CHKMEM REFER TO THE PREVIOUS MESSAGE INZU580I FOR DETAILS ABOUT REQUIRES VS AVAILABLE MEMORY**

Explanation

The process stops due to unavailable memory when starting an unload request.

User response

Take the information provided by the INZU580I message into account to help you decide whether to change the unload statement - e.g. decrease the parallelism degree - in order to lower the memory needed for the unload or to make more memory available to the step - e.g. by increasing the REGION parameter or by changing the system settings or mechanisms that might limit the memory available to the step.

Return Code

8

INZU582I **THE LOAD COMMAND CAN ONLY BE USED IN DB2 VERSION *version_criterion* FOR THE FOLLOWING REASON *reason***

Explanation

this message informs that the generated LOAD command can only be used in specific Db2 versions as detailed by the indicated version criterion. The reason of this restriction is also indicated and may be one of the following:

IT SPECIFIES THE OVERRIDE(ROWCHANGE) OPTION ACCORDING TO THE SETTING OF THE VUU099/ULRWCHNG PARMLIB PARAMETER

The OVERRIDE(ROWCHANGE) option is specified by the generated LOAD command as all the following reason are fulfilled:

- the unloaded target table contains row change timestamp columns with the GENERATED ALWAYS attribute
- the unload is run in native mode
- the VUU099/ULRWCHNG parmlib parameter is set to OVERRIDE

User response

Check that the intended use of the LOAD command is not affected by the restriction:

- either by using the LOAD command on Db2 subsystems with the appropriate version,
- or by changing the unload request so that the generated LOAD command is compatible with the intended use,
- or by altering the generated LOAD command to make it compatible with the intended use. Be aware that altering the generated LOAD command might not only consist in removing a given option and might require several changes. In some cases, the changes to alleviate the restriction might not be compatible with the unloaded data. This is the reason why another way to proceed should be preferred.

Return Code

0

INZU583I	STEP <i>stepname</i> : USE OF DB2 V9-LIKE OUTPUT FOR CHAR/VARCHAR WITH DECIMAL INPUT
-----------------	---

Explanation

The indicated stepname of the job that issued this message to the MVS console fulfills the following conditions:

- it specifies a logical unload run in native mode that involves an SQL expression containing CHAR(decimal_value) or VARCHAR(decimal_value) - where decimal_value stands for any SQL expression which result has a DECIMAL type
- the combination of the applicable BIF_COMPATIBILITY related settings of both Db2 HPU and the concerned Db2 subsystem or data sharing group (i.e. the BIF_COMPATIBILITY_FROM_DB2_SETTINGS and BIF_COMPATIBILITY subparameter of the VUU030/

ULOPTNS for Db2 HPU and the BIF_COMPATIBILITY value from the DSNZPARM for Db2 subsystem) request the CHAR/VARCHAR functions be evaluated as in Db2 version up to 9.

The output of this unload is thus subject to change if the BIF_COMPATIBILITY related settings are changed. This message, sent to the MVS console only, is issued to warn about such a situation as SIGNAL(V9_BIF_USE) is specified in the value of the VUU030/ULOPTNS parmlib parameter.

User response

If you do not intend to change the BIF_COMPATIBILITY related settings, you may ignore this message. Otherwise, if you plan a change of the BIF_COMPATIBILITY related settings implying that the resulting value for the Db2 HPU BIF_COMPATIBILITY is CURRENT (and the Db2 version is later than V9), consider:

- browsing the SYSPRINT of the indicated job/step to determine which unload(s) is(are) concerned with the help of the INZU584I message issued to the SYSPRINT dataset
- before determining the impact of the settings change on the output of this unload
- and deciding:
 - whether to keep the current output by replacing the CHAR/VARCHAR functions by their CHAR9/VARCHAR9 counterparts
 - or modify the programs that exploit the output of this unload so that it supports the expected output change.

Return Code

0

INZU584I	UNLOAD <i>n</i> SELECT <i>p</i>: DB2 V9-LIKE OUTPUT FOR CHAR/VARCHAR WITH DECIMAL COLUMN '<i>column-name</i>' EXPRESSION AS INPUT [IN THE WHERE CLAUSE] IN SELECTED DATA]
-----------------	--

Explanation

The following situation was encountered:

- the indicated logical unload (unload/select) was run in native mode and involves an SQL expression containing CHAR(decimal_value) or VARCHAR(decimal_value) - where decimal_value stands for any SQL expression which result has a DECIMAL type

- the combination of the applicable BIF_COMPATIBILITY related settings of both Db2 HPU and the concerned Db2 subsystem or data sharing group (i.e. the BIF_COMPATIBILITY_FROM_DB2_SETTINGS and BIF_COMPATIBILITY subparameter of the VUU030/ULOPTNS for Db2 HPU and the BIF_COMPATIBILITY value from the DSNZPARM for Db2 subsystem) request the CHAR/VARCHAR functions be evaluated as in Db2 version up to 9.

The output of the indicated unload is thus subject to change if the BIF_COMPATIBILITY related settings are changed. This message, sent to the MVS console only, is issued to warn about such a situation as SIGNAL(V9_BIF_USE) is specified in the value of the VUU030/ULOPTNS parmlib parameter.

User response

If you do not intend to change the BIF_COMPATIBILITY related settings, you may ignore this message. Otherwise, if you plan a BIF_COMPATIBILITY related settings implying that the resulting value for the Db2 HPU BIF_COMPATIBILITY is CURRENT (and the Db2 version is later than V9), consider determining the impact of the settings change on the output of this unload and deciding:

- whether to keep the current output by replacing the CHAR/VARCHAR functions by their CHAR9/VARCHAR9 counterparts
- or modify the programs that exploit the output of this unload so that it supports the expected output change.

Return Code

0

INZU585I UNLOADED DATA CONSISTENCY NOT ENSURED DESPITE LOCK YES AS QUIESCE NO APPLIES FOR NATIVE MODE UNLOADS

Explanation

This message is issued because both LOCK YES and QUIESCE NO apply to the current UNLOAD statement. It informs that, in such a case, the consistency of the unloaded data is not ensured for unloads run in native mode. For native unloads, the unloaded data consistency is ensured only if the QUIESCE feature is requested.

User response

Consider specifying QUIESCE YES for the concerned UNLOAD statement or remove the LOCK YES option if not intended.

Return Code

0

INZU590I UTILITY HISTORY COLLECTION IS ENABLED AS PARMLIB PARAMETER IS SET TO *enbhist_value*

Explanation

The history collection process has been enabled as requested by the indicated setting of the VUU0100/ENBHIST parmlib parameter.

User response

No specific action is required.

Return Code

0

INZU591I UTILITY HISTORY COLLECTION DISABLED AS ONLY AVAILABLE SINCE DB2 VERSION 13.

Explanation

This message is issued to inform that the history collection process cannot be activated as the Db2 sub-system version does not implement the required utility and/or object history tables (i.e. SYSIBM.SYSUTILITIES and/or SYSIBM.SYSOBJEVENTS).

User response

No specific action is required but consider setting VUU0100/ENBHIST to NONE for this Db2 sub-system to avoid this information message be issued or upgrade your Db2 subsystem to version 13 or later if you wish to exploit the history collection feature.

Return Code

0

INZU592I ERROR DURING UTILITY HISTORY COLLECTION, *reason - action*

Explanation

the utility history collection process encountered an error when inserting data into or updating data from the Db2 Catalog History tables. The utility will bypass this condition and continue the processing but will discard some or all of the processing of the utility history collection for the Db2 HPU step in progress. This message is issued into the SYSPRINT dataset and also to the MVS console for easier monitoring of the status of the utility collection feature. The possible reasons and the related actions are listed below:

- TABLESPACE DSNDB06.SYSTSUTL DOES NOT EXIST. UTILITY HISTORY COLLECTION FOR THIS STEP IS SWITCHED OFF : the DSNDB06.SYSTSUTL catalog table space could not be found. The history utility table it contains can therefore not be updated. The utility history collection is disabled till the end of the Db2 HPU step.
- TABLESPACE SYSTSOBJ DOES NOT EXIST. UTILITY HISTORY COLLECTION FOR THIS STEP IS ALTERED : ONLY UTILITY TABLE POPULATED: the SYSTSOBJ catalog table space could not be found. The history object table it contains can therefore not be updated as requested by the setting of the VUU0100/ENBHIST parmlib parameter. As the DSNDB06.SYSTSUTL table space exists, the utility history collection continues but populates only the history utility table.
- SQL ERROR PREVENTED TO perform-operation. UTILITY HISTORY COLLECTION FOR THIS STEP IS SWITCHED OFF: an SQL error occurred during the indicated operation.

The affected operation can be either of the following:

- CREATE UNIQUE EVENTID
- INSERT INTO SYSIBM.SYSUTILITIES
- UPDATE SYSIBM.SYSUTILITIES (INIT PHASE)
- UPDATE SYSIBM.SYSUTILITIES (UNLOAD PHASE)
- UPDATE SYSIBM.SYSUTILITIES (TERM PHASE)
- INSERT INTO SYSIBM.SYSOBJEVENTS
- EXECUTE COMMIT

The SQL error is also reported with more details by a further message. The utility history collection is disabled till the end of the Db2 HPU step.

- FIRST RUN OF RESTARTED JOB WAS NOT HISTORIZED. UTILITY HISTORY COLLECTION FOR THIS STEP IS SWITCHED OFF: the restarted job is not present in the SYSIBM.SYSUTILITIES. The utility history collection is disabled till the end of the Db2 HPU step.

User response

determine the reason of the error and fix it to ensure a nominal behavior of the utility history collection feature. The appropriate action depending on the reason is listed below:

- TABLESPACE DSNDB06.SYSTSUTL DOES NOT EXIST. UTILITY HISTORY COLLECTION FOR THIS STEP IS SWITCHED OFF make sure the creation of the Utility History Db2 Catalog tables has completed successfully.
- TABLESPACE DSNDB06.SYSTSOBJ DOES NOT EXIST. UTILITY HISTORY COLLECTION FOR THIS STEP IS ALTERED : ONLY UTILITY TABLE POPULATED: make sure the creation of the Utility History Db2 Catalog tables has completed successfully.
- SQL ERROR sql statement description. UTILITY HISTORY COLLECTION FOR THIS STEP IS SWITCHED OF : fix the root cause of the SQL error
- FIRST RUN OF RESTARTED JOB WAS NOT HISTORIZED. UTILITY HISTORY COLLECTION FOR THIS STEP IS SWITCHED OFF: determine if the first run of this step occurred while the utility history collection was disabled or if any INZU592I error message was issued during that first run. In the latter case, check if the root cause of that first error still needs to be fixed.

Return Code

0 or value of the "Return code for historization (VUU024/UNLZLRC)" parmlib parameter, if any.

INZU593I UTILITY HISTORY COLLECTION IS ACTIVE. EVENTID: *event-id*

Explanation

The utility history collection is in effect - as requested by the setting of the VUU0100/ENBHIST parmlib parameter - for the step in progress that was assigned the indicated event-id. The indicated event-id is the value of the EVENTID column of the SYSIBM.SYSUTILITIES Db2 catalog table for the history information gathered for this step.

User response

No action is required. Use the indicated eventid to retrieve the data from the utility history tables associated with this Db2 HPU step.

Return Code

0

INZU599I *option-value* **OPTION IS IGNORED AS AN XML COLUMN IS UNLOADED INTO A SPANNED DATASET**

Explanation

The logical unload being processed requests XML data to be written into a spanned output dataset. As this request is not compatible with the mentioned option, this option is ignored. The option-value can be one of the following:

- UNLROWSET OR VUU035/ULROWSET: this processing option, specified either by the UNLROWSET option in the unload command or, otherwise, by the VUU035/ULROWSET is ignored. The value 1 is forced when unloading XML into a spanned dataset
- QUERY ACCELERATION: this processing option, specified by the keyword QUERY_ACCELERATION option in the unload command is ignored as it requires multi-row fetch which is disabled when unloading XML into a spanned dataset.

User response

None.

Return Code

0

INZU600I **DISPLAY HPU ACTIVITY AT *timestamp* [FOR ANY SSID/GRID] FOR SSID/GRID : *subsystem-name/group-attachment-name* [FOR ANY UID] FOR UID *uid*] [FOR ANY UID] FOR UID *uid*]**

Explanation

This message starts the report produced by the DISPLAY feature. It indicates the timestamp when the DISPLAY feature was performed and reminds if it was requested for a specific Db2 subsystem or a whole data sharing group, and for a specific uid. If the DISPLAY feature was requested regardless of the Db2 subsystem-name/group-attachment-name, FOR ANY SSID/GRID part of the text is issued. If the DISPLAY feature was requested regardless of the UID, FOR ANY UID part of the text is issued.

User response

None

Return Code

0

INZU601I **OVERALL CURRENT HPU ACTIVITY [FOR ANY SSID/GRID]FOR SSID/GRID : *subsystem-name/group-attachment-name* [FOR ANY UID] FOR UID *uid*] *list_of_active_steps_overall_information***

Explanation

this message displays a list of all the Db2 HPU steps which are currently running and gives the following details about these steps.

- jobid: the JES job identifier (JOBID),
- jobname: the name of the job the running step belongs to,
- stepname: the name of the running step,
- ssid: the stand-alone Db2 subsystem or the DB2 Data Sharing Group Id that contains the object to be unloaded.
- uid: the job-ID specified in the EXEC card of the step
- step-timestamp : time when the Db2 HPU step started
- action : the action the Db2 HPU process is doing which is indicated by one of the following status:
 - ANALYZING: the Db2 HPU process is currently analyzing the request to determine the objects to be unloaded
 - UNLOADING: the Db2 HPU process is currently unloading data
 - UNKNOWN : the action is unknown as the Db2 HPU job has not answered in time

If the ACTION column displays ANALYZING or UNKNOWN, the columns TOTAL, DONE, RUNNING and PENDING contain the string '---' as these numbers could not be determined.

- total: if determined, the total number of single unloads to be performed for the step and '---' otherwise,
- done: if determined, number of single unloads already performed by the step and '---' otherwise,
- running: if determined, number of single unloads currently running in the step and '---' otherwise,
- pending : if determined, number of single unloads to be performed for the step but not yet started and '---' otherwise.

User response

None.

Return Code

0

INZU602I **DETAILS OF HPU ACTIVITY
FOR JOBID: *jobid* JOBNAME:
jobname STEPNAME: *stepname*
STARTED AT: *step-timestamp*
[SSID|GRID]: [*ssid*|*grid*] UID:
uid USER: *userid* [*process-detail*]
timeout-message|*init-message*]**

Explanation

this message is issued after the message INZU601I to provide details about the indicated Db2 HPU step described by the following information.

- *jobid* : the JOBID identifier
- *jobname* : the name of the job
- *stepname* : the name of the step within the job
- *ssid* : the stand-alone Db2 subsystem or the DB2 Data Sharing Group Id that contains the object to be unloaded.
- *uid* : the job-ID specified in the EXEC card of the step
- *step-timestamp* : time when the Db2 HPU step started

After this identification information, details are displayed. These details may consist in either of the following:

- *init-message* (2)
- *timeout-message* (2)
- *process-detail*, which content is described below:
 - *timeout-message*: NO DATA AVAILABLE DUE TO NO RESPONSE RECEIVED FROM THE HPU JOB *jobid*
 - *init-message*: NO DATA AVAILABLE DUE TO INITIALIZATION PROCESS NOT COMPLETED*
 - *process-detail*: a list of the following details about the single unload processes
 - *unload-nb*: number of the unload process
 - *select-nb*: number of the select process
 - *dbname*: name of the database which contains the tablespace (1)
 - *tsname*: name of the tablespace (1)
 - *part*: number of the partition when the tablespace is partitioned . The value '-' when

the table is not partitioned or when the specific partition is not determined.

- *rows-count*: number of already unloaded rows
- *process-timestamp*: timestamp when the specific process for this tablespace started

(1): when the tablespace is unknown (i.e. the data are read in SQL mode) *dbname* and *tsname* columns respectively contain:

```
'*SQL*'
```

and

```
'*MODE*'
```

(2): data related to unloaded tablespace can be missing for the following reasons:

- when no response was obtained from the Db2 HPU process, the time-out message is printed. It occurs in the following situations:
 1. the Db2 HPU process is terminating in ABEND or is hanging. In that case, no action is required
 2. the Db2 HPU process could not respond in time due to the activity of the machine and the time allowed to wait for a response is too low. Consider setting the parmlib parameter 'Time out for getting Db2 HPU JOB activity (VUU096/DISPTMOT)' to a higher value
- when the Db2 HPU step is still analyzing the tablespace to be unloaded, the *init-message* is printed.

User response

None.

Return Code

0

INZU603I **NO HPU JOB FOUND [FOR
ANY SSID/GRID|FOR SSID/
GRID : *subsystem-name/group-
attachment-name*] [FOR ANY UID]
FOR UID *uid*]**

Explanation

Although the Db2 HPU display activity feature is enabled, no monitored job running against the specified Db2 subsystem or data sharing group with the specified UID was found.

User response

If this message is issued whilst Db2 HPU jobs matching the indicated criteria were running, make sure that these jobs were eligible to monitoring, i.e. that they were run in key 7, against the specified Db2 subsystem or data sharing group with the specified UID, and with a setting of VUU095/ENBDISP to YES.

Return Code

0

INZU604E	REQUIRED RESOURCES ALREADY IN USE BY ANOTHER DB2 HPU DISPLAY UTILITY. TRY AGAIN LATER.
-----------------	---

Explanation

Another Db2 HPU DISPLAY UTILITY was running and prevented this utility to run successfully as it could not get exclusive access to resources held by the other utility, even after 5 attempts.

User response

Resubmit the DISPLAY UTILITY once any other concurrent DISPLAY UTILITY has completed. If many DISPLAY UTILITY must be run concurrently, consider increasing the value of the parmlib parameter 'Time out for getting Db2 HPU JOB activity (VUU096/ DISPTMOT)' (default is 10 seconds).

Return Code

8

INZU609I	STEP NOT MONITORED BY THE DISPLAY HPU ACTIVITY FEATURE BECAUSE DB2 HPU IS NOT RUNNING UNDER KEY 7.
-----------------	---

Explanation

As Db2 HPU is not running under key 7, this step cannot register its progress information into the memory dedicated to the DISPLAY HPU ACTIVITY feature. Therefore, this job will not be taken into account by the DISPLAY HPU ACTIVITY feature.

User response

If monitoring this step through the DISPLAY HPU ACTIVITY feature is needed, make sure to run Db2 HPU directly from INZUTILB so that Db2 HPU is run in key 7.

Return Code

0

INZU610I	DISPLAY HPU ACTIVITY - NORMAL COMPLETION
-----------------	---

Explanation

The Db2 HPU DISPLAY UTILITY has completed successfully/with no error. This is the last message issued by the utility.

User response

None.

Return Code

0

INZU611E	DISPLAY UTILITY CANNOT BE HONORED BECAUSE THE PARMLIB PARAMETER VUU095/ENBDISP IS SET TO NO
-----------------	--

Explanation

The requested DISPLAY UTILITY cannot be performed as the DISPLAY HPU UTILITY feature is not enabled.

User response

Set the parmlib parameter VUU095/ENBDISP to YES

Return Code

8

INZU612I	THE SPECIFIED CURRENT LOCK TIMEOUT (value) IS IGNORED AS THE [DB2 SUB-SYSTEM VERSION DB2 SUB-SYSTEM APPLCOMPAT REQUESTED APPLCOMPAT (value)] IS LOWER THAN V13R1M500
-----------------	---

Explanation

The setting of the CURRENT LOCK TIMEOUT, requested either by specifying the SQL_LOCK_TIMEOUT option in the Db2 HPU command or by setting the VUU102/SQLLKTO parmlib parameter for the concerned Db2 sub-system, to a non blank value, cannot be honored as the Db2 sub-system version or the applicable applcompat is lower than the minimum Db2 version for this feature (V13R1M500).

User response

No action is required but you may want to change the Db2 HPU or Db2 settings or even upgrade the Db2 subsystem either to prevent this message to be issued or to ensure that the feature can be honored.

Return Code

0

INZX001	FIX FOR APAR PH36904 WAS USED. CONSIDER CHECKING THE UNLOADED DATA.
----------------	--

Explanation

This message is issued when the fix brought by the APAR PH36904 is put into action and the setting of the VUU030/ULOPTNS parmlib parameter contains FIX(APAR_PH36904,VERBOSE). This message was initially meant to allow in-situ validation of this fix . As the first in-situ tests proved that this fix was incorrect and could lead to the issues described by APAR PH40030 and the related APAR PH40369, an immediate action should be taken whenever this message is issued.

User response

Apply one of the fixes (local fix or PTF) available for APAR PH40369, if the failing unload requests the data from FlashCopy datasets be unloaded through the COPYDDN ddname option and a fix for APAR PH40030 otherwise.

Return Code

0

INZX005	PARTITION NO. <i>nnnn</i> IS BEING UNLOADED
----------------	--

Explanation

A partition is being unloaded.

User response

No action is required.

Return Code

0

INZX006	TABLESPACE UNLOAD PHASE STARTED
----------------	--

Explanation

The TABLESPACE UNLOAD phase started.

System action

Utility processing continues normally.

User response

No action is required.

Return Code

0

INZX007	TABLESPACE UNLOAD PHASE ENDED, <i>nnnn</i> ROWS PROCESSED
----------------	--

Explanation

This message indicates normal completion of the TABLESPACE UNLOAD phase and shows the number of rows processed.

User response

No action is required.

Return Code

0

INZX009	PARTITION NO. <i>nnnn</i> READ, <i>nnnn</i> ROWS PROCESSED
----------------	---

Explanation

The specified partition was unloaded, and *nnnn* records were processed.

User response

No action is required.

Return Code

0

INZX062	SORT ACTIVATED VIA E15 - rec-count ESTIMATED RECORDS TO SORT
----------------	---

Explanation

The message indicates the estimated number of records to sort that was passed on to the sort program. The SORT phase was activated by using input exit E15.

User response

No action is required.

Return Code

None.

INZX063 **SORT ACTIVATED VIA SORTIN -
rec-count ESTIMATED RECORDS
TO SORT**

Explanation

The message indicates the estimated number of records to sort that was passed on to the sort program. The SORT phase was activated by using a dynamically allocated SORTIN file.

User response

No action is required.

Return Code

None.

INZX064 **SORT ACTIVATED VIA CA-SRAM
- rec-count ESTIMATED RECORDS
TO SORT**

Explanation

The message indicates the estimated number of records to sort that was passed on to the sort program. The SORT phase was activated by using the CA-SRAM interface.

User response

No action is required.

Return Code

None.

INZX068 **sort-identifier SORT FAILED,
RC=return code, sort-parameters,
L=nnn**

Explanation

The sort for *sort-identifier* failed.

sort-identifier

Specifies (in most of the cases) the name of the table space or index space which rows are sorted. In some cases, *sort-identifier* corresponds to an internal identifier.

return code

Specifies the return code that was issued by the SORT utility.

sort-parameters

Specifies the parameters that were used when activating the SORT utility.

nnn

Specifies the length of the records to be sorted. For example, **INZX068 T1SQXXX-04 SORT FAILED, RC=16, FILSZ=E616068, DYNALLOC=(SYSDA,2), L=107.**

User response

Examine the job output, and determine the cause of the error.

Return Code

Abend.

INZX069 **sort_id DBS2SORT E15 BLK-V
ACTIVATED - NBREC MAX nb -
BUFSIZE buffer_size**

Explanation

This message informs that the E15 BLOCK VARIABLE interface was activated by DB2SORT tool and provides the technical details below:

sort_id

the internal sort identifier.

nb

the maximum number of records by block.

buffer_size

the size in bytes of the buffer (block) used as an input for the E15 exit.

User response

None.

Return Code

0

INZX070 **sort_id DBS2SORT E15 BLK-F
ACTIVATED - NBREC MAX nb -
BUFSIZE buffer_size**

Explanation

This message informs that the E15 BLOCK FIXED interface has been activated by DB2SORT tool and provides the technical details below:

sort_id

the internal sort identifier.

nb

the maximum number of records by block.

buffer_size

the size in bytes of the buffer (block) used as an input for the E15 exit.

User response

None.

Return Code

0

INZX071 *sort_id* DBS2SORT E15 BLK-mode
ACTIVATED - BUFSIZE *buffer_size*

Explanation

This message informs that E35 BLOCK mode has been activated by DB2SORT tool and provides the technical details below:

sort_id

the internal sort identifier.

mode

indicates the block mode used. V for variable block mode and F for fix block mode.

buffer_size

the size in bytes of the buffer (block) used as an output for the E35 exit.

User response

None.

Return Code

0

INZX072 *sort_id* PROBE_E15 REQUESTED
FOR *sortutil*. ESTIMATED VALUE
FOR LOWMEM IS *num* BYTES

Explanation

This message, issued because the PROBE_E15 was specified, provides an estimated value for LOWMEM to be used for the sort program indicated by the message and selectable through the SORTUTIL option or parmlib parameter.

User response

Consider making sure that the value of LOWMEM applicable to your unloads involving the indicated sort

program is almost the same as the estimated value. In particular, if the applicable sort program was the one defined by VUX037/SORTUTIL, consider specifying a value of VUX004/LOWMEM similar to the estimated value.

Return Code

0

INZX073 *sort_id* LOWMEM VALUE (*n* BYTES)
LOWER THAN VALUE FOR *sortutil*
ADVISED BY PROBE_E15

Explanation

This message informs that the applicable LOWMEM value is lower than the value determined by the PROBE_E15 feature and indicated by the INZX072 message.

User response

Consider increasing the LOWMEM value (either through the LOWMEM option or the VUX004/LOWMEM parmlib parameter to a value near the one indicated by the INZX072 message in order to improve the SORT parallelism reliability. A too low value can lead to an ABEND during sort processing due to a lack of memory below the 16 MB line.

Return Code

0

INZX081 IMAGE COPY IS BEING
READ FROM *ddname* or
table_space_name FLASHCOPY IS
BEING READ

Explanation

Db2 HPU is reading an image copy of the table space from a file that is identified either by the *ddname* or from a FlashCopy.

User response:

No action is required.

Return Code

None.

INZX089 DDN *ddname* [TS *tsname*][PART
part] : *n* RECORDS WRITTEN [IN
hh:mm:ss][INTERVAL *hh:mm:ss*],
UNLOAD CONTINUES.

Explanation

This message indicates how many rows have been unloaded into the indicated ddname, for the mentioned partition or set of partitions (part) if relevant (no partition number is mentioned if a non-partitioned table space is involved or if all the partitions are unloaded), of the table space named tsname (the tablespace name might not be indicated for an unload processed in SQL mode for which a table space could not be identified). This message is issued because VUU050/ULFRQMSG is set to a value greater than zero. It is issued each time M new rows have been unloaded, where M is the value of PARMLIB parameter VUU050/ULFRQMSG.

Depending on the content of PARMLIB parameter VUU050/ULFRQMSG, the following optional information can be displayed:

IN hh:mm:ss: Indicates the elapsed time since the first record of the mentioned table was unloaded. This information is displayed if TOTAL is specified in PARMLIB parameter VUU050/ULFRQMSG or if neither TOTAL nor DELTA is specified.

INTERVAL hh:mm:ss: Indicates the elapsed time since the previously issued message or since the first record was unloaded. This information is displayed if DELTA is specified for VUU050/ULFRQMSG.

User response

No action is required.

Return Code

None.

Note: The message is preceded/prefixed by the time when it was issued. It is either written by the system time when it is issued to the console or by a field formatted as hh:mm:ss: when the message is written in a file.

INZX090	DDN <i>ddname</i> [TS <i>tsname</i>][PART <i>part</i>] : <i>n</i> RECORDS WRITTEN [IN <i>hh:mm:ss</i>][INTERVAL <i>hh:mm:ss</i>], UNLOAD DONE.
----------------	---

Explanation

This message, issued at the end of the unload, indicates how many rows have been unloaded into the indicated ddname, for the mentioned partition or set of partitions (part) if relevant (no partition number is mentioned if a non-partitioned table space is involved or if all the partitions are unloaded), of the table space named tsname (the tablespace name might not be

indicated for an unload processed in SQL mode for which a table space could not be identified).

Depending on the content of PARMLIB parameter VUU050/ULFRQMSG, the following optional information can be displayed:

IN hh:mm:ss: Indicates the elapsed time since the first record of the mentioned table was unloaded. This information is displayed if TOTAL is specified in PARMLIB parameter VUU050/ULFRQMSG or if neither TOTAL nor DELTA is specified.

INTERVAL hh:mm:ss: Indicates the elapsed time since the previously issued message or since the first record was unloaded. This information is displayed if DELTA is specified for VUU050/ULFRQMSG.

User response

No action is required.

Return Code

None.

INZX101	<i>indexspace</i> INDEX SCAN STARTED
----------------	---

Explanation:

User response

No action is required.

Return Code

None.

INZX102	<i>indexspace</i> INDEX SCAN PERFORMED, <i>nnnn</i> RIDs EXTRACTED
----------------	---

Explanation

This message is issued for informational purposes only.

System action

Processing continues.

User response

No action is required.

Return Code

None.

INZX103	<i>indexspace</i> INDEX SCAN STARTED FOR PARTITION <i>nnn</i>
----------------	--

Explanation

This message is issued for informational purposes only.

System action

Processing continues.

User response

No action is required.

Return Code

None.

INZX104	<i>indexspace</i> INDEX PARTITION <i>nnn</i> SCANNED, <i>ppp</i> RIDS EXTRACTED
----------------	--

Explanation

This message is issued for informational purposes only.

System action

Processing continues.

User response

No action is required.

Return Code

None.

INZX105	<i>indexspace</i> INDEX SCAN TURNED OFF, REASON OX<i>reason-seq</i>, <i>nnn</i> RIDS EXTRACTED
----------------	---

Explanation

The indexscan feature that was triggered while processing a logical unload with an ORDER clause has been turned off. This occurs because Db2 HPU has determined the indexscan feature was not worth being used. This normally occurs when the clustering index of the involved table space is not well organized. The message indicates the number (nn) of RIDs sequentially read from the index before Db2 HPU decided to turn the indexscan feature off, reason and seq codes that are meant from advanced troubleshooting by IBM support if needed.

User response

No action is required if the performance of the related unload is not a problem but consider reorganizing

or rebuilding the index to make sure the indexscan feature is used. If Db2 HPU persists in turning the index scan feature off, contact your IBM support and provide the joblog of the unload including the SYSnnnnn ddname file.

Return Code

None.

INZX106	<i>indexspace</i> INDEX SCAN PARTITION <i>ppp</i> TURNED OFF, REASON OX<i>reason-seq</i>, <i>nnn</i> RIDS EXTRACTED
----------------	--

Explanation

The indexscan feature that was triggered while processing a logical unload with an ORDER clause has been turned off for the indicated partition of the index. This occurs because Db2 HPU has determined the indexscan feature was not worth being used for this partition of the index. This normally occurs when the partition of the clustering index of the involved table space is not well organized. The message indicates the number (nn) of RIDs sequentially read from the index before Db2 HPU decided to turn the indexscan feature off, reason and seq codes that are meant from advanced troubleshooting by IBM support if needed.

User response

No action is required if the performance of the related unload is not a problem but consider reorganizing or rebuilding the indicated partition of the index to make sure the indexscan feature is used. If Db2 HPU persists in turning the index scan feature off, contact your IBM support and provide the joblog of the unload including the SYSnnnnn ddname file.

Return Code

None.

INZX110	ESTIMATED SIZES (ROWS): <i>nnnn</i>
----------------	---

Explanation

This message is issued for information purposes only.

System action

Processing continues.

User response

No action is required.

Return Code

None.

INZX111 *ddname ppppK / sssssK
REQUESTED ON uu UNIT(S),
SIZE=(rows * mean_length)*

Explanation

A temporary dataset was allocated under the indicated ddname and with the displayed primary (pppp) and secondary (ssss) quantities expressed in kilobytes with a unit-count of uu. These quantities were determined so that the dataset can contain the indicated size - i.e. amount of data - expressed in term of a number of rows (rows) having the indicated mean length (mean_length).

User response

No action is required.

Return Code

None.

INZX112 *ddname UNIT-COUNT = cnt USED
INSTEAD OF OPTIMAL UNCNT =
cnt AS PER limit SPECIFICATION*

Explanation

The allocation of the data set handled by the mentioned ddname could not be done with the estimated number of units because it exceeded one of the following limits:

- LIMUNIT: set via the VUX010/LIMUNIT parmlib parameter or its counterpart LIMUNIT in SYSIN, for dataset to allocate on disk
- MAXTUNIT: set via the VUX017/MAXTUNIT parmlib parameter or its counterpart MAXTUNIT in SYSIN, for dataset to allocate on tape

User response

If subsequent ABENDSx37 affects the data set, consider the following actions depending on the estimated size mentioned in a previous INZX111 message concerning the same ddname:

- if the estimated size is obviously much bigger than needed, either do nothing or specify YES for the RTSESTIM feature or force directly specify an estimated of the expected amount of data to unload with the MAX_EXPECTED_ROWS option.
- if the estimated size if accurate, change the value specified for the either the WRKMXPR and/or

LIMUNIT feature. If no ABENDSx37 occur, consider changing the value anyway to prevent such likely issues from occurring.

Return Code

0

INZX113 *ddname PRIMARY-QTY = primary-
qty USED INSTEAD OF OPTIMAL
PRIMARY-QTY = primary-qty AS
PER limit SPECIFICATION*

Explanation

The allocation of the data set handled by the mentioned ddname could not be done with the estimated primary quantity because it exceeded the following limit:

- WRKMXPR : set via the VUX019/WRKMXPR parmlib parameter or its counterpart WRKMXPR in SYSIN

User response

If subsequent ABENDSx37 affects the data set, consider the following actions depending on the estimated size mentioned in a previous INZX111 message concerning the same ddname:

- if the estimated size is obviously much bigger than needed, either do nothing or specify YES for the RTSESTIM feature or force directly specify an estimated of the expected amount of data to unload with the MAX_EXPECTED_ROWS option.
- if the estimated size if accurate, change the value specified for the either the WRKMXPR and/or LIMUNIT feature. If no ABENDSx37 occur, consider changing the value anyway to prevent such likely issues from occurring.

Return Code

0

INZX114 **ERROR DURING EXIT *step-name*
RC=*exit-rc***

Explanation

the exit specified by the OUTEXIT keyword returned a value greater than 4 which means the exit encountered an error and requires the related unload to be stopped.

User response

determine the root cause of the exit's error with the help of the related messages returned by the EXIT

and reproduced by Db2 HPU through the associated message and fix it or report the issue to your IBM support if the root cause cannot be determined.

Return Code

8

INZX133	NO VALID INPUT DDNAME <i>ddname</i> FOUND, PARTITION <i>nnn</i> NOT UNLOADED
----------------	---

Explanation

During the unload processing of partition *nnn* of a partitioned table space, Db2 HPU was unable to find the data set with the *ddname* that corresponds to the image copy of partition *nnn*. The partition has not been unloaded and no row has been written into the output file.

User response

This situation might be intentional. Otherwise check that the *ddname* corresponding to the image copy of partition *nnn* has been allocated in the JCL. When unloading the partitions of a table space into independent data sets, one image copy data set per partition must be provided as input data sets. (See “Db2 HPU-allocated ddnames” on page 97.)

Return Code

4

INZX134	TABLESPACE <i>tsname</i> HAS ONLY <i>number</i> LDS. ALLOCATION ERROR ON DATA SET CAN BE IGNORED.
----------------	--

Explanation

This message is issued to inform that the processing of multiple LDS table space has led to an allocation error message against a non-existing LDS that has been issued and that Db2 HPU has checked that this was a normal situation considering the actual number of LDS the table space is made of.

This situation occurs when the last LDS of the table space has exactly reached the maximum size of the data set defined for this table space. The reported situation has no impact on the correctness of the unload output.

User response

None.

Return Code

None

INZX135	VERSION 0 MISSING FOR <i>dbname.tsname</i>. IF ALTER TABLE PROCESSED RECENTLY, TRY LATER OR REORGANIZE THE TABLESPACE
----------------	--

Explanation

This message is sent to the console before abending with an USER ABEND 1022 (R15=0) in the following situation:

- the unloaded table is versioned as it has been altered to modify its DDL
- the LDS VSAM dataset contains ONLY record in version 0 (no row has been updated since the ALTER TABLE process)
- no description of the version 0 has been found in the Db2 catalog. This case occurs when the insertion of the version 0 is delayed so the job can run successfully later. However, to insure a successful execution, the table space has to be reorganized.

User response

Rerun the job later or reorganize the table space.

Return Code

ABEND U1022 with R15=0

INZX206	<i>tsname</i> DSNUTILB FAILED RETURN CODE = <i>nn</i> ***
----------------	--

Explanation

The Db2 DSNUTILB utility cannot continue because it encountered an error.

User response

Examine the Db2 messages in the SYSPRINT file; see the *Db2 Universal Database for z/OS Messages and Codes* manual for a complete description of possible return codes and reason codes.

Return Code

8

INZX207	<i>tsname</i> DSNUTILB ABENDED *** <i>reason code</i> = X'<i>hhhhhhh</i>'***
----------------	---

Explanation

The Db2 DSNUTILB utility cannot continue because it abended.

User response

Examine the Db2 messages in the SYSPRINT file; see the *Db2 Universal Database for z/OS Messages and Codes* manual for a complete description of the possible return codes and reason codes.

Return Code

Db2 reason code

INZZ001S	(<i>abend_sequence</i>) ABEND IN <i>program_name</i> - CODE=<i>system_completion_code</i> <i>user_completion_code</i> REASON=<i>reason_code</i>
-----------------	--

Explanation

One or more abends occurred, where

abend_sequence

Indicates the sequence in which this abend occurred during the current process. If a dump is taken for this abend, message INZZ100I(*abend_sequence*) SDWA is issued at the beginning of the dump.

program_name

Indicates the name of the program that was running when the abend occurred. If the program name could not be determined, ********* is displayed.

system_completion_code

Indicates the system completion code.

user_completion_code

Indicates the user completion code.

reason_code

Indicates the hexadecimal reason code.

If a dump is not taken for the abend, this message is followed by either INZZ002I, INZZ003I, or INZZ004I messages. If a problem occurs while the dump is being taken, this message is followed by either INZZ011W, INZZ012W, or INZZ019W messages. If the dump was successfully taken, a message is not issued.

User response

Complete the steps for the following system completion codes:

S000

See the explanation for the user completion code that is indicated in the message text in [“Db2 HPU user abend codes”](#) on page 385.

S878

Not enough memory was available to complete the process.

- If IEA705I mentions a problem during FREEMAIN, after you ensure that the VZM009 parameter has the correct value, collect a SYSABEND DUMP if the problem recurs, and contact IBM Software Support.
- If IEA705I mentions a problem during GETMAIN, increase the REGION value or reduce the memory that is necessary for your job by using the instructions in [“Decreasing the amount of necessary memory”](#) on page 311.

For other system completion codes, see z/OS MVS System Codes.

Return Code

None.

INZZ002I	(<i>abend_sequence</i>) NO DUMP REQUESTED
-----------------	--

Explanation

A dump was not requested for this abend, so a dump cannot be taken. The abend was specified in the preceding message INZZ001S with the same abend sequence. In the message text, *abend_sequence* indicates the sequence in which this abend occurred during the current process.

User response

No action is required.

Return Code

None.

INZZ003I	(<i>abend_sequence</i>) NO DUMP PRODUCED FOR THIS SYSTEM CODE
-----------------	--

Explanation

The settings indicated that a dump was not to be taken. In the message text, *abend_sequence* indicates the sequence in which this abend occurred during the current process.

User response

If a dump is necessary to diagnose the problem, change the settings so that a dump will be taken, and rerun the job with a SYSABEND DD card.

Return Code

None.

INZZ004I (abend_sequence) SYSABEND
UNAVAILABLE, NO DUMP TAKEN

Explanation

A dump could not be taken because the SYSABEND ddname was not available. A SYSABEND DD card might not be in the JCL. In the message text, *abend_sequence* indicates the sequence in which this abend occurred during the current process.

User response

Check system messages that might give details about the problem with the SYSABEND ddname. Correct the problem, and rerun the job.

Return Code

None.

INZZ005I (abend_sequence) NO DUMP
PRODUCED DUE TO PREVIOUS
ERROR

Explanation

A dump was not taken. In the message text, *abend_sequence* indicates the sequence in which this abend occurred during the current process.

User response

Check previous messages INZZ004I, INZZ01nX, where *n* is a number and *x* is a character, for the reason why a dump was not taken.

Return Code

None.

INZZ009S (????) ABEND OCCURED - NO
DETAIL AVAILABLE

Explanation

An abend occurred and was trapped. However, more detailed information is unavailable. In the message

text, '???' indicates that the sequence of this abend could not be determined.

User response

Check other system messages for more information about solving the problem.

Return Code

None.

INZZ011W (abend_sequence) NO DUMP
TAKEN - ABEND DURING
OPENING SYSABEND

Explanation

An error occurred while opening the SYSABEND file. In the message text, *abend_sequence* indicates the sequence in which this abend occurred during the current process.

User response

Check message INZZ013I and other system messages to determine how to solve the problem.

Return Code

None.

INZZ012W (abend_sequence) ERROR DURING
DUMP, SYSABEND IS TRUNCATED

Explanation

A failure occurred while the dump was being written. The SYSABEND file does not contain the whole DUMP. In the message text, *abend_sequence* indicates the sequence in which this abend occurred during the current process.

User response

Check message INZZ013I and other system messages to determine how to solve the problem.

Return Code

None.

INZZ013I (abend_sequence)
CODE=system_completion_code
user_completion_code
REASON=reason_code

Explanation

This message is issued after message INZZ011W or INZZ012W and explains which abend prevented the dump from being taken correctly.

abend_sequence

Indicates the sequence in which this abend occurred during the current process. If a dump is taken for this abend, message INZZ100I(*number_of_abends*) SDWA is issued at the beginning of the dump.

system_completion_code

Indicates the system completion code of the abend that prevented the dump from being taken correctly.

user_completion_code

Indicates the user completion code of the abend that prevented the dump from being taken correctly.

reason_code

Indicates the hexadecimal reason code of the abend that prevented the dump from being taken correctly.

If a dump is not taken for the abend, this message is followed by either INZZ002I, INZZ003I, or INZZ004I messages. If a problem occurs while the dump is being taken, this message is followed by either INZZ011W, INZZ012W, or INZZ019W messages. If the dump was successfully taken, a message is not issued.

User response

Follow the instructions in the related INZZ011W or INZZ012W messages.

Return Code

None.

INZZ019W	(????) NO DUMP TAKEN - ABEND DURING OPENING SYSABEND - NO DETAIL AVAILABLE
-----------------	---

Explanation

A dump could not be taken, and the reason could not be determined. In the message text, ???? indicates that the sequence of this abend could not be determined.

User response

Check other system messages to determine why the abend occurred. If message INZZ021I was issued, the job might remain in a wait state. In this case, consider canceling the job.

Return Code

None.

INZZ021I	(<i>abend_sequence</i>) PROCESSING. ANOTHER PROCESS IS DELAYED
-----------------	---

Explanation

An abend occurred while another one was being processed. Processing of the new one is postponed. In the message text, *abend_sequence* indicates the sequence in which this abend occurred during the current process.

User response

No action is required.

Return Code

None.

INZZ022I	(<i>abend_sequence</i>) PROCESSING. ANOTHER PROCESS IS WAITING
-----------------	---

Explanation

An abend is being processed while at least one other abend is waiting to be processed. In the message text, *abend_sequence* indicates the sequence in which this abend occurred during the current process.

User response

No action is required.

Return Code

None.

INZZ023I	(<i>abend_sequence</i>) PROCESS ENDING. ANOTHER PROCESS IS RESUMED
-----------------	---

Explanation

The processing of an abend finished, and the processing of an abend that had been postponed is about to start. In the message text, *abend_sequence* indicates the sequence in which this abend occurred during the current process.

User response

No action is required.

Return Code

None.

INZZ031S *sort-identifier* SORT UTILITY HAS
ABENDED

Explanation

The indicated sort process has abended.

User response

Take the ABEND and related messages from the sort program into account to determine the root cause of its abnormal termination. Solve the issue.

Return Code

ABEND

INZZ100I (*abend_sequence*) SDWA :

Explanation

This message is written at the beginning of the data that is related to the dump that was taken for one of the abends that occurred during the process. In the message text, *abend_sequence* indicates the sequence in which this abend occurred during the current process.

User response

No action is required.

Return Code

None.

INZZ114S OUT OF MEMORY

Explanation

A memory allocation request has failed. The INZZ114S message is systematically followed by an ABEND U1278.

User response

increase the REGION value of your Db2 HPU step or decrease the parallelism of execution.

Return Code

16

INZZ116S THE PROCESS ABENDS WITH
USER COMPLETION CODE
user-abend-code REASON 0X*user-*
abend-reason INTERNAL(*value1/*
value2)

Explanation

The process will terminate in USER ABEND with the indicated reason code. The additional *value1* and *value2* values are meant for the IBM support.

User response

Refer to the documentation of the Db2 HPU user abends and related reason codes.

Return Code:

ABEND

INZZ120S POSIX ENVIRONMENT
INITIALIZATION FAILED.
(REASON:*reason*)

Explanation

An error occurred during initialization of the POSIX environment when the LE directive POSIX(ON) has been set. This might be caused by a lack of RACF authorization as the user that invoked Db2 HPU must be permitted to the BPX.MAP FACILITY class profile. The reason code indicated by the message is for advanced diagnosis by your IBM technical support.

User response

Look for prior RACF messages and fix the mentioned issue, if any. Otherwise, Contact IBM Software Support, supply the joblog and mention this message and the indicated reason code.

Return Code

8

INZZ121I ABEND PROCESSING : STAE IS
STARTING

Explanation

The Db2 HPU STAE routine is starting because an ABEND has occurred. This information is meant for exploitation by the IBM support if diagnosis regarding the ABEND processing is needed.

User response

No action is required.

Return Code

0

INZZ122I ABEND PROCESSING : STAE
ROUTINE ENDING

Explanation

The Db2 HPU STAE routine triggered to process an ABEND is ending. This information is meant for exploitation by the IBM support if diagnosis regarding the ABEND processing is needed.

User response

No action is required.

Return Code

0

INZ0666F **FATAL ERROR : text**

Explanation

An unexpected exception has occurred. A string might be included at the end of the message. These messages are intended for the IBM Software Support, and are not documented.

User response

Contact IBM Software Support.

Return Code

16

PLI200 ***** SYSIN FILE COULD NOT BE OPENED**

Explanation

Db2 HPU was unable to open the SYSIN data set.

User response

Check the JCL that was submitted and the characteristics of the SYSIN data set, if allocated in the JCL. Or use Tool Customizer to customize all JCL and data sets that are necessary for the utilities.

Return Code

12

PLI201 ***** COMMAND OUT OF SEQUENCE**

Explanation

Db2 HPU detected that the specified command is out of sequence.

User response

Check the JCL that was submitted and the characteristics of the SYSIN data set, if allocated in the JCL, or use Tool Customizer to customize all JCL and data sets that are necessary for the utilities.

Return Code

8

PLI202 ***** ERROR READING SYSIN FILE**

Explanation

Db2 HPU encountered an error when reading the SYSIN data set.

User response

Check the JCL that was submitted and the characteristics of the SYSIN data set, if allocated in the JCL, or use Tool Customizer to customize all JCL and data sets that are necessary for the utilities.

Return Code

12

PLI203 ***** INVALID COMMAND**

Explanation

Db2 HPU encountered an invalid command.

User response

Check the JCL that was submitted and the characteristics of the SYSIN data set, if allocated in the JCL or use Tool Customizer to customize all JCL, and data sets that are necessary for the utilities.

Return Code

None.

PLI210 ***** REFERENCED MODULE DOES NOT CONTAIN INZPLIB CSECT**

Explanation

Db2 HPU was unable to locate the INZPLIB CSECT within the referenced module.

User response

Check the JCL that was submitted and the characteristics of the SYSIN data set, if allocated in the JCL, or use Tool Customizer to customize all JCL and data sets that are necessary for the utilities.

System action

None.

User response

Correct the syntax error of the specified PARMLIB variable, then restart Db2 HPU.

PLIB012E **vvvvvvvv MUST BE A VARIABLE OF
THE PARMLIB OR A JCL DD CARD**

Explanation

Db2 HPU is unable to start because a mandatory PARMLIB parameter is missing.

System action

None.

User response

Insert the missing variable (designating a file) into the PARMLIB, or insert a DD card that specifies the variable name as ddname into the JCL. Then restart Db2 HPU.

PLIB013E **ALLOCATION FAILED FOR THE
DSNAME *dataset-name* (VARIABLE
vvvvvvvv IN THE PARMLIB)**

Explanation

Db2 HPU is unable to start because a file allocation failed.

System action

None.

User response

Verify that the file exists, or specify another file name into the corresponding variable of the PARMLIB. Then restart Db2 HPU.

PLIB100I **PARMLIB =*dataset-name***

Explanation

A PARMLIB name error has been detected.

System action

None.

User response

Refer to the previous message that describes this error.

PLIB999S **PARMLIB SEVERE ERROR :
MODULE = *mmmmmmm* RETURN
CODE = *rr* - REASON CODE =
cc CONTACT THE IBM SUPPORT
CENTER**

Explanation

Db2 HPU encountered an internal error.

User response

Contact IBM Software Support, and supply the return and reason codes.

Chapter 10. Reference

These reference topics are designed to provide you with quick access to information about Db2 HPU syntax and data.

Customization reference

Refer to information about Db2 HPU parameters, dsnames, and templates during the customization process.

Topics:

- [“Recommended settings” on page 535](#)
- [“Discover process parameters” on page 541](#)
- [“Db2 HPU library dsnames” on page 541](#)
- [“Db2 HPU Db2 parameters” on page 542](#)
- [“Db2 HPU output data parameters” on page 568](#)
- [“Db2 HPU Db2 Administration Tool and Db2 Launchpad parameters” on page 630](#)
- [“Db2 HPU conversion parameters” on page 631](#)
- [“Db2 HPU file management parameters” on page 632](#)
- [“Db2 HPU tuning parameters” on page 639](#)
- [“Db2 HPU sort parameters” on page 648](#)
- [“Customization templates” on page 650](#)

Recommended settings

The behavior of Db2 HPU can be adjusted to your needs by means of many parameters.

For easier setting, many parameters have a default value chosen to be either usual or optimal. Except for specific requirements, the default value can be kept.

However, the behavior of Db2 HPU is always enriched and improved by offering new features but also new behaviors for an existing feature. In the latter case, the new behavior is enabled by a new value of an existing parameter or by a new parameter. In order to keep the behavior of Db2 HPU jobs, the former default behavior is not changed, even though the new behavior is an improvement.

As a consequence, the default value of some parameters is not the more advisable value.

When using Db2 HPU for the first time or in order to benefit from its improvements, consider the recommendations concerning the settings below.

Parameter name	Sub-Parameter Name	Default Value	Recommended Value	Benefit of recommended value	Advice applicable from Db2 HPU 5.2 maintenance level (1)	Scope of the recommendation
VUM033/OPTRGPRT	/	NO	YES	Better performance of logical unloads involving partitions and run in native mode	GA	All
VUU030/ULOPTNS	AUTO_UNCNT_MAX	0	Value greater than zero according to your storage policy	Better control of resources allocated by Db2 HPU	GA	Site
VUU030/ULOPTNS	BIF_COMPATIBILITY_FROM_DB2_SETTINGS	NO	V11_AND_LATER	Consistency with the Db2 settings and a consistency of SQL and native modes	GA	All
VUU030/ULOPTNS	CNTLCARDS_DB2	NO_DDL	DDL	Compliance with UNLOAD PLUS	GA	Site
VUU030/ULOPTNS	COPYDDN_STRICT	NO	YES	More rigorous behavior	GA	All
VUU030/ULOPTNS	DB2SORT_BLOCK	NO	SCOPEn with the biggest value of n available or ANY	Better performance by exploiting the DB2SORT block level interface when applicable	GA	Site(2)
VUU030/ULOPTNS	DSNTIAUL_STRICT	NO	YES	Better compliance with DSNTIAUL	GA	All
VUU030/ULOPTNS	FIX(APAR_PH35541)	(3)	FIX(APAR_PH35541)	Db2 compliance	GA	All
VUU030/ULOPTNS	FIX(APAR_PH44174)	(4)	FIX (APAR_PH44174)	Behavior not dependent on output format as intended and documented	GA	All

Parameter name	Sub-Parameter Name	Default Value	Recommended Value	Benefit of recommended value	Advice applicable from Db2 HPU 5.2 maintenance level (1)	Scope of the recommendation
VUU030/ULOPTNS	ROWID_AS_GENERATED_ALWAYS_IF_UNDETERMINED	NO	YES	More suited to the general use cases (ROWID columns are usually defined with the GENERATED_ALWAYS attribute)	GA	All
VUU030/ULOPTNS	SEARCH_UNCATALOGED_IC	NO	YES	Capability to exploit uncatalogued image copies through the COPYDDN LAST_IC or COPYDDN -integer option	GA	All
VUU030/ULOPTNS	TAPELBI	NOSPANNED	ALL	Wider support of LBI	GA	All
VUU030/ULOPTNS	TEMPLATE_LIMIT	NO	YES	Compliance with Db2	GA	All
VUU030/ULOPTNS	TEMPLATE_SSID_SUBSTITUTION	MEMBER_NAME	GROUP_NAME	Compliance with Db2	GA	All
VUU030/ULOPTNS	TRUE_UNICODE	NO	YES	More rigorous behavior	GA	All
VUU030/ULOPTNS	U_NULLCHAR	6F	Value specified in your former UNLOAD PLUS settings	Better compliance with UNLOAD PLUS	GA	Site
VUU030/ULOPTNS	U_NULLTYPE	T1	Value specified in your former UNLOAD PLUS settings	Compliance with UNLOAD PLUS	GA	Site
VUU030/ULOPTNS	USE_ADMIN_INFO_SYSPARM	NO	YES	Compliance with Db2	GA	All

Parameter name	Sub-Parameter Name	Default Value	Recommended Value	Benefit of recommended value	Advice applicable from Db2 HPU 5.2 maintenance level (1)	Scope of the recommendation
VUU030/ ULOPTNS	USE_V12_ ALTERNAT E_OVERRI DE_LOAD_ SYNTAX	NO	YES	Avoid to use LOAD deprecated syntax which is relevant if the unloaded data does not need to be loaded into Db2 subsystems in version prior to V12	GA	All
VUU030/ ULOPTNS	USER_SWI TCH_METH OD	AS	RACF	Compliance with Db2	GA	All
VUU033/ ULCHKCPY	/	NO	YES	Better reliability by enforcing automated controls of the input image copies	GA	All
VUU044/ SUBTKSOF	/	YES	NO	Better overall performance expected for unloads run in native mode from several partitions into a single data set.	GA	All
VUU054/ CTRLLIBM	/	NO	YES	Compliance with Db2 by ensuring full compatibility of generated LOAD statements with Db2 LOAD	GA	All

Parameter name	Sub-Parameter Name	Default Value	Recommended Value	Benefit of recommended value	Advice applicable from Db2 HPU 5.2 maintenance level (1)	Scope of the recommendation
VUU057/ OPALLFMT	/	NO	YES	Better consistency - Db2 HPU settings for USER format also applies to all Db2 HPU native built-in formats	GA	All
VUU073/ MAXERR	/	0	Any non zero value (5)	Lower system resource consumption by limiting the number of messages that are written into the spool	GA	Site
VUU083/ DISPPARM	/	NO	IF,ddname or YES,ddname with the ddname of your choice	Easier troubleshooting More comprehensive reporting Compliance with UNLOAD PLUS	GA	Site
VUU087/ DISPEXPL	/	NO	IF,ddname or YES,ddname with the ddname of your choice	Easier troubleshooting More comprehensive reporting	GA	All
VUU089/ INTORUL1	/	COLTYPE	REFORMAT	More intuitive and consistent behavior of the REFORMAT clause feature	GA	All
VUU090/ RSTENABL	/	NO	YES	Better ease of use and performance	GA	Site
VUU094/ SORTIC	/	NO	YES	Better reliability by enforcing sort of the input image copies in case of doubt	GA	All

Parameter name	Sub-Parameter Name	Default Value	Recommended Value	Benefit of recommended value	Advice applicable from Db2 HPU 5.2 maintenance level (1)	Scope of the recommendation
VUU095/ ENBDISP	/	NO	YES	Easy way to monitor the Db2 HPU activity	GA	All
VUU097/ CHKMEM	/	NO	YES,CANCEL_AND_FLUSH	Easier troubleshooting in case of memory outage	GA	All
VUU100/ ENBHIST	/	NO	DETAIL	Easy way to monitor the HPU activity	GA	All
VUX036/ RTSESTIM	N/A	YES	YES,EXTERNALIZE	Better exploitation of memory and storage resources	GA	All
VUX039/ ZIIP	/	OFF	Any value different from OFF	Savings of regular CPU time by enabling zIIP processor exploitation	GA	Site
VUX042/ ZIIPMXPL	/	0	Value greater than the number of available zIIP processors - optimal value to be determined from benchmarking	Better performance regarding elapse time	GA	Site
VUX043/ ZIIPMXPU	/	0	Value greater than the number of available zIIP processors - optimal value to be determined from benchmarking	Better performance regarding elapse time	GA	Site

(1) GA stands for General Availability and means that the piece of advice is applicable to Db2 HPU 5.2 without any specific maintenance.

- (2) Choose a SCOPE value to make sure no maintenance changes the behavior and ALL to systematically exploit the feature on the widest scope supported by the current maintenance level.
- (3) When FIX(APAR_PH35541) is not specified, the fix of APAR APAR_PH35541 is not enabled.
- (4) When FIX(APAR_PH44174) is not specified, the fix of APAR PH44174 is not enabled.
- (5) A different value can be specified for the Db2 HPU, the FastUnload syntax and the Unload Plus syntaxes.

Discover process parameters

The Discover process parameters on the Discover Customized Product Information panel (CCQPDSC) in Tools Customizer are required to run the Discover EXEC.

You can accept the default values for the Discover process parameters, or you can customize them based on your specific requirements. All Discover process parameters are required.

The following list describes the Discover process parameters.

Name of the PARMLIB library of a previous version (4.2.0 and later)

The name of PARMLIB library (INZPLIB/INFPLIB) of a previous version. Use this field when the previous installation was done through TCz (Db2 HPU version 4.2.0 and later). Example: oldhlq.SINZAMP. There is no default value.

Previous data set of variables to be retrieved (4.1.0 and earlier)

The name of the data set that contains the variable to be discovered (INZRSAVE or INZTVAR member). Use this field when the previous installation was done without TCz (Db2 HPU version 4.1.0 and earlier). Example: oldhlq.SINZRAV(INZRSAVE). There is no default value.

Previous data set with customized file dsnames (4.1.0 and earlier)

The name of the data set that contains customized files dsnames (INZTDSN, member). Use this field when the previous installation was done without TCz (Db2 HPU version 4.1.0 and earlier). Example: oldhlq.SINZAMP(INZTDSN). There is no default value.

Verbose mode for discover procedure.....OFF (OFF,ON)

Specify ON to enable display of the trace information issued by the discover process. Otherwise, specify OFF.

Db2 HPU library dsnames

The Db2 HPU library dsnames section on the Product Parameters panel (CCQPPRD) in Tools Customizer contains the dsnames of the Db2 HPU libraries.

The following list describes the dsnames:

Load modules library (SINZLOAD)

This parameter is required. It specifies the dsname of the load modules library (SINZLOAD).

In previous releases of Db2 HPU, the name of this parameter was VIZ003.

APF load modules library (SINZLINK)

This parameter is required. It specifies the dsname of the APF load modules library (SINZLINK).

In previous releases of Db2 HPU, the name of this parameter was VIZ004.

Samples library (SINZSAMP)

The dsname of the samples library (INZSAMP).

PARMLIB library (INZPLIB/INFPLIB)

This parameter is required. It specifies the dsname of the PARMLIB library (INZPLIB). Either provide the name of an allocated partitioned dataset (PDS) with RECFM=FB and LRECL=80 or let the INZTVAR customization job allocate it. In the latter case, make sure the value of the Dasd unit where to allocate the PARMLIB if necessary (VZM012/PERMUNIT)" is suitable. Do not specify the SINZSAMP library. This PARMLIB library is handled by Db2 HPU under the INFPLIB ddname.

In previous releases of Db2 HPU, the name of this parameter was VIZ007.

Dasd unit where to allocate the PARMLIB if necessary (VZM012/PERMUNIT)

This parameter is optional. Specify the unit name where to allocate the parmlib library if needed (i.e. this data set is not already cataloged). Specify the name of a unit defined on your site and that is used to allocate permanent datasets.

Default value : SYSDA

Product's DBRM library (SINZDBRM)

This parameter is required. It specifies the dsname of the DBRM library (SINZDBRM).

In previous releases of Db2 HPU, the name of this parameter was VIZ012.

REXX EXEC library (SINZCLST)

This parameter is required. It specifies the dsname of the REXX EXEC library (SINZCLST).

ISPF LOAD modules library (SINZLLIB)

This parameter is required to run the Db2 HPU interactive component. It specifies the dsname of the ISPF load module library (SINZLLIB) that contains the load modules.

In previous releases of Db2 HPU, the name of this parameter was VIZ013.

ISPF messages library (SINZMLIB)

This parameter is required to run the Db2 HPU interactive component. It specifies the dsname of the ISPF messages library (SINZMLIB) that contains the messages.

In previous releases of Db2 HPU, the name of this parameter was VIZ015.

ISPF panels library (SINZPLIB)

This parameter is required to run the Db2 HPU interactive component. It specifies the dsname of the ISPF panels library (SINZPLIB) that contains the ISPF panels.

In previous releases of Db2 HPU, the name of this parameter was VIZ016.

ISPF skeletons library (SINZSLIB)

This parameter is required to run the Db2 HPU interactive component. It specifies the dsname of the ISPF skeletons library (SINZSLIB) that contains the skeletons.

In previous releases of Db2 HPU, the name of this parameter was VIZ017.

ISPF tables library (SINZTLIB)

This parameter is required to run the Db2 HPU interactive component. It specifies the dsname of the ISPF tables library (SINZTLIB) that contains the tables.

In previous releases of Db2 HPU, the name of this parameter was VIZ018.

Db2 HPU Db2 parameters

The Db2 parameters section on the Product Parameters panel (CCQPPRD) in Tools Customizer contains the Db2 parameters that are used by Db2 HPU.

The Db2 HPU parameters are designated in three ways.

- a long designation that describes what the parameter is used for
- two short names used as a reference especially within the messages texts:
 - one has the following format Vxxnnnn where xx are characters and nnnn are figures
 - the other one is a short label of 8 characters

You can accept the default values for the Db2 parameters, or you can configure them based on your specific requirements. Some Db2 parameters are mandatory and must be configured.

The following list describes the common Db2 parameters. The parameters are listed in the following format:

description (Vxxnnnn/parameter-name)

Percentage of displaced pages in IC to be sorted (VUX023/PGDFIN)

This parameter is optional. It specifies the estimated value of the percentage of displaced pages in inline full-image copies (FIC) or, in any input image copy requiring a sort process, such as image copies created by the COPYTOCOPY utility or merged image copies. Consider increasing the value of this parameter if:

- failures frequently occur during the sort processing of input image copies
- the failures of the sort process are due to an underestimated amount of data to be sorted caused by an irrelevant value of PGDFIN.

As the estimated amount of data to be sorted does not only depend on PGDFIN, before concluding PGDFIN is not correct, make sure none of the following situation applies:

- Db2 HPU does not correctly estimate the size of the target table space involved in the unload of the image copy. You might need to change the setting of VUX036/RTSESTIM if this issue occurs.
- The amount of data in the input image copy is significantly bigger than the amount of data in the related target tablespaces. You might need to use the SIZE suboption of the COPYDDN option to prevent Db2 HPU to use its own estimation.

Valid values are 1 - 100. The default value is 20.

The corresponding SYSIN keyword is PGDFIN in the Technical Parameters options block, which can be coded in the GLOBAL OPTIONS block.

This parameter is also referred to as VUX023/PGDFIN.

Use real-time statistics tables for size estimation (VUX036/RTSESTIM)

This parameter is optional. It specifies whether the content of the real-time statistics tables must be taken into account to estimate the number of rows of the table space to be unloaded. This estimate is used to allocate the output data set when a TEMPLATE is used, to set the sort program parameters when an ORDER BY clause is specified, or both.

Valid values are YES[,EXTERNALIZE] and NO

YES[,EXTERNALIZE]

requests the content of the real-time statistics tables, when available, be used to estimate the number of rows of the table space to be unloaded. Taking RTS into account normally gives the more accurate estimate. The optional EXTERNALIZE keyword allows to get an even more reliable estimate as this keyword requests Db2 HPU first issues a Db2 command to externalize the RTS for the involved object - thus refreshing the related data from RTS tables - before taking them into account;

NO

the content of the real-time statistics tables is not used to estimate the number of rows of the table space to be unloaded. Choose this value only if instructed to do so by the IBM support or if this setting is inherited from a functional installation.

The corresponding SYSIN keyword is USE_RTS_FOR_ESTIMATION in the Technical Parameters options block, which can be coded in the GLOBAL OPTIONS block.

This parameter is also referred to as VUX036/RTSESTIM

The default value is YES.

Maximum degree of parallelism for SELECT (VUX031/DB2PARAL)

This parameter is optional. It specifies the parallelism degree for an UNLOAD command when several SELECT statements are processed by using Db2 access (using DB2 FORCE or DB2 YES with unsupported SELECT statements). The value that you specify indicates the maximum number of SELECT statements that are processed in parallel. The value that you specify indicates the maximum number of SELECT statements that are processed in parallel.

This parameter is also referred to as VUX031/DB2PARAL.

Valid values are 1 - 65535. The default value is 5.

Db2 plan name of the Call Level Interface (VUX044/CLIPLAN)

This parameter is optional. It specifies the plan name of the Db2 for z/OS Call Level Interface (CLI).

Note: The DSNACLI plan can be created using the sample job in member DSNTIJCL of the DB2 SDSNSAMP data set. Refer to the Db2 for z/OS Call Level Interface Guide and Reference for further information.

The default value is DSNACLI.

This parameter is also referred to as VUX044/CLIPLAN.

Application plan for Db2 HPU (VUM011/PLANOBJT)

This parameter is required. It specifies the plan name for the interactive application and the batch jobs.

Valid values are valid Db2 plan names.

This parameter is also referred to as VUM011/PLANOBJT.

Package collection for Db2 HPU (VUM030/COLLOBJT)

This parameter is required. It specifies the name of the collection that is used to bind the Db2 HPU packages.

This parameter is also referred to as VUM030/COLLOBJT.

Partitions range filter optimization (VUM033/OPTRGPRT)

This parameter is optional. It specifies whether Db2 HPU has to activate the OPTIMIZE_PART_RANGE functionality. This feature allows to enhance the performance of logical unloads run in native mode against a partitioned table space and that specify a WHERE clause. This feature exploits the Db2 for z/OS part range table populated by the EXPLAIN PLAN statement to determine in which partitions the rows matching the WHERE clause are located so that Db2 HPU only reads the relevant partitions. The use of this feature requires a PLAN_TABLE and a DSN_PGRANGE_TABLE tables are available at run time. The "User who issues EXPLAIN PLAN statements (VUM035/EXPLNUSR)" setting determines what PLAN_TABLE and DSN_PGRANGE_TABLE tables are populated and then read by Db2 HPU when the feature is enabled. Make sure the setting for "User who issues EXPLAIN PLAN statements (VUM035/EXPLNUSR)" also suits your needs. Specify one of the following values:

- YES: to enable the OPTIMIZE_PART_RANGE functionality.
- NO: to disable the OPTIMIZE_PART_RANGE functionality.

The default value is NO.

This parameter is also referred to as VUM033/OPTRGPRT

DELETE or KEEP rows inserted in EXPLAIN tables (VUM034/EXPLNTB)

This parameter is optional. It specifies whether the rows inserted by Db2 HPU into the EXPLAIN tables when the OPTIMIZE_PART_RANGE or the LOCK functionality is used have to be deleted or kept afterwards.

Specify one of the following values:

- DELETE: to delete the rows inserted by Db2 HPU from the EXPLAIN tables.
- KEEP: to keep the rows inserted by Db2 HPU into the EXPLAIN tables.

The default value is DELETE

This parameter is also referred to as VUM034/EXPLNTB

User who issues EXPLAIN PLAN statements (VUM035/EXPLNUSR)

This parameter is optional. It specifies on behalf of which userid the EXPLAIN PLAN statements are issued. Db2 HPU may issue EXPLAIN PLAN statements when the OPTIMIZE_PART_RANGE or the LOCK functionality is used. The userid specified by this parameter must:

- own a PLAN_TABLE and a DSN_PGRANGE_TABLE EXPLAIN tables.
- have the execute privilege on the DSNACLI plan.
- have the privilege to run an EXPLAIN statement on the SELECT statements involved in the UNLOAD commands.

This is ensured if the userid has the privilege to run the SELECT statements from the UNLOAD. Specify one value for each Db2 subsystem that you defined with variable

Specify one of the following values:

- **CURRENT_USER**: the user who submits the unload job is used to run the EXPLAIN PLAN on the table to be unloaded. With this settings, every user that submits a unload job triggering the OPTIMIZE_PART_RANGE feature must own a PLAN_TABLE and a DSN_PGRANGE_TABLE EXPLAIN tables.
- **user_name**: a specific user name is used to run the EXPLAIN PLAN on the table to be unloaded. The name can be 1 - 7 characters. With this setting, any unload job triggering the OPTIMIZE_PART_RANGE feature uses the PLAN_TABLE and DSN_PGRANGE_TABLE EXPLAIN tables owned by this user_name.

This parameter is also referred to as VUM035/EXPLNUSR.

Application compatibility (VUM036/APPLCOMP)

This parameter is optional. It specifies the compatibility level behavior for SQL. Specify a value valid for the CURRENT APPLICATION COMPATIBILITY special register. This parameter is ignored by Db2 HPU for Db2 version prior to V11 NFM.

User who reads encrypted VSAM data set (VUM037/CRYPTUSR)

The userid on behalf of which Db2 HPU directly accesses to the encrypted Db2 VSAM data set involved in the unload jobs run in native mode.

For a Db2 like behavior - i.e. any user that has the requested privilege to run a given SELECT statement involving encrypted table spaces or index spaces can also run a Db2 HPU unload specifying the same SELECT statement -, set this parameter with a userid that has the authorization to access the key label for any of the encrypted data set involved by your Db2 HPU jobs.

userid

the access to the encrypted data set is done on behalf of this specified userid.

CURRENT_USER

the access to the encrypted data set is done on behalf of the userid of the submitter of the Db2 HPU job.

Valid values are CURRENT_USER and a valid 1-8 character userid.

The default value is CURRENT_USER.

Owner of the plan created for Db2 HPU (VUM012/PLANOWN)

This parameter is required. It specifies the name of the owner of the plan to be used to bind the Db2 HPU plan.

Specify one value for each Db2 subsystem that you defined.

This parameter is also referred to as VUM012/PLANOWN.

Grant on the plan created for Db2 HPU (VUX011)

This parameter is required. It specifies whether to use the GRANT TO PUBLIC or the GRANT TO USER statement to grant privileges to the plan that was created for Db2 HPU.

Specify one value for each Db2 subsystem associated with Db2 HPU.

Valid values are PUBLIC and USER.

This parameter is also referred to as VUX011.

User who quiesces the table space to be unloaded (VUM031/QUITUSR)

This parameter is optional. It specifies on behalf of which userid the following Db2 actions are performed:

- QUIESCE utility against the table space to be unloaded
- sequence of START/STOP commands against the table space to be unloaded

- SQL LOCK against the table to be unloaded and a START RO command against the related table space

Specify one of the following values:

CURRENT_USER

The user who submits the job is used to run the QUIESCE utility on the table space to be unloaded.

USER name

A specific user name is used to run the QUIESCE utility on the table space to be unloaded. The name can be 1 - 7 characters.

This parameter is also referred to as VUM031/QUITSUSR.

The default value is CURRENT_USER.

User who issues SELECT by using dynamic SQL (VUM032/ACTLGUSR)

This parameter is optional. It specifies the user who will issue the dynamic SQL statements against the Db2 catalog. This userid must have the EXECUTE privilege on the DSNACLI plan and user profile that contains an OMVS segment.

CURRENT_USER

The user who submits the job is used to issue the SQL statements against the Db2 catalog.

user_name

A specific user name is used to issue the SQL statements against the Db2 catalog. This userid name can be 1 - 7 characters.

PLAN_OWNER

The owner of the plan that was created for Db2 HPU - specified through VUM012/PLANOWN - is used as the userid to access the Db2 catalog. The value of VUM012/PLANOWN must be a valid TSO user ID of 1 - 8 characters.

Specify one value for each Db2 subsystem associated with Db2 HPU.

The default value is CURRENT_USER.

This parameter is also referred to as VUM032/ACTLGUSR.

User who runs the DISPLAY command (VUM028/DISPLUSR)

This parameter is optional. It specifies the user who will run the DISPLAY command.

This user must have the following authorities:

- authority to write into the JES spool
- authority to execute DISPLAY GROUP
- authority to execute DISPLAY DDF
- authority to execute DISPLAY DATABASE

Note: a DISPLAY DDF is done by Db2 HPU to get the Db2's location name to use the Db2 CLI for SQL access to the catalog.

CURRENT_USER

The user who submitted the job is used to run the DISPLAY command. CURRENT_USER is the default value.

USER name

A specific user name is used to run the DISPLAY command. The name can be 1 - 7 characters.

Specify one value for each Db2 subsystem associated with Db2 HPU.

The default value is CURRENT_USER.

This parameter is also referred to as VUM028/DISPLUSR.

Use Db2 to process unsupported SELECT statements (VUU011/ULSEDB2)

This parameter is optional. It specifies whether Db2 will process SELECT statements when the statements are not supported by Db2 HPU. This parameter is used only if the DB2 option is

not specified in the SYSIN. When COPYDDN_STRICT(YES) is specified in the VUU030/ULOPTNS parameter, unloading data from the table by using Db2 instead of unloading data from the image copy is not allowed. Therefore, if you are unloading from an image copy and COPYDDN_STRICT(YES) is specified, the value of the VUU001 parameter is forced to NO.

Specify one of the following values:

NO

SELECT statements that are not supported by Db2 HPU will not be processed by Db2.

YES

SELECT statements that are not supported by Db2 HPU will be processed by Db2, unless DB2 NO was specified in the SYSIN of Db2 HPU.

The default value is YES.

This parameter is also referred to as VUU011/ULSEDB2.

Lock the tables in the table space (VUU012/ULLOCK)

This parameter is optional. It specifies whether to lock the tables in the table space.

Specify one of the following values:

NO

Tables in the table space are not to be locked unless YES was specified in the SYSIN of Db2 HPU.

YES

Tables in the table space are locked unless NO was specified in the SYSIN of Db2 HPU.

Specifying LOCK NO does not preclude Db2 from taking locks if SQL Access is used to access the data.

The default value is NO.

This parameter is also referred to as VUU012/ULLOCK.

Quiesce the table space (VUU013/ULQSCE)

This parameter is optional. It specifies whether to quiesce the table space.

Specify one of the following values:

NO

The table space is not quiesced unless YES was specified in the SYSIN of Db2 HPU.

YES

The table space is quiesced unless NO was specified in the SYSIN of Db2 HPU.

The default value is NO.

Attention: Db2 HPU operates on the physical VSAM data set level that is outside of Db2. If you run Db2 HPU on a table in which a row was just inserted, the unloaded data might not contain the row that was inserted. The unloaded data does not show the row because Db2 might not have externalized the data to DASD yet. This situation can happen when you use Db2 HPU without issuing a QUIESCE (or STOP) on the object. Be careful when using QUIESCE NO.

This parameter is also referred to as VUU013/ULQSCE.

Degree of parallel processing (VUU021/ULDEGREE)

This parameter is applicable only when Db2 extracts data, i.e. when the unload is processed in SQL mode.

Specify one of the following values:

1

Parallelism is disabled. Db2 HPU sets the CURRENT DEGREE register to "1"..

ANY

Parallelism is enabled. Db2 HPU sets the CURRENT DEGREE register to "ANY".

CURRENT_DEGREE

Db2 installation default for the parallelism processing (i.e. the value of "CURRENT DEGREE" on the "DSNTIP8: Performance and optimization panel) is used. Db2 HPU does not set CURRENT DEGREE register.

The default value is CURRENT_DEGREE.

The corresponding SYSIN parameter is ULDEGREE in the GLOBAL OPTIONS block.

This parameter is also referred to as VUU021/ULDEGREE.

Default scheme for UNLOAD TABLESPACE (VUU023/UNLSCHEM)

This parameter is optional. Specifies that the data is unloaded in its original format. If the specification for the underlying table space cannot be determined, such as when the SQL statement is not supported and the table name not determined, data is unloaded in EBCDIC. You can override ASIS by specifying the CCSID keyword. You can also override ASIS by specifying the CCSID keyword.

Specifying ASIS does not guarantee no conversion is required. Conversion might still be required when columns that are not CHAR, VARCHAR, GRAPHIC, and VARGRAPHIC types are unloaded in an external format and when the schema of the unloaded table space is not system-EBCDIC.

Db2 HPU first converts the value to the external format (in system-EBCDIC), and the result is converted to the table space schema.

Similarly, the padding characters or field separators (FORMAT DELIMITED) are in system-EBCDIC by default. They are also converted to the table space schema if the table space schema is not EBCDIC.

Conversion is also required when the table space CCSID is not the same as the SYSIN CCSID and when the SELECT statement contains a C'constant' expression.

Quiesce process (VUU028/ULQSCBHH)

This parameter is optional. It specifies what to do when the QUIESCE feature is requested either explicitly through the QUIESCE YES option or implicitly when the parmlib settings specify YES for the VUU013/ULQSCB parameter. This feature requests the changed pages of the table space involved in the unload be written from the Db2 buffer pool so that the data from the LDS is consistent with the current content of the related tables. To do so, Db2 HPU can use either of the methods mentioned below:

- the QUIESCE utility method : this is the regular method that consists in running the QUIESCE utility with the WRITE(YES) option against the table space
- the STOP/START method : this is an alternate method used when the QUIESCE utility method is not applicable and that consists in issuing the STOP then the START command against the table space

For an easier monitoring of this specific process, the related messages can be issued not only to the SYSPRINT dataset but also to the MVS console.

Specify one of the following values:

FORCE

Db2 HPU first attempts to use the QUIESCE utility method. If the Db2 state of the table space prevents from running the QUIESCE utility, Db2 HPU uses the STOP/START method instead. If the later alternate method does not complete successfully the QUIESCE YES feature is considered as not honored and the process terminates either with a completion code of 8 if the QUIESCE feature is considered as mandatory (i.e. if LOCK YES applies) or with a completion code of 4 if the QUIESCE YES feature is considered as optional (i.e. LOCK NO applies).

TRY

Db2 HPU attempts to use the QUIESCE method. If the Db2 state of the table space prevents from running the QUIESCE utility, the QUIESCE YES feature is considered as not honored and the process terminates either with a completion code of 8 if the QUIESCE YES option is considered as mandatory (i.e. if LOCK YES applies) or with a completion code of 4 if the QUIESCE YES feature is considered as optional (i.e. LOCK NO applies).

HONOR

Db2 HPU attempts to use the QUIESCE method. If the Db2 state of the table space prevents from running the QUIESCE utility, the QUIESCE YES feature is considered as not honored and the process terminates with a completion code of 8.

WTO

This optional part of the value requests the messages related to the QUIESCE feature processing be issued not only to the SYSPRINT dataset but also to the MVS console. This makes the monitoring of this phase of the process easier, allowing, in particular, to raise alerts when it fails. The messages that can be issued to the MVS console are listed below:

- if either FORCE or TRY is specified:

```
INZI195I DB2 STATUS OF THE PARTITION partition.number OF THE TABLESPACE/INDEXSPACE
dbname.tsname/dbname.isname : restricted_state
INZI196I DB2 STATUS OF THE TABLESPACE/INDEXSPACE
dbname.tsname/dbname.isname : restricted_state
```

- only if FORCE is specified:

```
INZU176I INFORMATION: QUIESCE IMPOSSIBLE. A STOP/START SEQUENCE IS PERFORMED ON
TABLESPACE dbname.tsname
INZU172E ERROR: UNABLE TO QUIESCE TABLESPACE dbname.tsname
```

- only if TRY is specified:

```
INZU411W THE REQUESTED QUIESCE OF THE TABLESPACE COULD NOT BE PERFORMED.
CHECK DB2 STATUS OF THE TABLESPACE AND RELATED INDEXES.
INZU406E THE REQUESTED QUIESCE OF THE TABLESPACE COULD NOT BE PERFORMED.
CHECK DB2 STATUS OF THE TABLESPACE AND RELATED INDEXES.
```

The default value is FORCE.

This parameter is also referred to as VUU028/ULQSCBHH.

Db2 HPU additional features (VUU030/ULOPTNS)

This parameter is optional. Use this parameter to enable new features or new feature behaviors for Db2 HPU. This parameter can receive a list of optional parameters, separated by commas, that modify Db2 HPU behavior. If needed, enter the text over several lines without any continuation character. Leading and trailing blanks are ignored. The default value for each subparameter corresponds to the nominal behavior of Db2 HPU regarding the feature it applies to. In other words, if a subparameter is not specified the alternate behavior is not enabled.

LOADINDDN(YES)

INDDN ddname cards are automatically generated according to the ddnames specified by the UNLOAD command for the data sets containing the unloaded data. If a TEMPLATE is used to allocate the output file, Db2 HPU also generates a TEMPLATE statement to allocate the ddname used by the INDDN cards generated by the LOADINDDN(YES) feature. To avoid any invalid duplicate specification of INDDN cards, any INDDN option specified via the tableoptions of a LOADOPT option from the OPTIONS block or via the "Options for global LOAD statement (VUU019/ULOPTLDT)" parmlib parameter is ignored.

LOADINDDN(NO)

No INDDN card is automatically generated according to the ddnames specified by the UNLOAD command for the data sets containing the unloaded data. If the LOADINDDN(YES) option is not specified by the UNLOAD command, the INDDN option specified via the tableoptions of a LOADOPT option from the OPTIONS block or via the "Options for global LOAD statement (VUU019/ULOPTLDT)" parmlib parameter are taken into account.

As the generated LOAD command does not contain any INDDN option, the single SYSREC ddname is assumed as for an input ddname regardless of the unload being requested at the global or partition level. Accordingly, only the load options specified for the table space level (i.e., the tablespaceoptions suboption of the LOADOPT option) are taken into account and any load options specified at the partition or table option (i.e., the partoptions or tableoption suboption of the LOADOPT option) are ignored.

DSNTIAULSTRICT(YES)

The SELECT statements that are coded with FORMAT DSNTIAUL will function as if they are coded as FORMAT DSNTIAUL STRICT.

DSNTIAULSTRICT(NO)

The SELECT statements that are coded with FORMAT DSNTIAUL are not changed into FORMAT DSNTIAUL STRICT.

Attention: Changing the behavior of the DSNTIAUL format might affect the content of the unloaded data. Use the DSNTIAUL(YES) parameter and DSNTIAUL(NO) parameter with caution. See [“DSNTIAUL block syntax and description” on page 230](#) for a description of the difference between specifying FORMAT DSNTIAUL and specifying FORMAT DSNTIAUL STRICT.

DELIMITEDGRAPHEXT(YES)

In the DELIMITED format, GRAPHIC and VARGRAPHIC columns are unloaded in ASCII or in EBCDIC as GRAPHIC EXTERNAL data, including the SO/SI characters.

DELIMITEDGRAPHEXT(NO)

In the DELIMITED format, GRAPHIC and VARGRAPHIC columns are unloaded in ASCII or in EBCDIC as GRAPHIC data, without the SO/SI characters.

The DELIMITEDGRAPHEXT parameter is used only for Db2 HPU syntax. It has no impact on Fast Unload or Unload Plus syntax and has no impact when GRAPHIC data is unloaded in UNICODE.

PADDING_STRICT(YES)

The previous syntax for the PADDING option that allowed you to code a two-byte hexadecimal constant, such as PADDING x'hhhh', is not accepted. The default value for the DBCS padding character is always the DBCS space that was converted in the output CCSID.

COPYDDN_STRICT(YES) or COPYDDN_STRICT(NO)

You can use the COPYDDN option to require that Db2 HPU unloads the data from an image copy. Through the DB2 option or its counterpart ULSEDB2 parmlib parameter, you can also give directions concerning the processing mode (native mode or SQL mode) to use when unloading. The unload from an image copy is not possible in SQL mode. Therefore, COPYDDN and SQL mode are incompatible.

However, the early Db2 HPU versions (i.e. up to version V3.2) did not reject such an incompatible request and considered the processing mode request as the more meaningful/prevaling request, thus ignoring the COPYDDN option when the SQL mode was required.

This led to the undesirable following effects:

- the data from the table was unexpectedly unloaded from the table instead of from the image copy when:
 - DB2 FORCE was specified in the unload statement
 - DB2 YES applied (either through the DB2 option in the UNLOAD statement or the ULSEDB2 parmlib parameter) and the SQL statement is not supported by Db2 HPU.
- the data previously unloaded from the table was suddenly unloaded from the image copy because a Db2 HPU maintenance had made the involved SELECT statement supported.

From the version V4.1, Db2 HPU was fitted with a clearer and more reliable behavior when the COPYDDN feature is concerned. With this straightforward behavior, COPYDDN and DB2 YES (or ULSEDB2=YES if no DB2 option) or DB2 FORCE are considered incompatible. When COPYDDN is specified, the native must be requested, either by specifying the DB2 NO option or by default if the ULSEDB2 parmlib parameter is set to NO.

Specify COPYDDN_STRICT(YES) to enable the straightforward behavior and make sure the data is unloaded from an image copy whenever COPYDDN is specified.

Specify COPYDDN_STRICT(NO) to keep the former behavior if you have existing jobs that might specify COPYDDN and require the SQL mode.

A later Db2 HPU release will make the straightforward behavior corresponding to COPYDDN_STRICT(YES) the unique behavior. The COPYDDN_STRICT(NO) setting will then be ignored.

BY_SQL_ONLY(WITH_UR)

SELECT statements with the WITH_UR clause are always processed in SQL mode. SELECT statements without the WITH_UR clause are always processed in native mode.

GBLPARAL_MAXPART_SET_NULL(YES) or GBLPARAL_MAXPART_SET_NULL(NO)

Processing subsets of partitions (when you use MAXPART or ULMAXPAR when the specified value is less than the number of partitions to be unloaded) and unloading without parallelism because GBLPARAL (NO) is specified are incompatible.

When VUU060/ULMAXPAR *n* and VUU036/GBLPARAL NO are specified together and are applicable to the unload in progress, GBLPARAL NO is ignored, and the data is unloaded without parallelism at the partition level unless GBLPARAL_MAXPART_SET_NULL(YES) is specified.

Specify GBLPARAL_MAXPART_SET_NULL(YES) to disable the processing of the subset of partitions and unload the data without partition parallelism instead. If you specify either the PARALLELISM or the MAXPART keyword in the UNLOAD statement, specifying GBLPARAL_MAXPART_SET_NULL(YES) does not affect parallelism.

AUTO_UNCNT_MAX(*unit_count_value*)

Sets the maximum value to be used as the unit count when the unit count is dynamically determined by Db2 HPU. The value is determined by Db2 HPU when a TEMPLATE statement specifies the MAXPRIME option but does not specify the UNCNT option.

Valid values are 0 - 59.

CHECK_CCSID_STRICT(YES|NO)

Specifies with CCSID classes, such as SBCS or MIXED or DBCS, are allowed.

YES

Using an irrelevant CCSID class, such as SBCS or MIXED or DBCS, in the CCSID(ccsid_sbcs, ccsid_mixed, ccsid_dbcs) option is not allowed.

NO

NO Using an irrelevant CCSID class, such as SBCS or MIXED in the CCSID(ccsid_sbcs, ccsid_mixed[, ccsid_dbcs]) option is allowed except for ccsid_dbcs.

The default value is YES.

The default values are LOADINDDN(NO), DSNTIAULSTRICT(NO), DELIMITEDGRAPHEXT(NO), COPYDDN_STRICT(NO), and BY_SQL_ONLY().

INSTREAM_XML_AS_CLOB(YES|NO)

Specifies with CCSID classes, such as SBCS or MIXED or DBCS, are allowed.

INSTREAM_XML_AS_CLOB(YES)

XML data unloaded in-stream are unloaded as CLOB data.

INSTREAM_XML_AS_CLOB(NO)

XML data unloaded in-stream are unloaded as XML unless FORMAT DSNTIAUL STRICT is requested in which case the XML data is unloaded as CLOB.

The default value is YES.

TRUE_UNICODE(YES|NO)

TRUE_UNICODE(YES)

When conversion into unicode is requested with no target CCSID specification, the CSSID UTF8 is used as a target CCSID.

TRUE_UNICODE(NO)

When conversion into unicode is requested with no target CCSID specification, the default SBCS CSSID of the subsystem is used as a target CCSID.

The default value is NO.

CHECK_CCSID_STRICT(YES|NO)**CHECK_CCSID_STRICT(YES)**

The use of irrelevant CCSID class (i.e. SBCS or MIXED or DBCS) in the CCSID (ccsid_sbc, ccsid_mixed, ccsid_dbcs) option is prohibited.

CHECK_CCSID STRICT(NO)

The use of irrelevant CCSID class (i.e. SBCS or MIXED or DBCS) in the CCSID (ccsid_sbc, ccsid_mixed, ccsid_dbcs) option is allowed.

The default behavior of Db2 HPU is CHECK_CCSID_STRICT (YES).

U_NULLCHAR

UNLOAD PLUS NULLCHAR parameter default. This parameter is used for UNLOAD PLUS syntax and allows you to change the null indicator character in the output record.

Allowed values: xx where xx is any valid hexadecimal constant, except X'00'.

The default value is 6F.

U_NULLTYPE

UNLOAD PLUS NULLTYPE parameter default. This parameter is used for UNLOAD PLUS syntax and allows you to specify the location and length of the null indicator field in the output record.

Allowed values: T1/L1/T2/L2

The default value is T1.

DB2_SETTINGS_SOURCE (AUTO|DSNHDECP)**AUTO**

The way Db2 HPU determines the Db2 settings depends on the Db2 version. Prior to Db2 V9, the DSNHDECP member from the DSNEEXIT library is loaded; in Db2 V9 and later versions, the GETVARIABLE SQL function is used.

DSNHDECP

the DSNHDECP member from the DSNEEXIT library is used regardless of the Db2 release.

The default value is DB2_SETTINGS_SOURCE (AUTO).

TEMPLATE_SSID_SUBSTITUTION (MEMBER_NAME/GROUP_NAME)

Specifies how the &SSID and &SS variables used in the name-expression of DSN option from the TEMPLATE statements are evaluated.

MEMBER_NAME

The SSID template variable is substituted with the current Db2 member name to which Db2 HPU has connected.

GROUP_NAME

The SSID template variable is substituted with the Db2 member name in a non data sharing environment and with the group attachment name for data sharing environment.

The default value is TEMPLATE_SSID_SUBSTITUTION (MEMBER_NAME).

CNTLCARDS_DB2(DDL/NO_DDL)

This parameter specifies the behavior of HPU for the UNLOAD PLUS options CNTLCARDS DB2 or CNTLCARDS DB2DDL:

NO_DDL

The above mentioned options are considered as CNTLCARDS DB2LOAD and no CREATE TABLE statement is created and the job ends with return code 4 with the message INZU027W.

DDL

When either of the above mentioned options are specified, Db2 HPU generates both the LOAD statement and the CREATE TABLE statements.

Default value : NO_DDL

BIF_COMPATIBILITY_FROM_DB2_SETTINGS(V11_AND_LATER/NO)

This parameter is optional. It specifies whether the Db2 BIF_COMPATIBILITY settings must be taken into account to determine the behavior of the CHAR and VARCHAR SQL functions evaluated in native mode. Select one of the following allowed values.

NO (default value)

the behavior of the CHAR and VARCHAR functions is driven by the value specified for the Db2 HPU BIF_COMPATIBILITY subparameter from the VUU030/ULOPTNS parameter of its default value (i.e. CURRENT) if it is not specified. Choosing this value can lead to discrepancies between the Db2 HPU behavior in native and SQL modes. Such a discrepancy is reported through the INZU532I message.

V11_AND_LATER

if the Db2 version is V11 NFM or later, the behavior of the CHAR and VARCHAR functions is driven by the value of the Db2 BIF_COMPATIBILITY parameter according to the table below:

Db2 BIF_COMPATIBILITY (applies to SQL mode)	=>	CHAR and VARCHAR functions behavior in native mode
V9 or V9_DECIMAL_VARCHAR or V9_TRIM	=>	same as described for Db2 HPU BIF_COMPATIBILITY(V9)
CURRENT	=>	CURRENT

If the Db2 version is prior to V11 NFM, the same behavior as described for NO applies.

Important: if BIF_COMPATIBILITY_FROM_DB2_SETTINGS(NO) is chosen or if BIF_COMPATIBILITY_FROM_DB2_SETTINGS(V11_AND_LATER) is chosen and Db2 HPU is using a Db2 version prior to V11 NFM, make sure to specify the appropriate value for the BIF_COMPATIBILITY subparameter from VUU030/ULOPTNS.

The default value is BIF_COMPATIBILITY_FROM_DB2_SETTINGS(NO).

BIF_COMPATIBILITY(CURRENT/V9)

This parameter is optional. It applies to the native processing and only applies if one of the following condition is fulfilled:

- the Db2 release is prior to V11
- the BIF_COMPATIBILITY_FROM_DB2_SETTINGS(NO) is specified for VUU030/ULOPTNS.

Otherwise, i.e. if BIF_COMPATIBILITY_FROM_DB2_SETTINGS(V11_AND_LATER) is specified for VUU030/ULOPTNS and the Db2 release is later than V11 NFM, the value specified for this parameter (BIF_COMPATIBILITY from VUU030/ULOPTNS) is ignored and the behavior of the CHAR and VARCHAR functions in native mode is driven by the Db2 BIF_COMPATIBILITY settings. See the description of BIF_COMPATIBILITY_FROM_DB2_SETTINGS(V11_AND_LATER) for more details.

When applicable, this parameter specifies the behavior for the CHAR and VARCHAR SQL functions when evaluated in native mode. It is the counterpart of the Db2 BIF_COMPATIBILITY parameter that only affects the behavior of the CHAR and VARCHAR SQL function in SQL mode.

Specify one of the following allowed values to get the desired CHAR and VARCHAR behavior:

CURRENT (default value)

For decimal input, the CHAR and VARCHAR built-in functions return data in the Db2 Version 10 format if the Db2 version is V10 NFM or higher. When this value is specified, the CHAR and VARCHAR functions evaluated in native mode have the same behavior as evaluated by Db2 when the Db2 BIF_COMPATIBILITY is set to CURRENT

V9

For decimal input, the CHAR and VARCHAR built-in functions return data in the Db2 Version 9 format. When this value is specified, the CHAR and VARCHAR functions evaluated in native

mode have the same behavior as evaluated by Db2 when the Db2 BIF_COMPATIBILITY is set to V9_DECIMAL_VARCHAR.

Note: unlike the Db2 BIF_COMPATIBILITY parameter, this parameter does not affect the behavior of the TRIM function.

When this parameter is applicable, the behaviors in SQL mode and native mode are fully identical for either of the following situations :

- Db2 HPU BIF_COMPATIBILITY specifies CURRENT and Db2 BIF_COMPATIBILITY specifies CURRENT
- Db2 HPU BIF_COMPATIBILITY specifies V9 and Db2 BIF_COMPATIBILITY specifies V9_DECIMAL_VARCHAR

Important: If the Db2 BIF_COMPATIBILITY setting changes, Db2 HPU must be bound so that the changes are also visible in Db2 HPU.

FMT_VAR_FB_IF_FIXED

When specified, the default RECFM for an unload in FORMAT VARIABLE of only fixed length columns is FB instead of VB. If this parameter is not specified, the default RECFM for unload of only fixed length data is VB. This parameter applies only to FORMAT VARIABLE.

The default value is BIF_COMPATIBILITY(CURRENT).

SIGNAL(V9_BIF_USE)

If the combination of the BIF_COMPATIBILITY related settings of both Db2 HPU and the concerned Db2 subsystem or data sharing group (i.e. the BIF_COMPATIBILITY_FROM_DB2_SETTINGS and BIF_COMPATIBILITY subparameter of the VUU030/ULOPTNS parmlib parameter for Db2 HPU and the BIF_COMPATIBILITY value from the DSNZPARM for Db2 subsystem) request the CHAR/VARCHAR functions be evaluated as in Db2 version up to 9, before changing these settings so that CHAR and VARCHAR functions are evaluated as in Db2 version 10 and later (what corresponds to the value CURRENT of the BIF_COMPATIBILITY Db2 parameter), it is necessary to update - or at least review - the applications that exploit the output of logical unload with SELECT statements involving SQL expressions containing CHAR(decimal_value) or VARCHAR(decimal_value) where decimal_value stands for any SQL expression which result has a DECIMAL type. Otherwise the settings change can have an impact on the output of such unloads that can cause errors in its subsequent processing. IFCID (376) Trace Records can be exploited to identify such unloads run in SQL mode. For such unloads processed in native mode, as no IFCID (376) Trace Record is issued, specifying SIGNAL(V9_BIF_USE) provides an alternate way to locate them as it makes Db2 HPU issue the following messages with information to trap and locate the concerned logical unloads:

- the INZU583I message issued to the MVS console helps locate a concerned Db2 HPU step
- the INZU584I message issued to the Db2 HPU SYSPRINT dataset and helps determine which unloads from the step are concerned

TAPEUNIT_DEFAULT_DEV_TO_MAX

This keyword allows to specify how the default_devices_number operand of the TAPEUNIT option or VZM010/TAPEUNIT parmlib parameter is determined when not explicitly specified. In other words, it allows to specify the rule used to determine the default value of default_devices_number operand . By default, i.e. when this keyword is not specified, the default value of 1 is used. Otherwise, when TAPEUNIT_DEFAULT_DEV_TO_MAX is specified, the default value is the same value as specified for the maximum_number_of_devices. In a nutshell, if TAPEUNIT(unit(maxdev) is specified, Db2 HPU behaves as if:

- TAPEUNIT(unit(maxdev,1) was specified if TAPEUNIT_DEFAULT_DEV_TO_MAX is not specified
- TAPEUNIT(unit(maxdev,maxdev) was specified if TAPEUNIT_DEFAULT_DEV_TO_MAX is specified

TAPELBI(INPUT|NOSPANNED|ALL)

Specifies in which cases Db2 HPU handles large block when a data set located on tape and allocated with BLKSZLIM is involved.

INPUT

Db2 HPU only supports large block for input data sets

NOSPANNED

Db2 HPU writes large blocks into output data sets except for SPANNED files

ALL

Db2 HPU supports large block for both input and output data sets even for spanned output data sets

The default value is NOSPANNED.

TEMPLATE_LIMIT(NO)

The keyword LIMIT of the TEMPLATE statement is ignored but a warning message is issued to inform the user that the keyword was ignored.

TEMPLATE_LIMIT(YES)

The keyword LIMIT of the TEMPLATE statement is supported. See [TEMPLATE block syntax and description](#) section for details about this feature.

SEARCH_UNCATALOGED_IC(YES|NO)

This sub-parameter specifies whether the uncatalogued image copies are eligible when an unload from image copy is requested through COPYDDN LAST_IC or COPYDDN -integer options.

- **SEARCH_UNCATALOGED_IC"YES"**: both the cataloged and non cataloged images copies referenced in the Db2 catalog (in the SYSIBM.SYSCOPY table) are considered.
- **SEARCH_UNCATALOGED_IC"NO"**: only the cataloged images copies referenced in the Db2 catalog (in the SYSIBM.SYSCOPY table) are considered.

The default value is SEARCH_UNCATALOGED_IC(NO).

ORDER_CLUSTER_BHV (OPTIONAL|MANDATORY)

Specify whether the 'ORDER CLUSTER' clause, when specified, is considered, by default, as a mandatory or an optional request. When an ORDER CLUSTER clause is considered as optional, Db2 HPU ignores it when it is specified for a logical unload processed in SQL mode.

- **OPTIONAL**: the 'ORDER CLUSTER' clause is considered as optional, thus ignored if the unload is processed in SQL mode. Select this value if you usually specify an ORDER CLUSTER clause for performance purpose to prepare the data for sub-sequence reload operation but none of the subsequent programs that use the unloaded data require the data be ordered according to the order cluster key.
- **MANDATORY**: the 'ORDER CLUSTER' clause is considered as mandatory. As a consequence, any unload to be run in SQL mode that specifies an incompatible ORDER CLUSTER clause stops reporting an error. Select this value you usually specify the ORDER CLUSTER clause to get data unloaded ordered according to the order cluster key and that order as required by the sub-sequence programs that take this data as input.

The default value is MANDATORY.

USER_SWITCH_METHOD(AS|RACF)

Db2 HPU does not perform every action on behalf of the same userid but may switch between userids from the list below:

- the submitter of the job that contains the Db2 HPU step
- the User who execute DB2 processes on the table space (VUM031/QUITSUSR)
- the User who issues SELECT by using dynamic SQL (VUM032/ACTLGUSR)
- the User who issues EXPLAIN PLAN statements (VUM035/EXPLNUSR)
- the User who runs the DISPLAY command (VUM028/DISPLUSR)

Two methods can be used to switch between the userids. This parameter allows you to specify which method to use.

AS

The new userid is set at the address space level. This gives the unload job the same privileges as the privileges directly given to the userid (primary authorizations) but none of the privileges that the given userid might inherit from secondary authorizations. This method is suitable if all the specific userid specified by the parmlib parameters mentioned in the above list explicitly have a privilege required for the related operation.

RACF

RACF is invoked to switch to the new userid. This gives the unload job the same privileges as the privileges directly given to the userid (primary authorizations) and the privileges that the given userid might inherit from secondary authorizations. This method is suitable if at least one of the userid specified by the parmlib parameters mentioned in the above list inherits the privilege required for the related operation via secondary authorizations.

Note: the following situation is not supported if USER_SWITCH_METHOD is set to RACF.

- the SYSPRINT dd statement is specified more than once and the first card allocates it as a non-SYSOUT data set
- the QUIESCE of the table to unload is requested
- the VUM031/QUITSUSR parameter is not set to CURRENT_USER

When such an unlikely situation occurs, Db2 fails to QUIESCE the table space.

The default value is USER_SWITCH_METHOD(AS).

USE_ADMIN_INFO_SYSPARM (YES|NO)

This subparameter allows Db2 HPU to use ADMIN_INFO_SYSPARM stored procedure to retrieve DSNZPARM parameters. It concerns BIF_COMPATIBILITY and TEMPLATE_TIME parameters. Enabling this feature requires the stored procedure ADMIN_INFO_SYSPARM to be correctly installed and usage of the procedure also requires specific privileges.

- The owner of the Db2 HPU plan (specified through VUM012/PLANOWN parameter) must have one of the following privileges on each package that the stored procedure uses:
 - The EXECUTE privilege on the package for DSNADMIZ
 - Ownership of the package
 - PACKADM authority for the package collection
 - SYSADM authority
- The user who execute Db2 HPU must have MONITOR1 privilege.

YES

Enable usage of ADMIN_INFO_SYSPARM stored procedure.

NO

Enable usage of ADMIN_INFO_SYSPARM stored procedure.

Important: Impact in the evaluation of date/time variables for data set names generated for TEMPLATE statements: If USE_ADMIN_INFO_SYSPARM(YES) is specified for VUU030/ULOPTNS, the default value for template time is the value of TEMPLATE_TIME parameter in the Db2 subsystem. If USE_ADMIN_INFO_SYSPARM(NO) is specified for VUU030/ULOPTNS, the default value for template time is set to UTC.

The default behavior of Db2 HPU is USE_ADMIN_INFO_SYSPARM(NO).

MAXERR_STRICT(YES/NO)

The MAXERR feature (requested either by the MAXERR option or the VUU073/MAXERR parmlib parameter) allows to save up systems resources such as CPU and JES spool spaces by stopping the unload when too many data related errors - in other words, errors affecting a specific row - are encountered. The specifications of this feature that apply in Db2 HPU up to version 4.3 prevent to take benefit from the performance enhancements brought by the Db2 HPU internal architecture introduced by Db2 HPU 5.1. The MAXERR feature has been fitted with a new behavior that allows to exploit the current Db2 HPU version optimized performance. The *MAXERR_STRICT subparameter allows to specify whether the genuine MAXERR feature behavior must be kept.

NO

specify NO to allow the genuine MAXERR feature behavior to be modified in order to take benefit from the best Db2 HPU performance. When this value is specified, the modified MAXERR feature differs from the genuine one as follows: if the last row processed by Db2 HPU is affected by a row level error, the unload completes with a completion code of 8 and the bottom row of the unloaded data contains this invalid record.

YES

specify YES to keep the genuine MAXERR feature only if you have the following requirements:

- completion code: the unload completes with completion code of 4 when at least one error at row level has been encountered.
- unloaded data: even though errors at the row level occur, the dataset containing the unloaded rows contain only valid records.

The default value is NO.

DB2SORT_BLOCK(NO|SCOPE1|ANY)

Specifies the scope when the DB2SORT block level interface feature is used. When Db2 HPU invokes a DB2SORT sort, the use of the feature provides better performance. Note that this performance enhancement increases the memory consumption.

NO

The DB2SORT block level interface feature is never used. This value is not recommended if you intend to use DB2SORT as an external sort (see SORTUTIL option and parameter) for Db2 HPU as better performance is expected with the block level interface.

SCOPE_n

When a sort is performed through DB2SORT utility, the DB2SORT block level interfaces are used for a scope designated by its number (\n) and described hereafter:

- n=1
 - fixed-length block level E15 interface with the input of the sort when sorting RECFM F records only.
 - the block level E35 interface with the output of the sort regardless of the RECFM of the record to sort.

ANY

When a sort is performed through DB2SORT utility, the DB2SORT block level interface feature is used for the wider scope supported by Db2 HPU, i.e. for the scope described for the SCOPE_n value, with n having the biggest value available at the maintenance level used at run time.

The default value is NO.

ROWID_AS_GENERATED_ALWAYS_IF_UNDETERMINED(NO/YES)

Specifies whether the ROWID values to be unloaded in SQL mode must be considered as having the GENERATED_ALWAYS attribute when this attribute cannot be determined. This can occur when the unload is processed in SQL mode.

YES

The ROWID value is considered as a GENERATED_ALWAYS column. Therefore, the VUU058/ULIDENT parmlib parameter applies to the involved ROWID value when the LOAD statement generation is requested for the unload.

NO

The ROWID value is not considered as a GENERATED_ALWAYS column. The VUU058/ULIDENT parmlib parameter does not apply to the involved ROWID value when the LOAD statement generation is requested for the unload.

The default value is NO.

FIX(APAR_PH35541)

Enables the fix of APAR PH35541. Specifying this value ensures that SQL expressions in the scope of APAR PH35541 are evaluated the same way in both native and SQL modes. However, as some

programs might successfully exploit the data unloaded for unloads affected by APAR PH35541, make sure none of the existing jobs relies on the erroneous behavior before enabling the fix.

The fix is disabled by default.

FIX(APAR_PH36904[,VERBOSE])

APAR_PH36904

Enables a fix of APAR PH36904. The Db2 HPU APAR PH36904 is caused by the VSAM APAR OA62028 that Db2 HPU can face when reading the VSAM datasets in SRB mode requested for zIP exploitation. The latest fix implemented for PH36904 consists in circumventing OA62028 by systematically disabling the zIIP exploitation for reading VSAM datasets. This circumvention should be enabled only if the fix for OA62028 has not been applied.



CAUTION: specify this value only if the fix for APAR PH40030 is applied. Otherwise, the issue described by PH40030 can occur. If some of your unloads specify the COPYDDN ddname option to unload data from FlashCopy datasets with the zIIP use enabled, consider applying the local fix for PH40369. Specifying APAR_PH36904 has the following effect:

- If the fix for APAR PH36904 is applied, the (incorrect) circumvention of OA62028 leads to the issues described by APAR PH40030 unless the fix for APAR PH40030 is applied.
- If the fix for APAR PH40030 is applied, the (correct) circumvention of OA62028 consists in disabling the use of zIIP processors when reading the LDS from tablespaces or from FlashCopy datasets retrieved through the COPYDDN LAST_IC/-integer option. The issue described by APAR PH40030 can still occur – if the fix for OA62028 is not applied – when the unload specifies the COPYDDN ddname option to unload data from a FlashCopy dataset allocated either through a JCL or a TEMPLATE statement. The remaining issue is described by APAR PH40369.

VERBOSE

specifying this keyword requests the INZX001 WTO message to be issued whenever the fix delivered for APAR PH36904 is put into action which can occur if the unload requests the data be unloaded in native mode and the zIIP use is requested and one of the following condition is fulfilled:

- the fix for PH40030 is not applied,
- the fix for PH40030 is applied and the unload specifies the COPYDDN ddname option to unload the data from FlashCopy datasets.

No fix of APAR PH36904 is enabled by default.

FIX(APAR_PH44174)

Enables the fix of an issue – referred to as APAR PH44174 – that affects the LOAD controls card generated for a logical unload that requests an out in INTERNAL format.

This issue APAR PH44174 is described as follows.

The table options applicable to a logical unload – as a result of either or both the VUU070/ULOPTLDB parmlib parameter setting or the LOADOPT option in the UNLOAD statement – are not correctly taken into account as detailed below:

- incorrout 1) any keyword from the table options is ignored
- incorrout 2) any keyword from the table options except for NUMRECS is ignored
- incorrout 3) although the table options specify "NUMRECS integer", the NUMRECS option in the generated LOAD control cards unduly specifies the actual number of unloaded rows instead of the integer specified by "NUMRECS integer".

This issue occurs if FORMAT INTERNAL is specified and the additional condition depending on the symptom described below are fulfilled:

- incorrout 1) EXECUTE NO is specified
- incorrout 2 & 3) EXECUTE NO is not specified



CAUTION: The fix of the issue consists in making the Db2 HPU behavior in this matter compliant with the expected and documented design which implies potential changes in the LOAD control cards generated by existing jobs that fulfill the conditions of occurrence of this issue. Therefore, before enabling the fix, such unloads and the programs exploiting the LOAD control cards they generate should be reviewed as some changes might be needed to take the impact of the fix into account.

COMMENT_CHAR(ASTERISK)

This enables to use of the asterisk (*) in column #1 to specify a comment line within an unload statement coded with the Db2 HPU native syntax. When specified, the Db2 HPU syntax analyzer considers any line with a '*' in the first column as comment line and ignores it when building the actual unload statement.

USE_V12_ALTERNATE_OVERRIDE_LOAD_SYNTAX(NO/YES)

Specifies whether the alternate OVERRIDE syntax in the generated LOAD command should be used when the Db2 subsystem version is equal to version 12 or higher.

YES

the OVERRIDE option is used. OVERRIDE(SYSTEMPERIOD), OVERRIDE(TRANSID) and OVERRIDE(IDENTITY) options are used instead of their respective counterparts of the pre-V12 versions, i.e. PERIODOVERRIDE, TRANSIDOVERRIDE, IDENTITYOVERRIDE.

NO

the deprecated but still supported PERIODOVERRIDE, TRANSIDOVERRIDE, IDENTITYOVERRIDE options are used. Specify this value if the generated LOAD command may be used to load data in a Db2 sub system with version prior to 12.

The default value is NO.

IC_SORT_SIZE_ESTIM_ALG(0|1|2)

Specifies the level of refinement of the algorithm used to determine the number of pages to be sorted when unloading data from an image copy which contains duplicated pages (for example, an INLINE image copy taken during REORG utility). The mean accuracy of the estimate increases along with the refinement level.

All the algorithms use the following variables:

- estim_sort_size: number of pages of the image copy that need to be sorted
- estim_IC_size: number of pages of the image copy
- to_be_sorted_ratio: percentage of the pages from the image copy that need to be sorted

Regardless of the algorithm, the value of estim_sort_size is always computed as estim_IC_size x to_be_sorted_ratio but the method to determine estim_sort_size and to_be_sorted_ratio depends on the algorithm according to the value chosen for this parameter, as follows:

- 2: estim_IC_size is deduced from the column COPYPAGESF of the SYSIBM.SYSCOPY table, i.e. from the size of the image copy. to_be_sorted_ratio is determined by taking the column NPAGESF of the SYSIBM.SYSCOPY table into account. If the computed value is less than the value specified by PGDFIN, to_be_sorted_ratio is set to the value of PGDFIN.
- 1: estim_IC_size is deduced from the column COPYPAGESF of the SYSIBM.SYSCOPY table, i.e. from the size of the image copy. to_be_sorted_ratio is taken from the PGDFIN value.
- 0: estim_IC_size is deduced from the current size of the related table space. to_be_sorted_ratio is taken from the PGDFIN value.

Note: The algorithms 1 and 2 apply only if the image copy to unload is searched and found in the SYSIBM.SYSCOPY Db2 catalog table. The image copy is searched in the SYSIBM.SYSCOPY table if either of the following options is specified:

- COPYDDN LAST_IC
- COPYDDN -integer
- COPYDDN ddname,CHECK

With COPYDDN ddname,CHECK, if the image copy is not found in the Db2 catalog, the algorithm 0 applies as if the CHECK option was not specified.

Note: The value 0 selects the same algorithm as implemented in Db2 HPU versions up to 4.3.

Note: The PGDFIN value may be set either through the PGDFIN of the Technical Parameters options block or the VUX023/PGDFIN parmlib parameter.

The default value is 2.

Here is an example that shows how to specify a very long value for ULOPTNS:

```
TCUSTMZR          Multiple Value Parameter          Row 1 to 4 of 4
To add another value, issue the ADD command, and specify another value
for the parameter in the blank field in the Value column. Press enter to
save your values, or press End do save and exit.
Commands: ADD
Parameter description:
  DB2 HPU additional features (VUU030/UNLOPTNS)
Line commands: D - Delete
Cmd Value:
  (LOADINDDN (YES),DSNTIAULSTRICT(YES),DELIMITEDGRAPHEXT
  (YES),PADDING_STRICT(YES),COPYDDN_STRICT(YES),
  BY_SQL_ONLY(WITH_UR),GBLPAR
  RAL_MAXPART_SET_NULL(YES) )
-----End of values-----
Command ==>          Scroll ==>PAGE
```

This parameter is also referred to as VUU030/ULOPTNS.

Check image copy before unloading (VUU033/ULCHKCPY)

This parameter is optional. It specifies whether the dsname that was specified by the COPYDDN parameter in the SYSIN should be checked.

Specify one of the following values:

YES

The dsname that was provided by the COPYDDN parameter in the SYSIN is checked. This PARMLIB parameter is considered if CHECK or INLINE is not specified in the SYSIN. The return code is 4, with a warning message in the SYSOUT if the check against the SYSIBM.SYSCOPY failed, and the FIC corresponding to the dsname is considered as a non-inline FIC.

NO

The dsname is not checked.

The default value is NO.

This parameter is also referred to as VUU033/ULCHKCPY.

Option to modify the like behavior in SQL statement (VUU034/ULLIKE)

This parameter is optional. It specifies how Db2 HPU handles UNICODE MIXED strings in a LIKE predicate.

Specify one of the following values:

STRICT

Indicates that SQL rules are used to handle UNICODE mixed strings. To handle UNICODE mixed strings by using SQL rules, Db2 HPU must convert all operands (columns and masks of the LIKE predicate) in UNICODE DBCS, which increases CPU consumption due to conversions for each unloaded row.

FAST

Indicates that UNICODE mixed strings are considered as SBCS strings in LIKE predicates. The FAST option avoids MIXED to DBCS conversions and improves UNLOAD performances.

The default value is FAST.

This parameter is also referred to as VUU034/ULLIKE.

Db2 HPU response when a LOADDDN cannot be generated (VUU039/UNLLDER)

This parameter is optional. It specifies whether Db2 HPU will stop when it is unable to generate a requested LOADDDN. This situation can occur when the output format that was specified for DATE, TIME, or TIMESTAMP is not supported by the Db2 LOAD utility.

Specify one of the following values:

STOP

Db2 HPU stops with return code 8.

IGNORE

Db2 HPU issues a warning message and continues processing.

The default value is STOP.

This parameter is also referred to as VUU039/UNLLDER.

Unload HIDDEN Column by select * (VUU042/ULHIDDEN)

This parameter is optional. It specifies whether hidden columns will be selected when a SELECT * statement from a table name or from a LISTDEF is used. This parameter applies only to SELECT statements that are processed natively. Use the HIDDEN parameter of the EXEC card or the HIDDEN option of the OPTIONS block to override this parameter.

Specify one of the following values:

NO

Specifies that hidden columns will not be unloaded when a SELECT * statement is used.

YES

Specifies that hidden columns will be unloaded when a SELECT * statement is used. For SELECT statements that are processed by Db2, the HIDDEN option is ignored.

The default value is NO.

This parameter is also referred to as VUU042/ULHIDDEN.

Unload controlled access table in native mode (VUU062/ULACCTRL)

This parameter is optional. Use it to unload data from tables whose access is controlled at the row level or the column level. This parameter applies only when the data of the table is accessed in native mode, which means a physical unload or a logical unload with DB2 NO specified and a supported SQL statement. To unload a row-controlled table, specify DB2 FORCE or specify DB2 NO, and set the VUU062 parameter to YES.

YES

Tables that are controlled at the row or column level can be unloaded in native mode.

NO

Tables that are controlled at the row or column level cannot be unloaded.

The default value is NO.

This parameter is also referred to as VUU062/ULACCTRL.

Technical parameter to unload XML columns (VUU063/ULOPTLX)

This parameter is optional. Use this parameter to tune the low-level technical algorithm that Db2 HPU uses to unload XML data. If the default optimized values do not apply to your specific case, you can use the VUU063 parameter to enhance performance.

Important: Do not specify a value for this parameter unless IBM Software Support recommends a specific value.

This parameter does not have a default value.

An equivalent SYSIN keyword for this parameter does not exist.

This parameter is also referred to as VUU063/ULOPTLX.

Parameter to identify ROW-TRANSACTION-TIMESTAMP (VUU065/ULRTTST)

This parameter is optional. It specifies the technique to be used when generating the load SYSIN to identify the columns that are defined as ROW-TRANSACTION-TIMESTAMP.

This parameter applies only to natively processed SELECT statements.

For the SELECT statements processed in SQL mode (i.e. unsupported SELECT statements and SELECT statements that are processed with the DB2 FORCE option) the generated LOAD statement is generated as if no ROW-TRANSACTION-TIMESTAMP was involved. None of the behavior described for the IGNORE or OVERRIDE value applies.

IGNORE

The load generates the column data. The generated load control statement contains the combination of IGNOREFIELDS keyword and a dummy field name for the identify column.

OVERRIDE

The unloaded data is loaded into the identity column. For Db2 versions prior to 9, this feature is not available and the same behavior as for IGNORE applies. For Db2 version 9 and later, the PERIODOVERRIDE or OVERRIDE(SYSTEMPERIOD) option is specified in the load statement, and the exact name of the identity column is kept. The option used depends on the Db2 version and the setting of the subparameter USE_V12_ALTERNATE_OVERRIDE_LOAD_SYNTAX of the VUU030/ULOPTNS parmlib parameter, as follows:

- if the Db2 version is prior to 12 or USE_V12_ALTERNATE_OVERRIDE_LOAD_SYNTAX is set to NO, the PERIODOVERRIDE option is specified.
- if the Db2 version is 12 or later and USE_V12_ALTERNATE_OVERRIDE_LOAD_SYNTAX is set to YES, the OVERRIDE(SYSTEMPERIOD) option supported only since Db2 V12 is specified.

The default value is IGNORE.

This parameter is also referred to as VUU065/ULRTTST.

Parameter to identify ROW-TRANSACTION-START-ID (VUU066/ULRTSID)

For the SELECT statements processed in SQL mode (i.e. unsupported SELECT statements and SELECT statements that are processed with the DB2 FORCE option) the generated LOAD statement is generated as if no ROW-TRANSACTION-START-ID was involved. None of the behavior described for the IGNORE or OVERRIDE value applies.

IGNORE

The load generates the column data. The generated load control statement contains the combination of IGNOREFIELDS keyword and a dummy field name for the identify column.

OVERRIDE

The unloaded data is loaded into the identity column.

For Db2 versions prior to 9, this feature is not available and the same behavior as for IGNORE applies.

For Db2 version 9 and later, the TRANSIDOVERRIDE or OVERRIDE(TRANSID) option is specified in the load statement, and the exact name of the identity column is kept.

The option used depends on the Db2 version and the setting of the subparameter USE_V12_ALTERNATE_OVERRIDE_LOAD_SYNTAX of the VUU030/ULOPTNS parmlib parameter, as follows:

- if the Db2 version is prior to 12 or USE_V12_ALTERNATE_OVERRIDE_LOAD_SYNTAX is set to NO, the TRANSIDOVERRIDE option is specified.
- if the Db2 version is 12 or later and USE_V12_ALTERNATE_OVERRIDE_LOAD_SYNTAX is set to YES, the OVERRIDE(TRANSID) option (supported only since Db2 V12) is specified. The default value is IGNORE.

The default value is IGNORE.

This parameter is also referred to as VUU066/ULRTSID.

Option to specify conversion truncation policy (VUU067/ULCNVTRC)

This parameter is optional. It allows you to specify what policy to apply when data truncation is needed because of a CCSID conversion. The value of ULCNVTRC is overridden by the CONVERSION_TRUNCATION_ALLOWED sysin option (see OPTIONS block). Allowed values: YES/NO

YES

Truncation of the output field after a CCSID conversion is allowed.

NO

Truncation of the output field after a CCSID conversion is forbidden. Records requiring truncation are discarded and the return code is set to 4.

The default value is YES.

This parameter is also referred to as VUU067/ULCNVTRC.

Expansion ratio for conversion to UTF8 CCSID (VUU068/ULUNIEXP)

This parameter is optional. It allows you to specify what expansion ratio (i.e. target data length divided by source data length) to apply to char/varchar data when a conversion from a non-UTF8 CCSID to a UTF8 CCSID is done. The value of ULUNIEXP is overridden by the UNICODE_EXPANSION_RATIO sysin option (see OPTIONS block).

Allowed values: integer from 1 to 4

Default value: 1

This parameter is also referred to as VUU068/ULUNIEXP.

Technique to lock the unloaded tablespace (VUU074/ULLOCKTE)

This parameter is optional. It specifies the technique used to lock the unloaded tablespace when LOCK(YES) is requested for a logical unload processed in native mode.

LOCK

A SQL LOCK statement is processed on the tables to be unloaded (only on partitions to be unloaded for partitioned tablespace). The lock is released at the end of the UNLOAD process.

START_RO

The following steps are performed:

- a SQL LOCK statement is processed on the tables to be unloaded (only on partitions to be unloaded for partitioned tablespace)
- a QUIESCE of the table space is performed if QUIESCE YES applies
- the table space is started in READ ONLY mode (only partitions to be unloaded for partitioned table space)
- locks are released by issuing a COMMIT
- the table space is started in its initial status (RW UT) when the released datasets have been read (for partitioned table space, a partition is started in its initial status when its related dataset has been read)

Important: this LOCK technique is not honored and the SQL LOCK technique is used instead, if your Db2 HPU step involves a logical unload processed in SQL mode. See the explanation of the "[Eligible processing mode\(s\) for locking data feature \(VUU088/ULLOCKMO\)](#)" parmlib parameter for more explanation.

Note: if you specify LOCK YES QUIESCE YES and the parameter VUU074/ULLOCKTE = START_RO, the following steps are processed:

- LOCK on the table of the table space to be unloaded
- QUIESCE of the table space
- START RO of the table space (or the unloaded partition of the table space)
- LOCK removed by processing an SQL COMMIT

- START in its original status (RW or UT) when the read process ends. For partitioned table space, each time a partition dataset is read, the partition is started in its original status (RW or UT).

The default value is LOCK.

This parameter is also referred to as VUU074/ULLOCKTE.

Image copies selected for partitioned table spaces (VUU076/ULICTYPE)

This parameter is optional. It specifies the criteria to determine the image copies to be unloaded when COPYDDN LAST_IC or COPYDDN integer is requested for a partitioned table space and none of the GLOBAL, PARTITIONED, ANYTYPE or CONSISTENT sub-options is specified.

Specify one of the following values:

GLOBAL

The LAST_IC processing looks for a global FIC of the complete table space.

PARTITIONED

The LAST_IC processing looks only for FICs that were created for each partition.

ANYTYPE

The LAST_IC processing looks for the most recent global FIC or FIC per partition. If the ANYTYPE keyword is coded without partitions, Db2 HPU looks for the latest FIC for each partition and for the latest global FIC. If all FICs for each partition are more recent than the global FIC, the more recent FICs are used. Otherwise, the global FIC is used. The ANYTYPE value applies only to the COPYDDN LAST_IC behavior (not for COPYDDN integer).

PARTITIONED_CONSISTENT

The LAST_IC processing uses the same FIC selection criterion as for PARTITIONED and also makes sure the image copies of the involved partitions are consistent by checking these copies have the same START_RBA value in the SYSIBM.SYSCOPY table.

ANYTYPE_CONSISTENT

The LAST_IC processing uses the same FIC selection criterion as for ANYTYPE and also makes sure the image copies of the involved partitions are consistent by checking these copies have the same START_RBA value in the SYSIBM.SYSCOPY table.

The default value is the value of VUU076/ULICTYPE.

The corresponding SYSIN options are the OPTIONS COPYDDN sub options.

This parameter is also referred to as VUU076/ULICTYPE.

Oldest year assumed for DECIMAL to DATE conversions when no explicit century given by the DECIMAL source data (VUU077/ULCENT)

This parameter specifies the first year (from 1 to 9999) of a 100-year period that allows to determine the century of a DATE resulting from a conversion of DECIMAL(6,0) data that do not provide an explicit value of the century. The dates are considered to range from the value of this parameter to 99 years later. In other words, if this parameter value expressed as a 4-digit value CCYY where CC are called the century digits and YY the year digits, any date resulting from a conversion of a DECIMAL(6,0) that has no century digits is added century digits as follows:

- If the year digits from the DECIMAL(6,0) data are greater or equal to YY, the CC century digits are added to build the full date
- If the year digits from the DECIMAL(6,0) data are less than YY, the CC + 1 century digits are added to build the full date.

This parameter can also be set to 0, in which case DB2 HPU is not allowed to guess the century digits when not available in the source decimal data thus prohibiting any DECIMAL(6,0) to DATE conversions.

The default value is 0.

The corresponding SYSIN parameter is CENTURY.

This parameter is also referred to as VUU077/ULCENT.

Eligible processing mode(s) for locking data feature (VUU088/ULLOCKMO)

This parameter is optional. It specifies which processing mode(s) is eligible for the LOCK feature (LOCK YES option or by setting the VUU012/ULLOCK parameter to YES).

Specify one of the following values:

ALL

The LOCK feature is enabled for any SELECT statement regardless of the processing mode (native or SQL).

Relationship with other parameters: when the LOCK feature is requested for a SELECT statement processed in SQL mode, Db2 HPU needs to determine the list of the tables involved in the SELECT statement. This determination is done by exploiting the result of an EXPLAIN on the SELECT statement which execution requires that the VUM035/EXPLNUSR parmlib parameter is set and the PLAN_TABLE and DSN_PGRANGE_TABLE tables belonging to the userid specified by the VUM035/EXPLNUSR exist. The VUM034/EXPLNTB parmlib parameter is also taken into account to keep or delete the rows from the PLAN_TABLE and DSN_PGRANGE_TABLE related to the EXPLAIN performed to determine the tables list. The LOCK of the involved tables is done through an SQL LOCK in share mode against the tables and partitions involved in the unload regardless of the value specified for VUU074/ULLOCKTE. As Db2 HPU allows only one LOCK technique per Db2 HPU invocation (i.e. JCL step), if the LOCK feature is requested for a SELECT statement processed in SQL mode, which requires the SQL LOCK technique, the LOCK feature for SELECT statements processed in native mode are also performed through an SQL LOCK.

NATIVE_ONLY

The LOCK feature is enabled only in native mode and ignored in SQL mode.

Highest partition number allowed in IC of PBG TS (VUU093/ICMAXP)

This parameter is optional. It specifies a value used to determine the highest partition number that Db2 HPU is allowed to process when unloading the data from a global image copy of a partition-by-growth tablespace. The highest partition number allowed in the image copy is the target tablespace's MAXPARTITIONS attribute or the value of this parameter if greater. Db2 HPU fails with completion code of 8 after having issued the INZU571E message whenever the input image copy contains partitions with partitions number greater than the determined value.

As the partitions numbers of a partition-by-growth are not logically meaningful, you may want to allow Db2 HPU to unload the data from all the partitions found in the image copy, regardless of the MAXPARTITIONS attribute of the target tablespace or consider that the situation where the image copy contains more partitions than allowed per the MAXPARTITIONS attribute of the target table space is abnormal and request that Db2 HPU stops.

0

the highest partition number from the input image copy that Db2 HPU is allowed to process is the value of the MAXPARTITONS attribute of the target table space defined either by the Db2 catalog or by the DDLDDN option if any.

1-4096

the highest partition number from the input image copy that Db2 HPU is allowed is a fixed number.

Db2 HPU is allowed to process partitions with partition numbers up to this value, regardless of the MAXPARTITIONS attribute of the target tablespace. This parameter should be set to the maximum value of the MAXPARTITIONS attributes of the table spaces involved in unload from image copies. The bigger the value, the more memory is needed. Therefore, it is advisable to set it to the best fitted value. If only some of your jobs require a big value of the highest partition number, it is even more advisable to specify a value that fits most of your jobs and to use the counterpart IC_MAXPARTITION suboption of the COPYDDN option from the UNLOAD block for the jobs requiring a bigger value.

The default value is 0.

The corresponding SYSIN keyword is IC_PAXPARTITIONS suboption of the COPYDDN option in the UNLOAD block.

Sort pages of undetermined type image copy (VUU094/SORTIC)

This parameter is optional. It specifies whether to sort an input image copy involved in an unload if Db2 HPU is not informed about the type of the image copy - INLINE image copy or created with the COPYTOCOPY utility or image copy compliant with the image copies created by the COPY utility - or cannot automatically determine it.

Considering if undetermined type image copies may be used as input of Db2 HPU, specify YES for a reliable unload preventing failures or production of incorrect output or specify NO to avoid useless sorts.

The default value is NO.

Memory checking mode before starting an unload (VUU097/CHKMEM)

This parameter is optional. It specifies whether to check if the available memory is sufficient to run the next unload and what action to make after the checking. Specify one of the following values:

NO

Db2 HPU does not check if the available memory is sufficient to run the next unload to be started. In case of insufficient memory, the unload step might stop in abend.

YES,action

Db2 HPU checks if the available memory is sufficient to run the next unload to be started. To do so, Db2 HPU estimates the amount of memory needed for the next unload. It also checks the amount of available memory.

action

specifies the action to do when the available memory is insufficient. Chose a value among the following list:

INFO_ONLY

Db2 HPU only informs about the situation but does not stop the unload. The informational messages issued makes the troubleshooting easier if the unload abends because of the potential memory outage.

CANCEL_AND_RESUME

Db2 HPU informs about the situation and cancels the unload to be started but continues to process the remaining unloads. The unloads in progress continue.

CANCEL_AND_FLUSH

Db2 HPU informs about the situation and cancels the unload to be started and flushes the remaining unloads. The unloads in progress continue.

The default value is NO.

Note: An unload might sometimes fail even if the memory available seems sufficient. This can happen when the memory gets fragmented : when it is used then freed, the memory appears available but the freed areas can be non-contiguous. This results in the inability to allocate large blocks of memory. The memory fragmentation is more important when unloading multiple tablespaces consecutively in the same execution of Db2 HPU. Hence, when unloading multiple tablespaces, you might want to run the program with more memory than estimated to prevent this effect.

Minimum amount of memory for SORT process (VUU098/SORTMEM)

This parameter is optional. It specifies the minimum amount of memory (expressed in kBytes) to guarantee to launch a sort process. It is only used by the memory check feature requested either through the parameter VUU097/CHKMEM or through the CHECK_MEMORY option. Specify the amount of 24 and 31 bit memory with the following syntax :

24_mem,31_mem

24_mem

the minimum amount (expressed in kBytes) of 24 bit memory to guarantee to start the SORT process

31_mem

the minimum amount (expressed in kBytes) of 31 bit memory to guarantee to start the SORT process

The default value is 100,800.

Loading mode for row change timestamp columns (VUU099/ULRWCHNG)

This parameter is optional. It specifies how the data unloaded from a row change timestamp column defined with the GENERATED ALWAYS attribute is to be reloaded. It therefore specifies how the LOAD statement associated with the unload must be written if such a column is unloaded. This parameter is taken into account only for unloads processed in native mode and is ignored for unloads run in SQL mode. For unloads run in SQL mode, Db2 HPU generates a field description for a plain timestamp column.

Specify one of the following values:

IGNORE

The data unloaded for the row change timestamp column with the GENERATED ALWAYS attribute must be ignored by the LOAD utility. The LOAD utility must generate the data for this column instead. For this purpose, the generated load control statement is written with the following rules:

- a dummy field name is specified for the row change timestamp column that are defined as GENERATED ALWAYS.
- the IGNOREFIELDS option is specified.

OVERRIDE

The data unloaded for the row change timestamp column with the GENERATED ALWAYS attribute must be used by the LOAD utility to populate the related column. This value is taken into account only for unloads run against a Db2 subsystem in version 12 or later. Otherwise, Db2 HPU generates a LOAD statement as if IGNORE was specified. If the value is applicable, the load control statement is written with the following rules:

- the field name for a row change timestamp target column with the GENERATED ALWAYS attribute is the exact name of the column
- the OVERRIDE(ROWCHANGE) option is specified. As the OVERRIDE(ROWCHANGE) option is only available from Db2 V12 version with APAR PH25572, you must make sure the Db2 version of the subsystem where the LOAD statement is to be used is at least V12 with APAR PH25572.

The default value is IGNORE.

This parameter is also referred to as VUU099/ULRWCHNG

Value to assign to CURRENT LOCK TIMEOUT in SQL mode (VUU102/SQLLKTO)

This optional parameter specifies whether to set the CURRENT LOCK TIMEOUT special register before processing an unload in SQL mode and, if applicable, with what value. As this special register is only available since Db2 V13 with function level V13R1M500, this setting is ignored for an unload run against a Db2 subsystem at a prior maintenance level. The possible values are:

blank

no setting of the CURRENT LOCK TIMEOUT special register is requested. Db2 HPU does not issue any SET CURRENT LOCK TIMEOUT command unless the SQL_LOCK_TIMEOUT option is specified by the unload command.

any value allowed for the LOCK TIMEOUT special register

a value valid for the SET CURRENT LOCK TIMEOUT command, i.e. either an integer between -1 and 32767 or the value NULL, to be assigned to the LOCK TIMEOUT register before unloading data in SQL mode.

The default value is blank.

The corresponding SYSIN parameter is SQL_LOCK_TIMEOUT in the GLOBAL OPTIONS block.

This parameter is also referred to as VUU102/SQLLKTO

Related reference

[User-allocated ddnames](#)

To run unload jobs, you must allocate certain ddnames in the Db2 HPU JCL.

Db2 HPU output data parameters

The Db2 HPU output data parameters section on the Product Parameters panel (CCQPPRD) in Tools Customizer contains the parameters for configuring output data.

The Db2 HPU parameters are designated in three ways:

- a long designation that describes what the parameter is used for
- two short names used as a reference especially within the messages texts:
 - one has the following format Vxxnnnn where xx are characters and nnnn are figures
 - the other one is a short label of 8 characters

You can accept the default values for the Db2 HPU output data parameters, or you can configure them based on your specific requirements.

The following list describes the Db2 HPU parameters. The parameters are listed in the following format:

description (Vxxnnnn/parameter-name)

Override DCB, Db2 HPU parameters (VUM029/DFSIGDCB)

This parameter is optional. It specifies whether Db2 HPU can override the RECFM, LRECL and BLKSIZE subparameters specified by JCL DD statements allocated for the output datasets of an unload command written with the Db2 HPU syntax.

Specify one of the following values:

YES

For unloads that use Db2 HPU syntax, HPU handles the RECFM, LRECL and BLKSIZE DCB subparameters as follows:

- RECFM and LRECL: Db2 HPU systematically overrides the values from the DD statements with values suitable for the records to be unloaded.
- BLKSIZE: Db2 HPU applies the following rules:
 - if compatible, keeps the value set by the DD statement
 - if not compatible, sets BLKSIZE to 0 so that the system automatically sets a suitable and optimized value

NO

For unloads that use the Db2 HPU syntax, Db2 HPU uses the DCB parameters from the JCL DD statements and does not override any of them.

Restriction: For spanned output datasets allocated for OUTDDDN when the SPANNED YES option is specified, the following specific rules apply, Db2 HPU systematically (regardless of the DCB attributes specified by the user) allocates the spanned output dataset with:

- RECFM=VBS (user-specified value ignored regardless of VUM029/DFSIGDCB)
- LRECL=32756 (user-specified value ignored regardless of VUM029/DFSIGDCB)
- the user-specified BLKSIZE if compatible with the forced LRECL value and 0 otherwise, so that the system determines a relevant BLKSIZE value.

The default value is NO.

The corresponding SYSIN keyword is DFSIGDCB in the Technical Parameters options block, which can be coded in the GLOBAL OPTIONS block.

In previous releases of Db2 HPU, this parameter is also referred to as VUM029/DFSIGDCB.

Override DCB, UNLOAD PLUS syntax (VUM029/DFSIGDCB)

This parameter is optional. It specifies whether Db2 HPU can override the RECFM, LRECL and BLKSIZE subparameters specified by JCL DD statements allocated for the output datasets of an unload command written with the UNLOAD PLUS syntax.

Specify one of the following values:

YES

For unloads that use the UNLOAD PLUS syntax, Db2 HPU handles the RECFM, LRECL and BLKSIZE DCB subparameters as follows:

- RECFM and LRECL: Db2 HPU systematically overrides the values from the DD statements with values suitable for the records to be unloaded.
- BLKSIZE: Db2 HPU applies the following rules:
 - RECFM is for non blocked records, Db2 HPU keeps the value set by the DD statement.
 - if RECFM is for blocked records, Db2 HPU determines if the BLKSIZE value set by the DD statement is compatible with the LRECL and:
 - if compatible, keeps the value set by the DD statement.
 - if not compatible, sets BLKSIZE to 0 so that the system automatically sets a suitable and optimized value.

NO

For unloads that use the UNLOAD PLUS syntax, Db2 HPU uses the DCB parameters from the JCL DD statements and does not override any of them.

The default value is NO.

In previous releases of Db2 HPU, this parameter is also referred to as VUM029/DFSIGDCB.

Override DCB, FAST UNLOAD syntax (VUM029/DFSIGDCB)

This parameter is optional. It specifies whether Db2 HPU can override the RECFM, LRECL and BLKSIZE subparameters specified by JCL DD statements allocated for the output datasets of an unload command written with the FAST UNLOAD syntax.

Specify one of the following values:

YES

For unloads that use FAST UNLOAD syntax, Db2 HPU handles the RECFM, LRECL and BLKSIZE DCB subparameters as follows:

- RECFM and LRECL: Db2 HPU systematically overrides the values from the DD statements with values suitable for the records to be unloaded.
- BLKSIZE: Db2 HPU applies the following rules:
 - RECFM is for non blocked records, Db2 HPU keeps the value set by the DD statement.
 - if RECFM is for blocked records, Db2 HPU determines if the BLKSIZE value set by the DD statement is compatible with the LRECL and:
 - if compatible, keeps the value set by the DD statement.
 - if not compatible, sets BLKSIZE to 0 so that the system automatically sets a suitable and optimized value.

NO

For unloads that use the FAST UNLOAD syntax, Db2 HPU uses the DCB parameters from the JCL DD statements and does not override any of them.

The default value is NO.

In previous releases of Db2 HPU, this parameter is also referred to as VUM029/DFSIGDCB.

NULL indicator, format USER (VUU014/ULNULL)

This parameter is optional. Use this parameter to modify the null or not-null indicator. A null indicator can be set up to 4 bytes through VUU014/ULNULL.

OFF

The null indicator is not present in the output data set.

hhhh

The first two digits (one hexadecimal character) represent the null indicator for a null column. The last two digits (one hexadecimal character) represent the null indicator for a not-null column.

The default value is FF00.

The corresponding SYSIN parameter is OPTIONS NULL.

This parameter is also referred to as VUU014/ULNULL.

NULL indicator, format DSNTIAUL (VUU014/ULNULL)

This parameter is optional. Use this parameter to modify the null or not-null indicator. A null indicator can be set up to 4 bytes through VUU014/ULNULL.

OFF

The null indicator is not present in the output data set.

hhhh

The first two digits (one hexadecimal character) represent the null indicator for a null column. The last two digits (one hexadecimal character) represent the null indicator for a not-null column.

The default value is FF00.

The corresponding SYSIN parameter is OPTIONS NULL.

This parameter is also referred to as VUU014/ULNULL.

NULL indicator, format VARIABLE (VUU014/ULNULL)

This parameter is optional. Use this parameter to modify the null or not-null indicator. A null indicator can be set up to 4 bytes through VUU014/ULNULL.

OFF

The null indicator is not present in the output data set.

hhhh

The first two digits (one hexadecimal character) represent the null indicator for a null column. The last two digits (one hexadecimal character) represent the null indicator for a not-null column.

The default value is FF00.

The corresponding SYSIN parameter is OPTIONS NULL.

This parameter is also referred to as VUU014/ULNULL.

NULL indicator, format EXTERNAL (VUU014/ULNULL)

This parameter is optional. Use this parameter to modify the null or not-null indicator. A null indicator can be set up to 4 bytes through VUU014/ULNULL.

OFF

The null indicator is not present in the output data set.

hhhh

The first two digits (one hexadecimal character) represent the null indicator for a null column. The last two digits (one hexadecimal character) represent the null indicator for a not-null column.

The default value is FF00.

The corresponding SYSIN parameter is OPTIONS NULL.

This parameter is also referred to as VUU014/ULNULL.

NULL indicator, DSNTIAUL-like compatibility format(VUU014/ULNULL)

This parameter is optional. It applies to any of the DSNTIAUL-like compatibility formats, i.e.:

- FASTU-FIXED
- UPLUS-INTERNAL

Use this parameter to modify the null or not-null indicator. A null indicator can be set up to 4 bytes through VUU014/ULNULL.

OFF

The null indicator is not present in the output data set.

hhhh

The first two digits (one hexadecimal character) represent the null indicator for a null column. The default value depends on the compatibility format. Refer to the parameter default for compatibility formats table. The last two digits (one hexadecimal character) represent the null indicator for a not-null column.

The corresponding SYSIN parameter is OPTIONS NULL.

This parameter is also referred to as VUU014/ULNULL.

NULL indicator, VARIABLE-like compatibility format (VUU014/ULNULL)

This parameter is optional. It applies to any of the VARIABLE-like compatibility formats, i.e.:

- - FASTU-VARIABLE
- UPLUS-STANDARD
- - DB2U-DEFAULT

Use this parameter to modify the null or not-null indicator. A null indicator can be set up to 4 bytes through VUU014/ULNULL.

OFF

The null indicator is not present in the output data set.

hhhh

The first two digits (one hexadecimal character) represent the null indicator for a null column. The default value depends on the compatibility format. Refer to the parameter default for compatibility formats table. The last two digits (one hexadecimal character) represent the null indicator for a not-null column.

The corresponding SYSIN parameter is OPTIONS NULL.

This parameter is also referred to as VUU014/ULNULL.

NULL indicator, EXTERNAL-like compatibility format (VUU014/ULNULL)

This parameter is optional. It applies to any of the EXTERNAL-like compatibility formats, i.e.:

- FASTU-EXTERNAL
- UPLUS-EXTERNAL

Use this parameter to modify the null or not-null indicator. A null indicator can be set up to 4 bytes through VUU014/ULNULL.

OFF

The null indicator is not present in the output data set.

hhhh

The first two digits (one hexadecimal character) represent the null indicator for a null column. The default value depends on the compatibility format. Refer to the parameter default for compatibility formats table. The last two digits (one hexadecimal character) represent the null indicator for a not-null column.

The corresponding SYSIN parameter is OPTIONS NULL.

This parameter is also referred to as VUU014/ULNULL.

DATE, format USER (VUU015/ULDATE)

This parameter is optional. It specifies the default conversion type for a date column.

The default value is DATE_C.

The corresponding SYSIN parameter is OPTIONS DATE.

This parameter is also referred to as VUU015/ULDATE.

DATE, format DSNTIAUL (VUU015/ULDATE)

This parameter is optional. It specifies the default conversion type for a date column.

The default value is DATE_DB2.

The corresponding SYSIN parameter is OPTIONS DATE.

This parameter is also referred to as VUU015/ULDATE.

DATE, format DELIMITED (VUU015/ULDATE)

This parameter is optional. It specifies the default conversion type for a date column.

The default value is DATE_C.

The corresponding SYSIN parameter is OPTIONS DATE.

This parameter is also referred to as VUU015/ULDATE.

DATE, format VARIABLE (VUU015/ULDATE)

This parameter is optional. It specifies the default conversion type for a date column.

The default value is DATE_C.

The corresponding SYSIN parameter is OPTIONS DATE.

This parameter is also referred to as VUU015/ULDATE.

DATE, format EXTERNAL (VUU015/ULDATE)

This parameter is optional. It specifies the default conversion type for a date column.

The default value is DATE_DB2.

The corresponding SYSIN parameter is OPTIONS DATE.

This parameter is also referred to as VUU015/ULDATE.

DATE, DSNTIAUL-like compatibility format (VUU015/ULDATE)

This parameter is optional. It applies to any DSNTIAUL-like compatibility format, i.e.

- - FASTU-FIXED
- UPLUS-INTERNAL

It specifies the output format to use for date type data (type resulting from the selected items and the INTO and REFORMAT clause if any) when no DATE option from an OPTIONS block applying to the concerned date data is specified by the UNLOAD command.

The default value depends on the compatibility format. Refer to the parameter default for compatibility formats table.

The corresponding SYSIN parameter is OPTIONS DATE.

This parameter is also referred to as VUU015/ULDATE.

DATE, DELIMITED-like compatibility format (VUU015/ULDATE)

This parameter is optional. It applies to any DELIMITED-like compatibility format, i.e.

- FASTU-DELIMITED
- UPLUS-CSV
- DB2U-DELIMITED

It specifies the output format to use for date type data (type resulting from the selected items and the INTO and REFORMAT clause if any) when no DATE option from an OPTIONS block applying to the concerned date data is specified by the UNLOAD command.

The default value depends on the compatibility format. Refer to the parameter default for compatibility formats table.

The corresponding SYSIN parameter is OPTIONS DATE.

This parameter is also referred to as VUU015/ULDATE.

DATE, VARIABLE-like compatibility format (VUU015/ULDATE)

This parameter is optional. It applies to any VARIABLE-like compatibility format, i.e.

- - FASTU-VARIABLE
- UPLUS-STANDARD

- DB2U-DEFAULT

It specifies the output format to use for date type data (type resulting from the selected items and the INTO and REFORMAT clause if any) when no DATE option from an OPTIONS block applying to the concerned date data is specified by the UNLOAD command

The default value depends on the compatibility format. Refer to the parameter default for compatibility formats table.

The corresponding SYSIN parameter is OPTIONS DATE.

This parameter is also referred to as VUU015/ULDATE.

DATE, EXTERNAL-like compatibility format (VUU015/ULDATE)

This parameter is optional. This parameter applies to any EXTERNAL-like compatibility format, i.e.

- FASTU-EXTERNAL
- UPLUS-EXTERNAL

It specifies the output format to use for date type data (type resulting from the selected items and the INTO and REFORMAT clause if any) when no DATE option from an OPTIONS block applying to the concerned date data is specified by the UNLOAD command.

The default value depends on the compatibility format. Refer to the parameter default for compatibility formats table.

The corresponding SYSIN parameter is OPTIONS DATE.

This parameter is also referred to as VUU015/ULDATE.

TIME, format USER (VUU016/ULTIME)

This parameter is optional. It specifies the default conversion type for a time column.

The default value is TIME_A.

The corresponding SYSIN parameter is OPTIONS TIME.

This parameter is also referred to as VUU016/ULTIME.

TIME, format DSNTIAUL (VUU016/ULTIME)

This parameter is optional. It specifies the default conversion type for a time column.

The default value is TIME_DB2.

The corresponding SYSIN parameter is OPTIONS TIME.

This parameter is also referred to as VUU016/ULTIME.

TIME, format DELIMITED (VUU016/ULTIME)

This parameter is optional. It specifies the default conversion type for a time column.

The default value is TIME_A.

The corresponding SYSIN parameter is OPTIONS TIME.

This parameter is also referred to as VUU016/ULTIME.

TIME, format VARIABLE (VUU016/ULTIME)

This parameter is optional. It specifies the default conversion type for a time column.

The default value is TIME_A.

The corresponding SYSIN parameter is OPTIONS TIME.

This parameter is also referred to as VUU016/ULTIME.

TIME, format EXTERNAL (VUU016/ULTIME)

This parameter is optional. It specifies the default conversion type for a time column.

The default value is TIME_DB2.

The corresponding SYSIN parameter is OPTIONS TIME.

This parameter is also referred to as VUU016/ULTIME.

TIME, DSNTIAUL-like compatibility format (VUU016/ULTIME)

This parameter is optional. It applies to any DSNTIAUL-like compatibility format, i.e.

- FASTU-FIXED
- UPLUS-INTERNAL

It specifies the output format to use for time type data (type resulting from the selected items and the INTO and REFORMAT clause if any) when no TIME option from an OPTIONS block applying to the concerned time data is specified by the UNLOAD command.

The default value depends on the compatibility format. Refer to the parameter default for compatibility formats table.

The corresponding SYSIN parameter is OPTIONS DATE.

This parameter is also referred to as VUU016/ULTIME.

TIME, DELIMITED-like compatibility format (VUU016/ULTIME)

This parameter is optional. It applies to any DELIMITED-like compatibility format, i.e.

- FASTU-DELIMITED
- UPLUS-CSV
- DB2U-DELIMITED

It specifies the output format to use for time type data (type resulting from the selected items and the INTO and REFORMAT clause if any) when no TIME option from an OPTIONS block applying to the concerned time data is specified by the UNLOAD command.

The default value depends on the compatibility format. Refer to the parameter default for compatibility formats table.

The corresponding SYSIN parameter is OPTIONS DATE.

This parameter is also referred to as VUU016/ULTIME.

TIME, VARIABLE-like compatibility format (VUU016/ULTIME)

This parameter is optional. It applies to any VARIABLE-like compatibility format, i.e.

- FASTU-VARIABLE
- UPLUS-STANDARD
- DB2U-DEFAULT

It specifies the output format to use for time type data (type resulting from the selected items and the INTO and REFORMAT clause if any) when no TIME option from an OPTIONS block applying to the concerned time data is specified by the UNLOAD command.

The default value depends on the compatibility format. Refer to the parameter default for compatibility formats table.

The corresponding SYSIN parameter is OPTIONS DATE.

This parameter is also referred to as VUU016/ULTIME.

TIME, EXTERNAL-like compatibility format (VUU016/ULTIME)

This parameter is optional. It applies to any EXTERNAL-like compatibility format, i.e.

- FASTU-EXTERNAL
- UPLUS-EXTERNAL

It specifies the output format to use for time type data (type resulting from the selected items and the INTO and REFORMAT clause if any) when no TIME option from an OPTIONS block applying to the concerned time data is specified by the UNLOAD command.

The default value depends on the compatibility format. Refer to the parameter default for compatibility formats table.

The corresponding SYSIN parameter is OPTIONS DATE.

This parameter is also referred to as VUU016/ULTIME.

TIMESTAMP, format USER (VUU017/ULTMSTP)

This parameter is optional. It specifies the default conversion type for a timestamp column.

The default value is TMSTP_B

The corresponding SYSIN parameter is OPTIONS TIMESTAMP.

This parameter is also referred to as VUU017/ULTMSTP.

TIMESTAMP, format DSNTIAUL (VUU017/ULTMSTP)

This parameter is optional. It specifies the default conversion type for a timestamp column.

The default value is TMSTP_B

The corresponding SYSIN parameter is OPTIONS TIMESTAMP.

This parameter is also referred to as VUU017/ULTMSTP.

TIMESTAMP, format DELIMITED (VUU017/ULTMSTP)

This parameter is optional. It specifies the default conversion type for a timestamp column.

The default value is TMSTP_B

The corresponding SYSIN parameter is OPTIONS TIMESTAMP.

This parameter is also referred to as VUU017/ULTMSTP.

TIMESTAMP, format VARIABLE (VUU017/ULTMSTP)

This parameter is optional. It specifies the default conversion type for a timestamp column.

The default value is TMSTP_B

The corresponding SYSIN parameter is OPTIONS TIMESTAMP.

This parameter is also referred to as VUU017/ULTMSTP.

TIMESTAMP, format EXTERNAL (VUU017/ULTMSTP)

This parameter is optional. It specifies the default conversion type for a timestamp column.

The default value is TMSTP_B

The corresponding SYSIN parameter is OPTIONS TIMESTAMP.

This parameter is also referred to as VUU017/ULTMSTP.

TIMESTAMP, DSNTIAUL-like compatibility format (VUU017/ULTMSTP)

This parameter is optional. It applies to any DSNTIAUL-like compatibility format, i.e.

- FASTU-FIXED
- UPLUS-INTERNAL

It specifies the output format to use for timestamp type data (type resulting from the selected items and the INTO and REFORMAT clause if any) when no TIMESTAMP option from an OPTIONS block applying to the concerned timestamp data is specified by the UNLOAD command

The default value depends on the compatibility format. Refer to the parameter default for compatibility formats table.

The corresponding SYSIN parameter is OPTIONS TIMESTAMP.

This parameter is also referred to as VUU017/ULTMSTP.

TIMESTAMP, DELIMITED-like compatibility format (VUU017/ULTMSTP)

This parameter is optional. It applies to any DELIMITED-like compatibility format, i.e.

- FASTU-DELIMITED
- UPLUS-CSV
- DB2U-DELIMITED

It specifies the output format to use for timestamp type data (type resulting from the selected items and the INTO and REFORMAT clause if any) when no TIMESTAMP option from an OPTIONS block applying to the concerned timestamp data is specified by the UNLOAD command.

The default value depends on the compatibility format. Refer to the parameter default for compatibility formats table.

The corresponding SYSIN parameter is OPTIONS TIMESTAMP.

This parameter is also referred to as VUU017/ULTMSTP.

TIMESTAMP, VARIABLE-like compatibility format (VUU017/ULTMSTP)

This parameter is optional. It applies to any VARIABLE-like compatibility format, i.e.

- FASTU-VARIABLE
- UPLUS-STANDARD
- DB2U-DEFAULT

It specifies the output format to use for timestamp type data (type resulting from the selected items and the INTO and REFORMAT clause if any) when no TIMESTAMP option from an OPTIONS block applying to the concerned timestamp data is specified by the UNLOAD command.

The default value depends on the compatibility format. Refer to the parameter default for compatibility formats table.

The corresponding SYSIN parameter is OPTIONS TIMESTAMP.

This parameter is also referred to as VUU017/ULTMSTP.

TIMESTAMP, EXTERNAL-like compatibility format (VUU017/ULTMSTP)

This parameter is optional. It applies to any EXTERNAL-like compatibility format, i.e.

- FASTU-EXTERNAL
- UPLUS-EXTERNAL

It specifies the output format to use for timestamp type data (type resulting from the selected items and the INTO and REFORMAT clause if any) when no TIMESTAMP option from an OPTIONS block applying to the concerned timestamp data is specified by the UNLOAD command.

The default value depends on the compatibility format. Refer to the parameter default for compatibility formats table.

The corresponding SYSIN parameter is OPTIONS TIMESTAMP.

This parameter is also referred to as VUU017/ULTMSTP.

Decimal picture, format USER (VUU018/ULPIC)

This parameter is optional. It specifies the numeric data display format.

Specify a value in the following format: *signpositionseparator*.

sign

Specify one of the following values to print the sign:

+

The plus sign (+) is used for positive values.

-

The minus sign (-) is used for negative values.

P

The padding character is used for positive values, and the minus sign (-) is used for negative values.

V

The sign byte used depends on the data type as follows:

- for non-float numeric data:
 - no sign byte is written for values greater than or equal to zero.
 - the minus sign (-) is written for values less than zero.
- for float data:

- the plus sign (+) is written for values greater than or equal to zero.
- the minus sign (-) is written for values less than zero.

The default value for specifying the rules for printing is the minus sign.

position

Specify one of the following values to position the sign:

LEAD

The sign is placed in front of the numeric value. The LEAD value is ignored for floating point numbers.

TRAIL

The sign is placed after the numeric value. The TRAIL value is ignored for floating point numbers.

The default value for where to position the sign is LEAD.

separator

Specify one of the following values for the decimal separator:

- Use a period (.) as the decimal separator.
- ’ Use a comma (,) as the decimal separator.

The default value -LEAD., which means that the sign is printed before the numeric value, the sign is shown only for negative values, and the period is used as the decimal separator.

The corresponding SYSIN parameter is OPTIONS PIC.

This parameter is also referred to as VUU018/ULPIC.

Decimal picture, format DSNTIAUL (VUU018/ULPIC)

This parameter is optional. It specifies the numeric data display format.

Specify a value in the following format: *signpositionseparator*.

sign

Specify one of the following values to print the sign:

- +** The plus sign (+) is used for positive values.
- The minus sign (-) is used for negative values.

P

The padding character is used for positive values, and the minus sign (-) is used for negative values.

V

The sign byte used depends on the data type as follows:

- for non-float numeric data:
 - no sign byte is written for values greater than or equal to zero.
 - the minus sign (-) is written for values less than zero.
- for float data:
 - the plus sign (+) is written for values greater than or equal to zero.
 - the minus sign (-) is written for values less than zero.

The default value for specifying the rules for printing is the minus sign.

position

Specify one of the following values to position the sign:

LEAD

The sign is placed in front of the numeric value. The LEAD value is ignored for floating point numbers.

TRAIL

The sign is placed after the numeric value. The TRAIL value is ignored for floating point numbers.

The default value for where to position the sign is LEAD.

separator

Specify one of the following values for the decimal separator:

- Use a period (.) as the decimal separator.
- Use a comma (,) as the decimal separator.

The default value -LEAD., which means that the sign is printed before the numeric value, the sign is shown only for negative values, and the period is used as the decimal separator.

The corresponding SYSIN parameter is OPTIONS PIC.

This parameter is also referred to as VUU018/ULPIC.

Decimal picture, format DELIMITED (VUU018/ULPIC)

This parameter is optional. It specifies the numeric data display format.

Specify a value in the following format: *signpositionseparator*.

sign

Specify one of the following values to print the sign:

- +**
The plus sign (+) is used for positive values.
- The minus sign (-) is used for negative values.

P

The padding character is used for positive values, and the minus sign (-) is used for negative values.

V

The sign byte used depends on the data type as follows:

- for non-float numeric data:
 - no sign byte is written for values greater than or equal to zero.
 - the minus sign (-) is written for values less than zero.
- for float data:
 - the plus sign (+) is written for values greater than or equal to zero.
 - the minus sign (-) is written for values less than zero.

The default value for specifying the rules for printing is the minus sign.

position

Specify one of the following values to position the sign:

LEAD

The sign is placed in front of the numeric value. The LEAD value is ignored for floating point numbers.

TRAIL

The sign is placed after the numeric value. The TRAIL value is ignored for floating point numbers.

The default value for where to position the sign is LEAD.

separator

Specify one of the following values for the decimal separator:

- Use a period (.) as the decimal separator.
- Use a comma (,) as the decimal separator.

The default value -LEAD., which means that the sign is printed before the numeric value, the sign is shown only for negative values, and the period is used as the decimal separator.

The corresponding SYSIN parameter is OPTIONS PIC.

This parameter is also referred to as VUU018/ULPIC.

Decimal picture, format VARIABLE (VUU018/ULPIC)

This parameter is optional. It specifies the numeric data display format.

Specify a value in the following format: *signpositionseparator*.

sign

Specify one of the following values to print the sign:

- +**
The plus sign (+) is used for positive values.
- The minus sign (-) is used for negative values.

P

The padding character is used for positive values, and the minus sign (-) is used for negative values.

V

The sign byte used depends on the data type as follows:

- for non-float numeric data:
 - no sign byte is written for values greater than or equal to zero.
 - the minus sign (-) is written for values less than zero.
- for float data:
 - the plus sign (+) is written for values greater than or equal to zero.
 - the minus sign (-) is written for values less than zero.

The default value for specifying the rules for printing is the minus sign.

position

Specify one of the following values to position the sign:

LEAD

The sign is placed in front of the numeric value. The LEAD value is ignored for floating point numbers.

TRAIL

The sign is placed after the numeric value. The TRAIL value is ignored for floating point numbers.

The default value for where to position the sign is LEAD.

separator

Specify one of the following values for the decimal separator:

- Use a period (.) as the decimal separator.

,
Use a comma (,) as the decimal separator.

The default value -LEAD., which means that the sign is printed before the numeric value, the sign is shown only for negative values, and the period is used as the decimal separator.

The corresponding SYSIN parameter is OPTIONS PIC.

This parameter is also referred to as VUU018/ULPIC.

Decimal picture, format EXTERNAL (VUU018/ULPIC)

This parameter is optional. It specifies the numeric data display format.

Specify a value in the following format: *signpositionseparator*.

sign

Specify one of the following values to print the sign:

+

The plus sign (+) is used for positive values.

-

The minus sign (-) is used for negative values.

P

The padding character is used for positive values, and the minus sign (-) is used for negative values.

V

The sign byte used depends on the data type as follows:

- for non-float numeric data:
 - no sign byte is written for values greater than or equal to zero.
 - the minus sign (-) is written for values less than zero.
- for float data:
 - the plus sign (+) is written for values greater than or equal to zero.
 - the minus sign (-) is written for values less than zero.

The default value for specifying the rules for printing is the minus sign.

position

Specify one of the following values to position the sign:

LEAD

The sign is placed in front of the numeric value. The LEAD value is ignored for floating point numbers.

TRAIL

The sign is placed after the numeric value. The TRAIL value is ignored for floating point numbers.

The default value for where to position the sign is LEAD.

separator

Specify one of the following values for the decimal separator:

.

Use a period (.) as the decimal separator.

,

Use a comma (,) as the decimal separator.

The default value -LEAD., which means that the sign is printed before the numeric value, the sign is shown only for negative values, and the period is used as the decimal separator.

The corresponding SYSIN parameter is OPTIONS PIC.

This parameter is also referred to as VUU018/ULPIC.

Decimal picture, DSNTIAUL-like compatibility format (VUU018/ULPIC)

This parameter is optional. It applies to all the following formats :

- FASTU-FIXED
- UPLUS-INTERNAL

It specifies the numeric data display format.

Specify a value in the following format: *signpositionseparator*.

sign

Specify one of the following values to print the sign:

+

The plus sign (+) is used for positive values.

-

The minus sign (-) is used for negative values.

P

The padding character is used for positive values, and the minus sign (-) is used for negative values.

V

The sign byte used depends on the data type as follows:

- for non-float numeric data:
 - no sign byte is written for values greater than or equal to zero.
 - the minus sign (-) is written for values less than zero.
- for float data:
 - the plus sign (+) is written for values greater than or equal to zero.
 - the minus sign (-) is written for values less than zero.

The default value for specifying the rules for printing is the minus sign.

position

Specify one of the following values to position the sign:

LEAD

The sign is placed in front of the numeric value. The LEAD value is ignored for floating point numbers.

TRAIL

The sign is placed after the numeric value. The TRAIL value is ignored for floating point numbers.

The default value for where to position the sign is LEAD.

separator

Specify one of the following values for the decimal separator:

.

Use a period (.) as the decimal separator.

,

Use a comma (,) as the decimal separator.

The default value depends on the compatibility format. Refer to the parameter default for compatibility formats table.

The corresponding SYSIN parameter is OPTIONS PIC.

This parameter is also referred to as VUU018/ULPIC.

Decimal picture, DELIMITED-like compatibility format (VUU018/ULPIC)

This parameter is optional. It applies to all the following formats :

- FASTU-DELIMITED
- UPLUS-CSV
- DB2U-DELIMITED

It specifies the numeric data display format.

Specify a value in the following format: *signpositionseparator*.

sign

Specify one of the following values to print the sign:

+

The plus sign (+) is used for positive values.

-

The minus sign (-) is used for negative values.

P

The padding character is used for positive values, and the minus sign (-) is used for negative values.

V

The sign byte used depends on the data type as follows:

- for non-float numeric data:
 - no sign byte is written for values greater than or equal to zero.
 - the minus sign (-) is written for values less than zero.
- for float data:
 - the plus sign (+) is written for values greater than or equal to zero.
 - the minus sign (-) is written for values less than zero.

The default value for specifying the rules for printing is the minus sign.

position

Specify one of the following values to position the sign:

LEAD

The sign is placed in front of the numeric value. The LEAD value is ignored for floating point numbers.

TRAIL

The sign is placed after the numeric value. The TRAIL value is ignored for floating point numbers.

The default value for where to position the sign is LEAD.

separator

Specify one of the following values for the decimal separator:

.

Use a period (.) as the decimal separator.

,

Use a comma (,) as the decimal separator.

The default value depends on the compatibility format. Refer to the parameter default for compatibility formats table.

The corresponding SYSIN parameter is OPTIONS PIC.

This parameter is also referred to as VUU018/ULPIC.

Decimal picture, VARIABLE-like compatibility format (VUU018/ULPIC)

This parameter is optional. It applies to all the following formats :

- FASTU-VARIABLE

- UPLUS-STANDARD
- DB2U-DEFAULT

It specifies the numeric data display format.

Specify a value in the following format: *signpositionseparator*.

sign

Specify one of the following values to print the sign:

+

The plus sign (+) is used for positive values.

-

The minus sign (-) is used for negative values.

P

The padding character is used for positive values, and the minus sign (-) is used for negative values.

V

The sign byte used depends on the data type as follows:

- for non-float numeric data:
 - no sign byte is written for values greater than or equal to zero.
 - the minus sign (-) is written for values less than zero.
- for float data:
 - the plus sign (+) is written for values greater than or equal to zero.
 - the minus sign (-) is written for values less than zero.

The default value for specifying the rules for printing is the minus sign.

position

Specify one of the following values to position the sign:

LEAD

The sign is placed in front of the numeric value. The LEAD value is ignored for floating point numbers.

TRAIL

The sign is placed after the numeric value. The TRAIL value is ignored for floating point numbers.

The default value for where to position the sign is LEAD.

separator

Specify one of the following values for the decimal separator:

.

Use a period (.) as the decimal separator.

,

Use a comma (,) as the decimal separator.

The default value depends on the compatibility format. Refer to the parameter default for compatibility formats table.

The corresponding SYSIN parameter is OPTIONS PIC.

This parameter is also referred to as VUU018/ULPIC.

Decimal picture, EXTERNAL-like compatibility format (VUU018/ULPIC)

This parameter is optional. It applies to all the following formats :

- FASTU-EXTERNAL
- UPLUS-EXTERNAL

It specifies the numeric data display format.

Specify a value in the following format: *signpositionseparator*.

sign

Specify one of the following values to print the sign:

+

The plus sign (+) is used for positive values.

-

The minus sign (-) is used for negative values.

P

The padding character is used for positive values, and the minus sign (-) is used for negative values.

V

The sign byte used depends on the data type as follows:

- for non-float numeric data:
 - no sign byte is written for values greater than or equal to zero.
 - the minus sign (-) is written for values less than zero.
- for float data:
 - the plus sign (+) is written for values greater than or equal to zero.
 - the minus sign (-) is written for values less than zero.

The default value for specifying the rules for printing is the minus sign.

position

Specify one of the following values to position the sign:

LEAD

The sign is placed in front of the numeric value. The LEAD value is ignored for floating point numbers.

TRAIL

The sign is placed after the numeric value. The TRAIL value is ignored for floating point numbers.

The default value for where to position the sign is LEAD.

separator

Specify one of the following values for the decimal separator:

.

Use a period (.) as the decimal separator.

,

Use a comma (,) as the decimal separator.

The default value depends on the compatibility format. Refer to the parameter default for compatibility formats table.

The corresponding SYSIN parameter is OPTIONS PIC.

This parameter is also referred to as VUU018/ULPIC.

Display format for numeric values, format USER (VUU032/ULMASK)

This parameter is optional. It specifies the display format for numeric values (zero and separator).

The value of this parameter consists of four separate columns:

- The Left padding column indicates whether the number is padded on the left with non significant zeroes to fill up the output field. The sign character is added to the left of these zeroes.
- The Left zero column indicates whether a zero is placed to the left of the decimal separator when the value is 0.

- The Decimal separator column indicates whether the decimal separator is displayed. The Decimal separator column applies only to decimal data. The decimal separator is never displayed for SMALLINT or INTEGER values.
- The Right padding column indicates whether the number is padded on the right of the decimal separator with zeroes, up to the number of digits of the decimal scale.

Important:

1. The ULMASK variable has no impact on the formatting of FLOAT values.

Table 37. Nonsignificant zero values for DECIMAL and SMALLINT/INTEGER

ULMASK value	Left padding	Left zero	Decimal separator	Right padding
**	No	Only when the value is 0	Only if the decimal value is not 0	No
0.*	No	Always	Only if the decimal value is not 0	No
*.0	No	Only when the decimal scale is 0	Only if the decimal scale is not 0	Yes
0.0	No	Always	Only if the decimal scale is not 0	Yes
00.0	Yes	Always	Only if the decimal scale is not 0	Yes
*.Z	No	Only when the decimal scale is 0	Always	Yes
0.Z	No	Always	Always	Yes
00.Z	Yes	Always	Always	Yes

For examples of the effect of using ULMASK, see [“OPTIONS block syntax and description”](#) on page 157.

The following example shows how to specify a ULMASK value for the USER format:

```
00.0
```

The default value when a LIKE value is used to force conversion to a CHAR, an INTO clause, or a REFORMAT clause is **.

The corresponding SYSIN parameter is OPTIONS PIC.

This parameter is also referred to as VUU032/ULMASK.

Display format for numeric values, format DSNTIAUL (VUU032/ULMASK)

This parameter is optional. It specifies the display format for numeric values (zero and separator).

The value of this parameter consists of four separate columns:

- The Left padding column indicates whether the number is padded on the left with non significant zeroes to fill up the output field. The sign character is added to the left of these zeroes.
- The Left zero column indicates whether a zero is placed to the left of the decimal separator when the value is 0.
- The Decimal separator column indicates whether the decimal separator is displayed. The Decimal separator column applies only to decimal data. The decimal separator is never displayed for SMALLINT or INTEGER values.

- The Right padding column indicates whether the number is padded on the right of the decimal separator with zeroes, up to the number of digits of the decimal scale.

Important:

1. The ULMASK variable has no impact on the formatting of FLOAT values.

Table 38. Nonsignificant zero values for DECIMAL and SMALLINT/INTEGER

ULMASK value	Left padding	Left zero	Decimal separator	Right padding
**	No	Only when the value is 0	Only if the decimal value is not 0	No
0.*	No	Always	Only if the decimal value is not 0	No
*.0	No	Only when the decimal scale is 0	Only if the decimal scale is not 0	Yes
0.0	No	Always	Only if the decimal scale is not 0	Yes
00.0	Yes	Always	Only if the decimal scale is not 0	Yes
*.Z	No	Only when the decimal scale is 0	Always	Yes
0.Z	No	Always	Always	Yes
00.Z	Yes	Always	Always	Yes

For examples of the effect of using ULMASK, see “[OPTIONS block syntax and description](#)” on page 157.

The following example shows how to specify a ULMASK value for the USER format:

```
00.0
```

The default value when a LIKE value is used to force conversion to a CHAR, an INTO clause, or a REFORMAT clause is **.

The corresponding SYSIN parameter is OPTIONS PIC.

This parameter is also referred to as VUU032/ULMASK.

Display format for numeric values, format DELIMITED (VUU032/ULMASK)

This parameter is optional. It specifies the display format for numeric values (zero and separator).

The value of this parameter consists of four separate columns:

- The Left padding column indicates whether the number is padded on the left with non significant zeroes to fill up the output field. The sign character is added to the left of these zeroes.
- The Left zero column indicates whether a zero is placed to the left of the decimal separator when the value is 0.
- The Decimal separator column indicates whether the decimal separator is displayed. The Decimal separator column applies only to decimal data. The decimal separator is never displayed for SMALLINT or INTEGER values.
- The Right padding column indicates whether the number is padded on the right of the decimal separator with zeroes, up to the number of digits of the decimal scale.

Important:

1. The ULMASK variable has no impact on the formatting of FLOAT values.

Table 39. Nonsignificant zero values for DECIMAL and SMALLINT/INTEGER

ULMASK value	Left padding	Left zero	Decimal separator	Right padding
**	No	Only when the value is 0	Only if the decimal value is not 0	No
0.*	No	Always	Only if the decimal value is not 0	No
*.0	No	Only when the decimal scale is 0	Only if the decimal scale is not 0	Yes
0.0	No	Always	Only if the decimal scale is not 0	Yes
00.0	Yes	Always	Only if the decimal scale is not 0	Yes
*.Z	No	Only when the decimal scale is 0	Always	Yes
0.Z	No	Always	Always	Yes
00.Z	Yes	Always	Always	Yes

For examples of the effect of using ULMASK, see [“OPTIONS block syntax and description” on page 157](#).

The following example shows how to specify a ULMASK value for the USER format:

```
00.0
```

The default value when a LIKE value is used to force conversion to a CHAR, an INTO clause, or a REFORMAT clause is **.

The corresponding SYSIN parameter is OPTIONS PIC.

This parameter is also referred to as VUU032/ULMASK.

Display format for numeric values, format VARIABLE

This parameter is optional. It specifies the display format for numeric values (zero and separator).

The value of this parameter consists of four separate columns:

- The Left padding column indicates whether the number is padded on the left with non significant zeroes to fill up the output field. The sign character is added to the left of these zeroes.
- The Left zero column indicates whether a zero is placed to the left of the decimal separator when the value is 0.
- The Decimal separator column indicates whether the decimal separator is displayed. The Decimal separator column applies only to decimal data. The decimal separator is never displayed for SMALLINT or INTEGER values.
- The Right padding column indicates whether the number is padded on the right of the decimal separator with zeroes, up to the number of digits of the decimal scale.

Important:

1. The ULMASK variable has no impact on the formatting of FLOAT values.

Table 40. Nonsignificant zero values for DECIMAL and SMALLINT/INTEGER

ULMASK value	Left padding	Left zero	Decimal separator	Right padding
**	No	Only when the value is 0	Only if the decimal value is not 0	No
0.*	No	Always	Only if the decimal value is not 0	No
*.0	No	Only when the decimal scale is 0	Only if the decimal scale is not 0	Yes
0.0	No	Always	Only if the decimal scale is not 0	Yes
00.0	Yes	Always	Only if the decimal scale is not 0	Yes
*.Z	No	Only when the decimal scale is 0	Always	Yes
0.Z	No	Always	Always	Yes
00.Z	Yes	Always	Always	Yes

For examples of the effect of using ULMASK, see [“OPTIONS block syntax and description” on page 157](#).

The following example shows how to specify a ULMASK value for the USER format:

```
00.0
```

The default value when a LIKE value is used to force conversion to a CHAR, an INTO clause, or a REFORMAT clause is **.

The corresponding SYSIN parameter is OPTIONS PIC.

This parameter is also referred to as VUU032/ULMASK.

Display format for numeric values, format EXTERNAL (VUU032/ULMASK)

This parameter is optional. It specifies the display format for numeric values (zero and separator).

The value of this parameter consists of four separate columns:

- The Left padding column indicates whether the number is padded on the left with non significant zeroes to fill up the output field. The sign character is added to the left of these zeroes.
- The Left zero column indicates whether a zero is placed to the left of the decimal separator when the value is 0.
- The Decimal separator column indicates whether the decimal separator is displayed. The Decimal separator column applies only to decimal data. The decimal separator is never displayed for SMALLINT or INTEGER values.
- The Right padding column indicates whether the number is padded on the right of the decimal separator with zeroes, up to the number of digits of the decimal scale.

Important:

1. The ULMASK variable has no impact on the formatting of FLOAT values.

Table 41. Nonsignificant zero values for DECIMAL and SMALLINT/INTEGER

ULMASK value	Left padding	Left zero	Decimal separator	Right padding
**	No	Only when the value is 0	Only if the decimal value is not 0	No
0.*	No	Always	Only if the decimal value is not 0	No
*.0	No	Only when the decimal scale is 0	Only if the decimal scale is not 0	Yes
0.0	No	Always	Only if the decimal scale is not 0	Yes
00.0	Yes	Always	Only if the decimal scale is not 0	Yes
*.Z	No	Only when the decimal scale is 0	Always	Yes
0.Z	No	Always	Always	Yes
00.Z	Yes	Always	Always	Yes

For examples of the effect of using ULMASK, see [“OPTIONS block syntax and description” on page 157](#).

The following example shows how to specify a ULMASK value for the USER format:

```
00.0
```

The default value when a LIKE value is used to force conversion to a CHAR, an INTO clause, or a REFORMAT clause is **

The corresponding SYSIN parameter is OPTIONS PIC.

This parameter is also referred to as VUU032/ULMASK.

Display format for numeric values, DSNTIAUL-like compatibility format (VUU032/ULMASK)

It applies to all the following formats:

- FASTU-FIXED
- UPLUS-INTERNAL

This parameter is optional. It specifies the display format for numeric values (zero and separator).

The value of this parameter consists of four separate columns:

- The Left padding column indicates whether the number is padded on the left with non significant zeroes to fill up the output field. The sign character is added to the left of these zeroes.
- The Left zero column indicates whether a zero is placed to the left of the decimal separator when the value is 0.
- The Decimal separator column indicates whether the decimal separator is displayed. The Decimal separator column applies only to decimal data. The decimal separator is never displayed for SMALLINT or INTEGER values.
- The Right padding column indicates whether the number is padded on the right of the decimal separator with zeroes, up to the number of digits of the decimal scale.

Important:

1. The ULMASK variable has no impact on the formatting of FLOAT values.

Table 42. Nonsignificant zero values for DECIMAL and SMALLINT/INTEGER

ULMASK value	Left padding	Left zero	Decimal separator	Right padding
**	No	Only when the value is 0	Only if the decimal value is not 0	No
0.*	No	Always	Only if the decimal value is not 0	No
*.0	No	Only when the decimal scale is 0	Only if the decimal scale is not 0	Yes
0.0	No	Always	Only if the decimal scale is not 0	Yes
00.0	Yes	Always	Only if the decimal scale is not 0	Yes
*.Z	No	Only when the decimal scale is 0	Always	Yes
0.Z	No	Always	Always	Yes
00.Z	Yes	Always	Always	Yes

For examples of the effect of using ULMASK, see [“OPTIONS block syntax and description” on page 157](#).

The following example shows how to specify a ULMASK value for the USER format:

```
00.0
```

The default value when a LIKE value is used to force conversion to a CHAR, an INTO clause, or a REFORMAT clause is **.

The corresponding SYSIN parameter is OPTIONS PIC.

This parameter is also referred to as VUU032/ULMASK.

Display format for numeric values, DELIMITED-like compatibility format (VUU032/ULMASK)

It applies to all the following formats:

- FASTU-DELIMITED
- UPLUS-CSV
- DB2U-DELIMITED

This parameter is optional. It specifies the display format for numeric values (zero and separator).

The value of this parameter consists of four separate columns:

- The Left padding column indicates whether the number is padded on the left with non significant zeroes to fill up the output field. The sign character is added to the left of these zeroes.
- The Left zero column indicates whether a zero is placed to the left of the decimal separator when the value is 0.
- The Decimal separator column indicates whether the decimal separator is displayed. The Decimal separator column applies only to decimal data. The decimal separator is never displayed for SMALLINT or INTEGER values.
- The Right padding column indicates whether the number is padded on the right of the decimal separator with zeroes, up to the number of digits of the decimal scale.

Important:

1. The ULMASK variable has no impact on the formatting of FLOAT values.

Table 43. Nonsignificant zero values for DECIMAL and SMALLINT/INTEGER

ULMASK value	Left padding	Left zero	Decimal separator	Right padding
**	No	Only when the value is 0	Only if the decimal value is not 0	No
0.*	No	Always	Only if the decimal value is not 0	No
*.0	No	Only when the decimal scale is 0	Only if the decimal scale is not 0	Yes
0.0	No	Always	Only if the decimal scale is not 0	Yes
00.0	Yes	Always	Only if the decimal scale is not 0	Yes
*.Z	No	Only when the decimal scale is 0	Always	Yes
0.Z	No	Always	Always	Yes
00.Z	Yes	Always	Always	Yes

For examples of the effect of using ULMASK, see “[OPTIONS block syntax and description](#)” on page 157.

The following example shows how to specify a ULMASK value for the USER format:

```
00.0
```

The default value when a LIKE value is used to force conversion to a CHAR, an INTO clause, or a REFORMAT clause is **.

The corresponding SYSIN parameter is OPTIONS PIC.

This parameter is also referred to as VUU032/ULMASK.

Display format for numeric values, VARIABLE-like compatibility format (VUU032/ULMASK)

It applies to all the following formats:

- FASTU-VARIABLE
- UPLUS-STANDARD
- DB2U-DEFAULT

This parameter is optional. It specifies the display format for numeric values (zero and separator).

The value of this parameter consists of four separate columns:

- The Left padding column indicates whether the number is padded on the left with non significant zeroes to fill up the output field. The sign character is added to the left of these zeroes.
- The Left zero column indicates whether a zero is placed to the left of the decimal separator when the value is 0.
- The Decimal separator column indicates whether the decimal separator is displayed. The Decimal separator column applies only to decimal data. The decimal separator is never displayed for SMALLINT or INTEGER values.
- The Right padding column indicates whether the number is padded on the right of the decimal separator with zeroes, up to the number of digits of the decimal scale.

Important:

1. The ULMASK variable has no impact on the formatting of FLOAT values.

Table 44. Nonsignificant zero values for DECIMAL and SMALLINT/INTEGER

ULMASK value	Left padding	Left zero	Decimal separator	Right padding
**	No	Only when the value is 0	Only if the decimal value is not 0	No
0.*	No	Always	Only if the decimal value is not 0	No
*.0	No	Only when the decimal scale is 0	Only if the decimal scale is not 0	Yes
0.0	No	Always	Only if the decimal scale is not 0	Yes
00.0	Yes	Always	Only if the decimal scale is not 0	Yes
*.Z	No	Only when the decimal scale is 0	Always	Yes
0.Z	No	Always	Always	Yes
00.Z	Yes	Always	Always	Yes

For examples of the effect of using ULMASK, see [“OPTIONS block syntax and description” on page 157](#).

The following example shows how to specify a ULMASK value for the USER format:

```
00.0
```

The default value when a LIKE value is used to force conversion to a CHAR, an INTO clause, or a REFORMAT clause is **.

The corresponding SYSIN parameter is OPTIONS PIC.

This parameter is also referred to as VUU032/ULMASK.

Display format for numeric values, EXTERNAL-like compatibility format (VUU032/ULMASK)

It applies to all the following formats:

- FASTU-EXTERNAL
- UPLUS-EXTERNAL

This parameter is optional. It specifies the display format for numeric values (zero and separator).

The value of this parameter consists of four separate columns:

- The Left padding column indicates whether the number is padded on the left with non significant zeroes to fill up the output field. The sign character is added to the left of these zeroes.
- The Left zero column indicates whether a zero is placed to the left of the decimal separator when the value is 0.
- The Decimal separator column indicates whether the decimal separator is displayed. The Decimal separator column applies only to decimal data. The decimal separator is never displayed for SMALLINT or INTEGER values.
- The Right padding column indicates whether the number is padded on the right of the decimal separator with zeroes, up to the number of digits of the decimal scale.

Important:

1. The ULMASK variable has no impact on the formatting of FLOAT values.

Table 45. Nonsignificant zero values for DECIMAL and SMALLINT/INTEGER

ULMASK value	Left padding	Left zero	Decimal separator	Right padding
**	No	Only when the value is 0	Only if the decimal value is not 0	No
0.*	No	Always	Only if the decimal value is not 0	No
*.0	No	Only when the decimal scale is 0	Only if the decimal scale is not 0	Yes
0.0	No	Always	Only if the decimal scale is not 0	Yes
00.0	Yes	Always	Only if the decimal scale is not 0	Yes
*.Z	No	Only when the decimal scale is 0	Always	Yes
0.Z	No	Always	Always	Yes
00.Z	Yes	Always	Always	Yes

For examples of the effect of using ULMASK, see [“OPTIONS block syntax and description” on page 157](#).

The following example shows how to specify a ULMASK value for the USER format:

```
00.0
```

The default value when a LIKE value is used to force conversion to a CHAR, an INTO clause, or a REFORMAT clause is **.

The corresponding SYSIN parameter is OPTIONS PIC.

This parameter is also referred to as VUU032/ULMASK.

Options for global LOAD statement (VUU019/ULOPTLDT)

This parameter is optional. It defines the parameters of the LOAD statement that were generated at the table space level.

Enclose all sub-parameters in parentheses, as shown in the following example:

```
SORTDEVT(SYSDA) SORTNUM(32)
```

To generate a parenthesis in the LOADDDN, include two parentheses in this parameter, as shown in the following statement:

```
(ENFORCE((NO)), LOG(NO), COPYDDN((SYSCOPY)))
```

This statement generates this option in the LOAD statement:

```
ENFORCE(NO) LOG NO COPYDDN(SYSCOPY)
```

To code the load options on several lines, follow these rules:

- Use a continuation comma at the end of each line.
- Begin the first string with a left parenthesis, and code the corresponding right parenthesis only on the last line used.

The following parameters are valid. If you code a parameter that is not in this list, it is not controlled, and it is copied in the generated LOAD SYSIN:

- COPYDDN
- DISCARDN
- DISCARDS
- ENFORCE(CONSTRAINTS/NO)
- INDDN
- KEEPDICTIONARY
- LOG(YES/NO)
- RECOVERYDDN
- REPLACE
- RESUME(YES|NO)
- SORTDEVT
- SORTKEYS
- SORTNUM
- PARALLEL or PARALLEL (num-subtask) where num-subtask specifies the maximum number of sub-tasks that are to be processed in parallel by the LOAD utility. The value must be an integer between 0 and 32767, inclusive.

Note: The INDDN keyword is ignored if the LOADINDDN(YES) option applies, either by the parmlib settings or by the LOADINDDN(YES) options from the unload command. If you want the INDDN keyword to be taken into account, do not specify the LOADINDDN(YES) for ULOPTNS or disable it by specifying LOADINDDN(NO) option from the unload command.

Important: If you specify the SORTKEYS keyword, the value that you specify is substituted with a value that is calculated according to the number of unloaded records, except when you run Db2 HPU in EXECUTE NO mode. When you run Db2 HPU in EXECUTE NO mode, the &SORTKEYS variable is replaced with 0.

If you code a parameter that is not in the previous list, it will not be controlled, and will only be copied in the generated LOAD SYSIN.

When the output file is a spanned file, NUMRECS is always generated in the SYSIN for the LOAD utility, therefore the SORTKEYS parameter is not taken into account.

The default value is (LOG (NO), ENFORCE(NO)).

This parameter is also referred to as VUU019/ULOPTLDT.

Options of partition LOAD statement (VUU020/ULOPTLDP)

This parameter is optional. Defines the parameters of the LOAD statement that was generated at the partition level.

To code the load options on several lines, follow these rules:

- Use a continuation comma at the end of each line.
- Begin the first string with a left parenthesis, and code the corresponding right parenthesis only on the last line used.

The following parameters are accepted:

- RESUME(YES|NO)
- REPLACE
- KEEPDICTIONARY

The default value is (RESUME(YES)).

This parameter is also referred to as VUU020/ULOPTLDP.

Options of table LOAD statement (VUU070/ULOPTLDB)

This parameter is optional. Defines the parameters of the LOAD statement to be generated at the table level.

To code the load options on several lines, follow these rules:

- Use a continuation comma at the end of each line.
- Begin the first string with a left parenthesis, and code the corresponding right parenthesis only on the last line used.

The following parameters are accepted:

- NUMREC(&NUMREC): the number of unloaded records is specified as the operand of the NUMRECS options written in the generated LOAD statement
- NUMRECS(integer): the specified integer value is used as the operand of the NUMRECS options written in the generated LOAD statement.

If you code a parameter that is not in the above, it will not be controlled and will only be copied in the generated LOAD SYSIN as specified.

The default value is (NUMRECS(&NUMRECS)).

This parameter is also referred to as **VUU070/ULOPTLDB**

Position for NULL indicator, format USER (VUU022/NULLPOS)

This parameter is optional. It specifies the position of the NULL indicator within the Db2 HPU output data sets in USER format. This parameter does not apply to a LOB column unloaded in a spanned format (SPANNED YES option) in which case the NULL indicator is written before the output field (containing the data) whatever the value of NULLPOS.

Specify one of the following values:

AFTER

The NULL indicator is placed after the field containing the related data.

BEFORE

The NULL indicator is placed before the field containing the related data.

FRONT

The null indicators are gathered at the front of each unloaded record. The sequence of the NULL indicators is the same as the sequence of the related columns.

The default value is BEFORE.

The corresponding SYSIN parameter is OPTIONS NULLPOS.

This parameter is also referred to as VUU022/NULLPOS.

Position for NULL indicator, format DSNTIAUL (VUU022/NULLPOS)

This parameter is optional. It specifies the position of the NULL indicator within the Db2 HPU output data sets in DSNTIAUL format. This parameter does not apply to a LOB column unloaded in a spanned format (SPANNED YES option) in which case the NULL indicator is written before the output field (containing the data) whatever the value of NULLPOS.

Specify one of the following values:

AFTER

The NULL indicator is placed after the field containing the related data.

BEFORE

The NULL indicator is placed before the field containing the related data.

FRONT

The null indicators are gathered at the front of each unloaded record. The sequence of the NULL indicators is the same as the sequence of the related columns.

The default value is AFTER.

The corresponding SYSIN parameter is OPTIONS NULLPOS.

This parameter is also referred to as VUU022/NULLPOS.

Position for NULL indicator, format VARIABLE (VUU022/NULLPOS)

This parameter is optional. It specifies the position of the NULL indicator within the Db2 HPU output data sets in VARIABLE format. This parameter does not apply to a LOB column unloaded in a spanned format (SPANNED YES option) in which case the NULL indicator is written before the output field (containing the data) whatever the value of NULLPOS.

Specify one of the following values:

AFTER

The NULL indicator is placed after the field containing the related data.

BEFORE

The NULL indicator is placed before the field containing the related data.

FRONT

The null indicators are gathered at the front of each unloaded record. The sequence of the NULL indicators is the same as the sequence of the related columns.

The default value is BEFORE.

The corresponding SYSIN parameter is OPTIONS NULLPOS.

This parameter is also referred to as VUU022/NULLPOS.

Position for NULL indicator, format EXTERNAL (VUU022/NULLPOS)

This parameter is optional. It specifies the position of the NULL indicator within the Db2 HPU output data sets in EXTERNAL format. This parameter does not apply to a LOB column unloaded in a spanned format (SPANNED YES option) in which case the NULL indicator is written before the output field (containing the data) whatever the value of NULLPOS.

Specify one of the following values:

AFTER

The NULL indicator is placed after the field containing the related data.

BEFORE

The NULL indicator is placed before the field containing the related data.

FRONT

The null indicators are gathered at the front of each unloaded record. The sequence of the NULL indicators is the same as the sequence of the related columns.

The default value is AFTER.

The corresponding SYSIN parameter is OPTIONS NULLPOS.

This parameter is also referred to as VUU022/NULLPOS.

Position for NULL indicator, DSNTIAUL-like compatibility format (VUU022/NULLPOS)

This parameter is optional. It applies to all the following formats:

- FASTU-FIXED
- UPLUS-INTERNAL

It specifies the position of the NULL indicator within the Db2 HPU output data sets in EXTERNAL format. This parameter does not apply to a LOB column unloaded in a spanned format (SPANNED YES option) in which case the NULL indicator is written before the output field (containing the data) whatever the value of NULLPOS.

Specify one of the following values:

AFTER

The NULL indicator is placed after the field containing the related data.

BEFORE

The NULL indicator is placed before the field containing the related data.

FRONT

The null indicators are gathered at the front of each unloaded record. The sequence of the NULL indicators is the same as the sequence of the related columns.

The default value depends on the compatibility format. Refer to the parameter default for compatibility formats table.

The corresponding SYSIN parameter is OPTIONS NULLPOS.

This parameter is also referred to as VUU022/NULLPOS.

Position for NULL indicator, VARIABLE-like compatibility format (VUU022/NULLPOS)

This parameter is optional. It applies to all the following formats:

- FASTU-VARIABLE
- UPLUS-STANDARD
- DB2U-DEFAULT

It specifies the position of the NULL indicator within the Db2 HPU output data sets in EXTERNAL format. This parameter does not apply to a LOB column unloaded in a spanned format (SPANNED YES option) in which case the NULL indicator is written before the output field (containing the data) whatever the value of NULLPOS.

Specify one of the following values:

AFTER

The NULL indicator is placed after the field containing the related data.

BEFORE

The NULL indicator is placed before the field containing the related data.

FRONT

The null indicators are gathered at the front of each unloaded record. The sequence of the NULL indicators is the same as the sequence of the related columns.

The default value depends on the compatibility format. Refer to the parameter default for compatibility formats table.

The corresponding SYSIN parameter is OPTIONS NULLPOS.

This parameter is also referred to as VUU022/NULLPOS.

Position for NULL indicator, EXTERNAL-like compatibility format (VUU022/NULLPOS)

This parameter is optional. It applies to all the following formats:

- FASTU-EXTERNAL
- UPLUS-EXTERNAL

It specifies the position of the NULL indicator within the Db2 HPU output data sets in EXTERNAL format. This parameter does not apply to a LOB column unloaded in a spanned format (SPANNED YES option) in which case the NULL indicator is written before the output field (containing the data) whatever the value of NULLPOS.

Specify one of the following values:

AFTER

The NULL indicator is placed after the field containing the related data.

BEFORE

The NULL indicator is placed before the field containing the related data.

FRONT

The null indicators are gathered at the front of each unloaded record. The sequence of the NULL indicators is the same as the sequence of the related columns.

The default value depends on the compatibility format. Refer to the parameter default for compatibility formats table.

The corresponding SYSIN parameter is OPTIONS NULLPOS.

This parameter is also referred to as VUU022/NULLPOS.

Use the same DDN for UNLDDN, OUTDDN, and LOADDN (VUU029/UNLDDN)

This parameter is optional. Use this parameter to prevent the use of the same DDN for UNLDDN, OUTDDN, and LOADDN.

Specify one of the following values:

YES

If you use the same DDN in a single SELECT statement with the keywords UNLDDN, OUTDDN, and LOADDN, Db2 HPU issues error INZU124E.

NO

An error is not issued when you use the same DDN in a single SELECT statement with the keywords UNLDDN, OUTDDN, and LOADDN.

The default value is NO.

This parameter is also referred to as VUU029/UNLDDN.

DATE/TIME delimiter option, DELIMITED format (VUU031/DTDELIM)

This parameter is optional. It applies to FORMAT DELIMITED to delimit the column types DATE, TIME, and TIMESTAMP in the output data set.

Specify one of the following values:

YES

Column types DATE, TIME, and TIMESTAMP are delimited by the column delimiter that is specified by the option DELIM *literal*.

NO

If the NULL DELIM option is used in FORMAT DELIMITED, this parameter will not apply to the DATE, TIME, and TIMESTAMP columns.

The default value is NO.

This parameter is also referred to as VUU031/DTDELIM.

DATE/TIME delimiter option, DELIMITED-like compatibility format (VUU031/DTDELIM)

This parameter is optional. It applies to all the following formats:

- FASTU-DELIMITED
- UPLUS-CSV
- DB2U-DELIMITED

It specifies whether to delimit the column types DATE, TIME, and TIMESTAMP in the output data set.

Specify one of the following values:

YES

Column types DATE, TIME, and TIMESTAMP are delimited by the column delimiter that is specified by the DELIM literal of the DELIMITER-like compatibility format.

NO

Column types DATE, TIME, and TIMESTAMP are not delimited by the column delimiter specified by the DELIM literal of the DELIMITER-like compatibility format.

The corresponding SYSIN parameter is the NULL DELIM suboption of the DELIMITED-like compatibility format

The default value depends on the format. It is NO for DB2UDELIMITED and UPLUS-CSV, and YES for FASTU-DELIMITED

This parameter is also referred to as VUU031/DTDELIM.

NULL DATE/TIME delimiter option, DELIMITED format (VUU043/DTNULDLM)

This parameter is optional. Specifies that the NULL DELIM option of FORMAT DELIMITED should also be used for DATE, TIME, and TIMESTAMP columns. This parameter is used only when PARMLIB variable VUU031/DTDELIM is set to YES.

YES

If the NULL DELIM option is used in FORMAT DELIMITED, it will also apply to the DATE, TIME, and TIMESTAMP columns.

NO

If the NULL DELIM option is used in FORMAT DELIMITED, it will not apply to the DATE, TIME, and TIMESTAMP columns.

The default value is NO.

This parameter is also referred to as VUU043/DTNULDLM.

NULL DATE/TIME delimiter option, DELIMITED-like compatibility format (VUU043/DTNULDLM)

This parameter is optional. It applies to all the following formats:

- FASTU-DELIMITED
- UPLUS-CSV
- DB2U-DELIMITED

Specifies that the NULL DELIM option of DELIMITED-like compatibility format should also be used for DATE, TIME, and TIMESTAMP columns. This parameter is used only when PARMLIB variable VUU031/DTDELIM for DELIMITED-like compatibility format is set to YES.

YES

If the NULL DELIM option is used in DELIMITED-like compatibility format, it will also apply to the DATE, TIME, and TIMESTAMP columns.

NO

If the NULL DELIM option is used in DELIMITED-like compatibility format, it will not apply to the DATE, TIME, and TIMESTAMP columns.

The default value is NO.

This parameter is also referred to as VUU043/DTNULDLM.

Technique to generate SYSIN for identity column (VUU058/ULIDENT)

This parameter is optional. It specifies the technique to be used when generating the load SYSIN for identity columns that are defined as GENERATED ALWAYS.

This parameter applies only to natively processed SELECT statements.

Unsupported SELECT statements and SELECT statements that are processed with the DB2 FORCE option are ignored. In this case, the IGNOREFIELDS and IDENTITYOVERRIDE keywords are not generated.

Specify one of the following values:

IGNORE

The load generates the column data. The generated load control statement contains the combination of IGNOREFIELDS keyword and a dummy field name for the identity column.

OVERRIDE

The unloaded data is loaded into the identity column.

For Db2 versions prior to 9, this feature is not available and the same behavior as for IGNORE applies.

For Db2 version 9 and later, the IDENTITYOVERRIDE or OVERRIDE(IDENTITY) option is specified in the load statement, and the exact name of the identity column is kept.

The option used depends on the Db2 version and the setting of the subparameter USE_V12_ALTERNATE_OVERRIDE_LOAD_SYNTAX of the VUU030/ULOPTNS parmlib parameter, as follows:

- if the Db2 version is prior to 12 or USE_V12_ALTERNATE_OVERRIDE_LOAD_SYNTAX is set to NO, the IDENTITYOVERRIDE option is specified.
- if the Db2 version is 12 or later and USE_V12_ALTERNATE_OVERRIDE_LOAD_SYNTAX is set to YES, the OVERRIDE(IDENTITY) option supported only since Db2 V12 is specified.

The default value is IGNORE.

This parameter is also referred to as VUU058/ULIDENT.

Sign for zoned-decimal numeric values (VUU037/ULSIGZ)

This parameter is optional. It specifies the sign for zoned-decimal values in hexadecimal format. Valid values consist in one or two characters of the following list: A, B, C, D, E, and F. The first character represents the positive sign, the second one the negative sign. Using this parameter helps you create a customized format that meets the requirements of the programs that process the unloaded data.

The default value is CD.

This parameter is also referred to as VUU037/ULSIGZ.

Positive sign for date-time packed values (VUU038/ULSIGDTP)

This parameter is optional. It specifies the positive sign for date- and time-packed values. Valid values are A, B, C, D, E, and F. Each value represents the positive sign. Using this parameter helps you create a customized format that meets the requirements of the programs that process the unloaded data.

The default value is F.

This parameter is also referred to as VUU038/ULSIGDTP.

Truncate variable records exceeding 32756 (VUU040/ULTR32K)

This parameter is optional. Specifies whether Db2 HPU will truncate the variable records that exceed the physical limit of 32756.

Specify one of the following values:

YES

The output file record format is variable, and the LRECL is greater than 32756 (LRECL > 32756). LRECL is truncated to 32756, and message INZU297I is issued.

NO

The output file record format is fixed, and the LRECL is greater than 32756 (LRECL > 32756). Processing ends, and message INZU298E is issued.

The default value is NO.

This parameter is also referred to as VUU040/ULTR32K.

Default output format for a logical unload (VUU045/ULFORMAT)

This parameter is optional. It specifies the value of the output format when the FORMAT parameter is not specified in the SYSIN for a SELECT statement.

This parameter applies only to Db2 HPU syntax.



Attention: Changing this value in the PARMLIB will affect existing production jobs that do not specify the FORMAT parameter. Use caution when changing the value of this parameter in the PARMLIB.

Specify one of the following values:

DSNTIAUL

Specifies that the default output format for SELECT statements is FORMAT VARIABLE. This format is the default value.

STRICT

Use this value to unload data in the same format that the DSNTIAUL program produces. DSNTIAUL STRICT affects the formatting of constant character strings that are specified in SELECT statements.

Specifying STRICT in VUU045/ULFORMAT overrides the value of DSNTIAUL STRICT in the PARMLIB variable ULOPTNS. If STRICT is not specified in VUU045/ULFORMAT, the content of the PARMLIB variable ULOPTNS is used.

Important: FORMAT DSNTIAUL STRICT applies only to Db2 HPU syntax.

DELIMITED

Specifies that the default output format for SELECT statements is FORMAT DELIMITED.

SEP=*val*|BLANK

Specifies the separator character, *val*, to separate fields in the output data set. *val* can be specified in character ('c') or hexadecimal (X'*hh*') format. Values that are specified in hexadecimal are not converted in CCSID conversion. Values that are specified in character are converted, if necessary, into the output CCSID.

Use BLANK to specify a space character. BLANK is the default value for SEP.

DELIM=*val*|BLANK|NONE

Specifies the delimiter character, *val*, to be used to enclose CHAR, VARCHAR, GRAPHIC, and VARGRAPHIC fields in the output data set. *val* can be specified in character ('c') or hexadecimal (X'*hh*') format. Values that are specified in hexadecimal are not converted in CCSID conversion. Values that are specified in character are converted, if necessary, into the output CCSID.

BLANK

Specifies a space character.

NONE

Specifies that you do not want to use a delimiter.

The default value for the delimiter is NONE.

NULLDELIM

Specifies that null values are not enclosed by the delimiter character that is specified by the *val* of DELIM.

The DELIM and NULL DELIM keyword can also apply to DATE, TIME, TIMESTAMP format depending on the settings of VUU043/DTNULDLM.>

VARIABLE

Specifies that the default output format for SELECT statements is FORMAT VARIABLE.

ALL

If the column that was selected last is variable, the output data set is VB, and this last column is written on its effective length. The effective length is the actual length of the data that is contained in a column that has a variable type. Both length bytes precede the column.

END

All the variable columns are written by using their actual length.

The default value is END if only VARIABLE is specified.

EXTERNAL

Specifies that the default output format for SELECT statements is FORMAT EXTERNAL.

USER

Specifies that the default output format for SELECT statements is FORMAT USER.

This parameter is also referred to as VUU045/ULFORMAT.

Size of the autotag in the output file, Db2 HPU formats (VUU046/ULAUTAG)

This parameter is optional. Use this parameter to specify a number for the value of the autotag that is generated in the output file. It applies only to Db2 HPU syntax, and it applies to all native Db2 HPU formats (not to compatibility formats).

Valid values are 0 - 8.

The default value is 0. When the default value is specified, an autotag is not generated.

The corresponding SYSIN parameter is OPTIONS AUTOTAG.



Attention: Changing this value in the PARMLIB will affect existing production jobs. Use caution when you change this value.

This parameter is also referred to as VUU046/ULAUTAG.

Size of the autotag in the output file, compatibility formats (VUU046/ULAUTAG)

This parameter is optional. It applies only to Db2 HPU syntax and to all compatibility formats. Use this parameter to specify whether and how a numerical tag is to be added the records of the unloaded data. Specify 0 to request that no tag must be added or an integer from 1 to 8 to specify the number of digits of the tag to add.

Valid values are 0 - 8.

The default value is 0.

The corresponding SYSIN parameter is OPTIONS AUTOTAG.

Full compatibility of LOAD statement with Db2 LOAD (VUU054/CTRLIBM)

This parameter is optional. It specifies whether the LOAD statement that is generated by Db2 HPU must be fully compatible with the Db2 LOAD utility.

Valid values are YES and NO.

When this parameter is set to YES, additional controls are made when the DELIMITED format is requested, and the LOAD statement is generated only if it is compatible with the Db2 LOAD utility.

This parameter is also referred to as VUU054/CTRLIBM.

Delimiter for external date, format USER (VU055/DATEDEL)

This parameter is optional. It specifies the default delimiter that is used in external date representations.

Specify one of the following values:

'c'

The specified value must be in character format, coded between single quotation marks, and one byte long.

BLANK

Specifies that a space character is used as the default delimiter for external date representation. By default, this variable applies to FORMAT USER. It can be used to change the default value of the delimiter for date external representation for any format by using the syntax for defining formatting options for each output format.

The default value is '-'.

The corresponding SYSIN parameter is OPTIONS DATEDELIM.

This parameter is also referred to as VUU055/DATEDEL.

Delimiter for external date, format DSNTIAUL (VU055/DATEDEL)

This parameter is optional. It specifies the default delimiter that is used in external date representations.

Specify one of the following values:

'c'

The specified value must be in character format, coded between single quotation marks, and one byte long.

BLANK

Specifies that a space character is used as the default delimiter for external date representation. By default, this variable applies to FORMAT USER. It can be used to change the default value of the delimiter for date external representation for any format by using the syntax for defining formatting options for each output format.

The default value is '-'.

The corresponding SYSIN parameter is OPTIONS DATEDELIM.

This parameter is also referred to as VUU055/DATEDEL.

Delimiter for external date, format DELIMITED (VU055/DATEDEL)

This parameter is optional. It specifies the default delimiter that is used in external date representations.

Specify one of the following values:

'c'

The specified value must be in character format, coded between single quotation marks, and one byte long.

BLANK

Specifies that a space character is used as the default delimiter for external date representation. By default, this variable applies to FORMAT USER. It can be used to change the default value of the delimiter for date external representation for any format by using the syntax for defining formatting options for each output format.

The default value is '-'.

The corresponding SYSIN parameter is OPTIONS DATEDELIM.

This parameter is also referred to as VUU055/DATEDEL.

Delimiter for external date, format VARIABLE (VU055/DATEDEL)

This parameter is optional. It specifies the default delimiter that is used in external date representations.

Specify one of the following values:

'c'

The specified value must be in character format, coded between single quotation marks, and one byte long.

BLANK

Specifies that a space character is used as the default delimiter for external date representation. By default, this variable applies to FORMAT USER. It can be used to change the default value of the delimiter for date external representation for any format by using the syntax for defining formatting options for each output format.

The default value is '-'.

The corresponding SYSIN parameter is OPTIONS DATEDELIM.

This parameter is also referred to as VUU055/DATEDEL.

Delimiter for external date, format EXTERNAL (VU055/DATEDEL)

This parameter is optional. It specifies the default delimiter that is used in external date representations.

Specify one of the following values:

'c'

The specified value must be in character format, coded between single quotation marks, and one byte long.

BLANK

Specifies that a space character is used as the default delimiter for external date representation. By default, this variable applies to FORMAT USER. It can be used to change the default value of the delimiter for date external representation for any format by using the syntax for defining formatting options for each output format.

The default value is '-'.

The corresponding SYSIN parameter is OPTIONS DATEDELIM.

This parameter is also referred to as VUU055/DATEDEL.

Delimiter for external date, DSNTIAUL-like compatibility format (VU055/DATEDEL)

This parameter is optional. It applies to all the following formats:

- FASTU-FIXED
- UPLUS-INTERNAL

It specifies the default delimiter that is used in external date representations.

Specify one of the following values:

'c'

The specified value must be in character format, coded between single quotation marks, and one byte long.

BLANK

Specifies that a space character is used as the default delimiter for external date representation. By default, this variable applies to FORMAT USER. It can be used to change the default value of the delimiter for date external representation for any format by using the syntax for defining formatting options for each output format.

The default value depends on the compatibility format. Refer to the parameter default for compatibility formats table.

The corresponding SYSIN parameter is OPTIONS DATEDELIM.

This parameter is also referred to as VUU055/DATEDEL.

Delimiter for external date, DELIMITED-like compatibility format (VU055/DATEDEL)

This parameter is optional. It applies to all the following formats:

- FASTU-DELIMITED
- UPLUS-CSV
- DB2U-DELIMITED

It specifies the default delimiter that is used in external date representations.

Specify one of the following values:

'c'

The specified value must be in character format, coded between single quotation marks, and one byte long.

BLANK

Specifies that a space character is used as the default delimiter for external date representation. By default, this variable applies to FORMAT USER. It can be used to change the default value of the delimiter for date external representation for any format by using the syntax for defining formatting options for each output format.

The default value depends on the compatibility format. Refer to the parameter default for compatibility formats table.

The corresponding SYSIN parameter is OPTIONS DATEDELIM.

This parameter is also referred to as VUU055/DATEDEL.

Delimiter for external date, VARIABLE-like compatibility format (VU055/DATEDEL)

This parameter is optional. It applies to all the following formats:

- FASTU-VARIABLE
- UPLUS-STANDARD
- DB2U-DEFAULT

It specifies the default delimiter that is used in external date representations.

Specify one of the following values:

'c'

The specified value must be in character format, coded between single quotation marks, and one byte long.

BLANK

Specifies that a space character is used as the default delimiter for external date representation. By default, this variable applies to FORMAT USER. It can be used to change the default value of the delimiter for date external representation for any format by using the syntax for defining formatting options for each output format.

The default value depends on the compatibility format. Refer to the parameter default for compatibility formats table.

The corresponding SYSIN parameter is OPTIONS DATEDELIM.

This parameter is also referred to as VUU055/DATEDEL.

Delimiter in external time, format USER (VUU056/TIMEDEL)

This parameter is optional. It specifies the default delimiter that will be used in external time representations.

'c'

The specified value must be in character format, coded between single quotation marks, and one byte long.

BLANK

Specifies that a space character will be used as the default delimiter for external time representation.

The default value is ' '.

The corresponding SYSIN parameter is OPTIONS TIMEDELIM.

This parameter is also referred to as VUU056/TIMEDEL.

Delimiter in external time, format DSNTIAUL (VUU056/TIMEDEL)

This parameter is optional. It specifies the default delimiter that will be used in external time representations.

'c'

The specified value must be in character format, coded between single quotation marks, and one byte long.

BLANK

Specifies that a space character will be used as the default delimiter for external time representation.

The default value is ' '.

The corresponding SYSIN parameter is OPTIONS TIMEDELIM.

This parameter is also referred to as VUU056/TIMEDEL.

Delimiter in external time, format DELIMITED (VUU056/TIMEDEL)

This parameter is optional. It specifies the default delimiter that will be used in external time representations.

'c'

The specified value must be in character format, coded between single quotation marks, and one byte long.

BLANK

Specifies that a space character will be used as the default delimiter for external time representation.

The default value is ' '.

The corresponding SYSIN parameter is OPTIONS TIMEDELIM.

This parameter is also referred to as VUU056/TIMEDEL.

Delimiter in external time, format VARIABLE (VUU056/TIMEDEL)

This parameter is optional. It specifies the default delimiter that will be used in external time representations.

'c'

The specified value must be in character format, coded between single quotation marks, and one byte long.

BLANK

Specifies that a space character will be used as the default delimiter for external time representation.

The default value is ' '.

The corresponding SYSIN parameter is OPTIONS TIMEDELIM.

This parameter is also referred to as VUU056/TIMEDEL.

Delimiter in external time, format EXTERNAL (VUU056/TIMEDEL)

This parameter is optional. It specifies the default delimiter that will be used in external time representations.

'c'

The specified value must be in character format, coded between single quotation marks, and one byte long.

BLANK

Specifies that a space character will be used as the default delimiter for external time representation.

The default value is ' '.

The corresponding SYSIN parameter is OPTIONS TIMEDELIM.

This parameter is also referred to as VUU056/TIMEDEL.

Delimiter in external time, DSNTIAUL-like compatibility format (VUU056/TIMEDEL)

This parameter is optional. It applies to all the following formats:

- FASTU-FIXED
- UPLUS-INTERNAL

It specifies the default delimiter that is used in external date representations.

Specify one of the following values:

'c'

The specified value must be in character format, coded between single quotation marks, and one byte long.

BLANK

Specifies that a space character is used as the default delimiter for external date representation. By default, this variable applies to FORMAT USER. It can be used to change the default value of the delimiter for date external representation for any format by using the syntax for defining formatting options for each output format.

The default value depends on the compatibility format. Refer to the parameter default for compatibility formats table.

The corresponding SYSIN parameter is OPTIONS DATEDELIM.

This parameter is also referred to as VUU056/DATEDEL.

Delimiter in external time, DELIMITED-like compatibility format (VUU056/TIMEDEL)

This parameter is optional. It applies to all the following formats:

- FASTU-FIXED
- UPLUS-CSV
- DB2U-DELIMITED

It specifies the default delimiter that is used in external date representations.

Specify one of the following values:

'c'

The specified value must be in character format, coded between single quotation marks, and one byte long.

BLANK

Specifies that a space character is used as the default delimiter for external date representation. By default, this variable applies to FORMAT USER. It can be used to change the default value of the delimiter for date external representation for any format by using the syntax for defining formatting options for each output format.

The default value depends on the compatibility format. Refer to the parameter default for compatibility formats table.

The corresponding SYSIN parameter is OPTIONS DATEDELIM.

This parameter is also referred to as VUU056/DATEDEL.

Delimiter in external time, VARIABLE-like compatibility format (VUU056/TIMEDEL)

This parameter is optional. It applies to all the following formats:

- FASTU-VARIABLE
- UPLUS-STANDARD
- DB2U-DEFAULT

It specifies the default delimiter that is used in external date representations.

Specify one of the following values:

'c'

The specified value must be in character format, coded between single quotation marks, and one byte long.

BLANK

Specifies that a space character is used as the default delimiter for external date representation. By default, this variable applies to FORMAT USER. It can be used to change the default value of the delimiter for date external representation for any format by using the syntax for defining formatting options for each output format.

The default value depends on the compatibility format. Refer to the parameter default for compatibility formats table.

The corresponding SYSIN parameter is OPTIONS DATEDELIM.

This parameter is also referred to as VUU056/DATEDEL.

Delimiter in external time, EXTERNAL-like compatibility format (VUU056/TIMEDEL)

This parameter is optional. It applies to all the following formats:

- FASTU-EXTERNAL
- UPLUS-EXTERNAL

It specifies the default delimiter that is used in external date representations.

Specify one of the following values:

'c'

The specified value must be in character format, coded between single quotation marks, and one byte long.

BLANK

Specifies that a space character is used as the default delimiter for external date representation. By default, this variable applies to FORMAT USER. It can be used to change the default value of the delimiter for date external representation for any format by using the syntax for defining formatting options for each output format.

The default value depends on the compatibility format. Refer to the parameter default for compatibility formats table.

The corresponding SYSIN parameter is OPTIONS DATEDELIM.

This parameter is also referred to as VUU056/DATEDEL.

Options apply to all formats (VUU057/OPALLFMT)

This parameter is optional. It specifies whether the formatting options that are specified in SYSIN in the OPTIONS block at the GLOBAL level or the UNLOAD level apply only to FORMAT USER or to all output formats. VUU057/OPALLFMT applies to the following SYSIN parameters of the OPTIONS block:

- NULL
- DATE
- TIME
- TIMESTAMP
- PIC
- DATEDELIM
- TIMEDELIM
- NULLID
- NULLPOS
- NULLPAD
- PADDING
- TRIM

Specify one of the following values:

NO

The SYSIN parameters in the previous list apply only to FORMAT USER when they are specified at the GLOBAL level or at the UNLOAD level.

YES

The SYSIN parameters in the previous list apply to all output formats when they are specified at the GLOBAL level or at the UNLOAD level.



Attention: Specifying YES for this PARMLIB variable might affect the output data that is generated by existing production jobs. Change this variable to YES only after you have verified that existing Db2 HPU production jobs will not be affected by the change.

When the SYSIN parameters in the previous list are specified at the SELECT level (after the OUTDDN keyword), they always apply to all output formats. In this case, the value of OPALLFMT is ignored.

The default value is NO.

This parameter is also referred to as VUU057/OPALLFMT.

Trim the trailing blanks, format USER (VUU059/ULTRIM)

This parameter is optional. Use it to specify whether Db2 HPU will remove the trailing blanks for character data that is unloaded into a variable length field. It applies to CHAR, VARCHAR, GRAPHIC, VARGRAPHIC, CLOB, and DBCLOB output fields. However, it does not apply to numeric external data.

Specify one of the following values:

NO

Trailing blanks are not removed from variable length strings.

YES

Trailing blanks are removed when data is unloaded into VARCHAR, VARGRAPHIC output fields, or CLOB, and DBCLOB output field except if SPANNED YES is requested. The length of the output field is adjusted to match the effective number of characters that are written.

The default value is NO.

This parameter is also referred to as VUU059/ULTRIM.

Trim the trailing blanks, format DSNTIAUL (VUU059/ULTRIM)

This parameter is optional. Use it to specify whether Db2 HPU will remove the trailing blanks for character data that is unloaded into a variable length field. It applies to CHAR, VARCHAR, GRAPHIC, VARGRAPHIC, CLOB, and DBCLOB output fields. However, it does not apply to numeric external data.

Specify one of the following values:

NO

Trailing blanks are not removed from variable length strings.

YES

Trailing blanks are removed when data is unloaded into VARCHAR, VARGRAPHIC output fields, or CLOB, and DBCLOB output field except if SPANNED YES is requested. The length of the output field is adjusted to match the effective number of characters that are written.

The default value is NO.

This parameter is also referred to as VUU059/ULTRIM.

Trim the trailing blanks, format DELIMITED (VUU059/ULTRIM)

This parameter is optional. Use it to specify whether Db2 HPU will remove the trailing blanks for character data that is unloaded into a variable length field. It applies to CHAR, VARCHAR, GRAPHIC, VARGRAPHIC, CLOB, and DBCLOB output fields. However, it does not apply to numeric external data.

Specify one of the following values:

NO

Trailing blanks are not removed from variable length strings.

YES

Trailing blanks are removed when data is unloaded into VARCHAR, VARGRAPHIC output fields, or CLOB, and DBCLOB output field except if SPANNED YES is requested. The length of the output field is adjusted to match the effective number of characters that are written.

The default value is NO.

This parameter is also referred to as VUU059/ULTRIM.

Trim the trailing blanks, format VARIABLE (VUU059/ULTRIM)

This parameter is optional. Use it to specify whether Db2 HPU will remove the trailing blanks for character data that is unloaded into a variable length field. It applies to CHAR, VARCHAR, GRAPHIC, VARGRAPHIC, CLOB, and DBCLOB output fields. However, it does not apply to numeric external data.

Specify one of the following values:

NO

Trailing blanks are not removed from variable length strings.

YES

Trailing blanks are removed when data is unloaded into VARCHAR, VARGRAPHIC output fields, or CLOB, and DBCLOB output field except if SPANNED YES is requested. The length of the output field is adjusted to match the effective number of characters that are written.

The default value is NO.

This parameter is also referred to as VUU059/ULTRIM.

Trim the trailing blanks, format EXTERNAL (VUU059/ULTRIM)

This parameter is optional. Use it to specify whether Db2 HPU will remove the trailing blanks for character data that is unloaded into a variable length field. It applies to CHAR, VARCHAR, GRAPHIC, VARGRAPHIC, CLOB, and DBCLOB output fields. However, it does not apply to numeric external data.

Specify one of the following values:

NO

Trailing blanks are not removed from variable length strings.

YES

Trailing blanks are removed when data is unloaded into VARCHAR, VARGRAPHIC output fields, or CLOB, and DBCLOB output field except if SPANNED YES is requested. The length of the output field is adjusted to match the effective number of characters that are written.

The default value is NO.

This parameter is also referred to as VUU059/ULTRIM.

Trim the trailing blanks, DSNTIAUL-like compatibility format (VUU059/ULTRIM)

This parameter is optional. It applies to all the following formats:

- FASTU-FIXED
- UPLUS-INTERNAL

Use it to specify whether Db2 HPU will remove the trailing blanks for character data that is unloaded into a variable length field. It applies to CHAR, VARCHAR, GRAPHIC, VARGRAPHIC, CLOB, and DBCLOB output fields. However, it does not apply to numeric external data. Specify one of the following values:

NO

Trailing blanks are not removed from variable length strings.

YES

Trailing blanks are removed when data is unloaded into VARCHAR, VARGRAPHIC output fields, or CLOB, and DBCLOB output field except if SPANNED YES is requested. The length of the output field is adjusted to match the effective number of characters that are written.

The default value depends on the compatibility format. Refer to the parameter default for compatibility formats table.

The corresponding SYSIN parameter is OPTIONS DATEDELIM.

This parameter is also referred to as VUU059/ULTRIM.

Trim the trailing blanks, DELIMITED-like compatibility format (VUU059/ULTRIM)

This parameter is optional. It applies to all the following formats:

- FASTU-DELIMITED
- UPLUS-CSV
- DB2U-DELIMITED

Use it to specify whether Db2 HPU will remove the trailing blanks for character data that is unloaded into a variable length field. It applies to CHAR, VARCHAR, GRAPHIC, VARGRAPHIC, CLOB, and DBCLOB output fields. However, it does not apply to numeric external data. Specify one of the following values:

NO

Trailing blanks are not removed from variable length strings.

YES

Trailing blanks are removed when data is unloaded into VARCHAR, VARGRAPHIC output fields, or CLOB, and DBCLOB output field except if SPANNED YES is requested. The length of the output field is adjusted to match the effective number of characters that are written.

The default value depends on the compatibility format. Refer to the parameter default for compatibility formats table.

The corresponding SYSIN parameter is OPTIONS DATEDELIM.

This parameter is also referred to as VUU059/ULTRIM.

Trim the trailing blanks, VARIABLE-like compatibility format (VUU059/ULTRIM)

This parameter is optional. It applies to all the following formats:

- FASTU-VARIABLE
- UPLUS-STANDARD

- DB2U-DEFAULT

Use it to specify whether Db2 HPU will remove the trailing blanks for character data that is unloaded into a variable length field. It applies to CHAR, VARCHAR, GRAPHIC, VARGRAPHIC, CLOB, and DBCLOB output fields. However, it does not apply to numeric external data. Specify one of the following values:

NO

Trailing blanks are not removed from variable length strings.

YES

Trailing blanks are removed when data is unloaded into VARCHAR, VARGRAPHIC output fields, or CLOB, and DBCLOB output field except if SPANNED YES is requested. The length of the output field is adjusted to match the effective number of characters that are written.

The default value depends on the compatibility format. Refer to the parameter default for compatibility formats table.

The corresponding SYSIN parameter is OPTIONS DATEDELIM.

This parameter is also referred to as VUU059/ULTRIM.

Trim the trailing blanks, EXTERNAL-like compatibility format (VUU059/ULTRIM)

This parameter is optional. It applies to all the following formats:

- FASTU-EXTERNAL
- UPLUS-EXTERNAL

Use it to specify whether Db2 HPU will remove the trailing blanks for character data that is unloaded into a variable length field. It applies to CHAR, VARCHAR, GRAPHIC, VARGRAPHIC, CLOB, and DBCLOB output fields. However, it does not apply to numeric external data. Specify one of the following values:

NO

Trailing blanks are not removed from variable length strings.

YES

Trailing blanks are removed when data is unloaded into VARCHAR, VARGRAPHIC output fields, or CLOB, and DBCLOB output field except if SPANNED YES is requested. The length of the output field is adjusted to match the effective number of characters that are written.

The default value depends on the compatibility format. Refer to the parameter default for compatibility formats table.

The corresponding SYSIN parameter is OPTIONS DATEDELIM.

This parameter is also referred to as VUU059/ULTRIM.

String constant is unloaded as CHAR/VARCHAR data types (VUU064/STRNGCST)

This parameter is optional. It specifies whether string constants in the SELECT statements are handled as CHAR or VARCHAR data when the SELECT statement is processed in native mode.

CHAR

The string constants are handled as CHAR data unless the DSNTIAUL STRICT format is requested either by specifying DSNTIAULSTRICT(NO) as a subparameter of the ULOPTNS parameter or by using the FORMAT DSNTIAUL STRICT option in the UNLOAD command. When you specify CHAR, the output for expressions that have string constants might depend on whether the unload is performed in native or in SQL mode.

VARCHAR

The string constants are handled as VARCHAR data. When you specify VARCHAR, the output for expressions that have string constants does not depend on whether the unload is processed in native or in SQL mode. Consider specifying VARCHAR for unloads that use the DB2 YES option.

Important: If some of your processes use strings that are handled as CHAR data when Db2 HPU processes the unload in native mode, use the default value. Otherwise, specify VARCHAR to ensure

that the output of the unload for expressions that have string constants do not depend on the processing mode of the unload.

If you want to specify VARCHAR so that string constants are processed as VARCHAR data in native mode or SQL mode but you have some jobs that expect string constants to be processed as CHAR data, consider changing the SELECT statements for these unloads by replacing any string constant *string_constant* with CHAR(*string_constant*).

The default value is CHAR.

This parameter is also referred to as VUU064/STRNGCST.

Manage character loss, Db2 HPU syntax (VUU071/LOSSCHAR)

This parameter is optional. It specifies the behavior of the product when significant data from a character column is lost during unload formatting because of an INTO or REFORMAT clause and a Db2 HPU syntax is specified.

Db2 HPU considers a data loss has occurred for a character column if the data truncation removes any character that does not belong to the padded part of the character string, i.e. a sequence of padding characters that ends at the right end of the character string.

The data loss is checked for the following data types:

- CHAR
- VARCHAR
- GRAPHIC
- VARGRAPHIC
- BINARY
- VARBINARY

Specify one of the following values:

IGNORE

No control is done. The return code of the job is 0 unless another issue occurs.

WARNING

A warning message is issued for any column affected by a data loss. The return code is 4 unless another issue occurs.

REJECT

An error message is issued for any column affected by a data loss. The return code is 8 unless another issue occurs.

The default value is IGNORE.

The corresponding SYSIN parameter is CHARACTER_LOSS from the OPTIONS block.

This parameter is also referred to as VUU071/LOSSCHAR.

Manage character loss, UNLOAD PLUS syntax (VUU071/LOSSCHAR)

This parameter is optional. It specifies the behavior of the product when significant data from a character column is lost during unload formatting because of an INTO or REFORMAT clause and an UNLOAD PLUS syntax is specified.

Db2 HPU considers a data loss has occurred for a character column if the data truncation removes any character that does not belong to the padded part of the character string, i.e. a sequence padding characters that ends at the right of the character string..

The data loss is checked for the following data types:

- CHAR
- VARCHAR
- GRAPHIC
- VARGRAPHIC

- BINARY
- VARBINARY

Specify one of the following values:

IGNORE

No control is done. The return code of the job is 0 unless another issue occurs.

WARNING

A warning message is issued for any column affected by a data loss. The return code is 4 unless another issue occurs.

REJECT

An error message is issued for any column affected by a data loss. The return code is 8 unless another issue occurs.

The default value is IGNORE.

The corresponding SYSIN parameter is CHARACTER_LOSS from the OPTIONS block.

This parameter is also referred to as VUU071/LOSSCHAR.

Manage character loss, FAST UNLOAD syntax (VUU071/LOSSCHAR)

This parameter is optional. It specifies the behavior of the product when significant data from a character column is lost during unload formatting because of an INTO or REFORMAT clause and a FAST UNLOAD syntax is specified.

Db2 HPU considers a data loss has occurred for a character column if the data truncation removes any character that does not belong to the padded part of the character string, i.e. a sequence padding characters that ends at the right end of the character string.

The data loss is checked for the following data types:

- CHAR
- VARCHAR
- GRAPHIC
- VARGRAPHIC
- BINARY
- VARBINARY

Specify one of the following values:

IGNORE

No control is done. The return code of the job is 0 unless another issue occurs.

WARNING

A warning message is issued for any column affected by a data loss. The return code is 4 unless another issue occurs.

REJECT

An error message is issued for any column affected by a data loss. The return code is 8 unless another issue occurs.

The default value is IGNORE.

The corresponding SYSIN parameter is CHARACTER_LOSS from the OPTIONS block.

This parameter is also referred to as VUU071/LOSSCHAR.

Manage numeric loss, Db2 HPU syntax (VUU072/LOSSNUM)

This parameter is optional. It specifies the behavior of the product when significant data from a numeric column is lost during unload formatting (via INTO or REFORMAT clause) and a Db2 HPU syntax is specified.

Db2 HPU considers a data loss has occurred for a numeric column the numeric value has changed.

The data loss is checked for the following data types:

- SMALLINT
- INTEGER
- BIGINT
- DECIMAL

Specify one of the following values:

IGNORE

No control is done. The return code of the job is 0 unless another issue occurs.

WARNING

A warning message is issued for any column affected by a data loss. The return code is 4 unless another issue occurs.

REJECT

An error message is issued for any column affected by a data loss. The return code is 8 unless another issue occurs.

The default value is IGNORE.

The corresponding SYSIN parameter is NUMERIC_LOSS from the OPTIONS block.

This parameter is also referred to as VUU072/LOSSNUM.

Manage numeric loss, UNLOAD PLUS syntax (VUU072/LOSSNUM)

This parameter is optional. It specifies the behavior of the product when significant data from a numeric column is lost during unload formatting (via INTO or REFORMAT clause) and an UNLOAD PLUS syntax is specified.

Db2 HPU considers a data loss has occurred for a numeric column the numeric value has changed.

The data loss is checked for the following data types:

- SMALLINT
- INTEGER
- BIGINT
- DECIMAL

Specify one of the following values:

IGNORE

No control is done. The return code of the job is 0 unless another issue occurs.

WARNING

A warning message is issued for any column affected by a data loss. The return code is 4 unless another issue occurs.

REJECT

An error message is issued for any column affected by a data loss. The return code is 8 unless another issue occurs.

The default value is IGNORE.

The corresponding SYSIN parameter is NUMERIC_LOSS from the OPTIONS block.

This parameter is also referred to as VUU072/LOSSNUM.

Manage numeric loss, FAST UNLOAD syntax (VUU072/LOSSNUM)

This parameter is optional. It specifies the behavior of the product when significant data from a numeric column is lost during unload formatting (via INTO or REFORMAT clause) and a FAST UNLOAD syntax is specified.

Db2 HPU considers a data loss has occurred for a numeric column the numeric value has changed.

The data loss is checked for the following data types:

- SMALLINT

- INTEGER
- BIGINT
- DECIMAL

Specify one of the following values:

IGNORE

No control is done. The return code of the job is 0 unless another issue occurs.

WARNING

A warning message is issued for any column affected by a data loss. The return code is 4 unless another issue occurs.

REJECT

An error message is issued for any column affected by a data loss. The return code is 8 unless another issue occurs.

The default value is IGNORE.

The corresponding SYSIN parameter is NUMERIC_LOSS from the OPTIONS block.

This parameter is also referred to as VUU072/LOSSNUM.

Example: Manage numeric loss, with Db2 HPU, UNLOAD PLUS, FAST UNLOAD syntaxes

Assume C1 has the INTEGER data-type and is unloaded into a SMALLINT data-type with the help of a REFORMAT clause:

- a row for which C1's value is 100 and is unloaded without error as the value 100 is kept (not altered) in the SMALLINT data-type output.
- a row for which C1's value is 1 000 000 (the internal representation is x'000F4240') is processed as follows according to the parameter value:
 - it is unloaded with C1 field containing the value 16960 (the internal representation is x'4240') without any message related to data loss if IGNORE is specified,
 - it is unloaded with C1 field containing the value 16960 (with internal representation is x'4240') with a warning message if WARNING is respected,
 - it is rejected with an error message if REJECT is specified.

Error message limit, Db2 HPU syntax (VUU073/MAXERR)

This parameter is optional. It specifies the maximum number of messages that are issued if, while processing an unload requested via the xxx syntax, Db2 HPU encounters errors (conversion, formatting...) affecting a specific row, i.e. a data related error. Specifying 0 means no limit applies. Use this parameter to limit the number of messages that are written into the JES spool.

The way Db2 HPU behaves and ends when such errors are encountered depends on the value of the MAXERR_STRICT subparameter of the VUU060/ULOPTNS parmlib parameter.

- if MAXERR_STRICT(YES) is set

When row level errors occur, the unload

- ends with completion code of 4 if the maximum number of errors specified by MAXERR has not been reached. The data set that contains the unloaded rows contains all the valid rows corresponding to the SELECT statement.
- ends with completion code of 8 if the maximum number of errors specified by MAXERR has been reached. The data set that contains the unloaded rows contains a subset of the valid rows corresponding to the SELECT statement.

- if MAXERR_STRICT(NO) is set

When row level errors occur, the unload:

- ends with completion code of 4 if the maximum number of errors specified by MAXERR has not been reached and the latest row processed by Db2 HPU is not affected by such an error. The

data set that contains the unloaded rows contains all the valid rows corresponding to the SELECT statement.

- ends with completion code of 8 if the maximum number of errors specified by MAXERR has been reached or the latest row processed by Db2 HPU is affected by such an error. The data set that contains the unloaded rows contains a subset of the valid rows corresponding to the SELECT statement and an extra invalid row at the bottom of the data set.

Valid values are: 0-2147483647 (0 means 'no limit').

The default value is 0.

The corresponding SYSIN parameter is MAXERR.

This parameter is also referred to as VUU073/MAXERR.

Error message limit, UNLOAD PLUS syntax (VUU073/MAXERR)

This parameter is optional. It specifies the maximum number of messages that are issued if, while processing an unload requested via the UNLOAD PLUS syntax, Db2 HPU encounters errors (conversion, formatting...) affecting a specific row, i.e. a data related error. Specifying 0 means no limit applies. Use this parameter to limit the number of messages that are written into the JES spool. The way Db2 HPU behaves and ends when such errors are encountered depends on the value of the MAXERR_STRICT subparameter of the VUU060/ULOPTNS parmlib parameter.

- if MAXERR_STRICT(YES) is set

When row level errors occur, the unload

- ends with completion code of 4 if the maximum number of errors specified by MAXERR has not been reached. The data set that contains the unloaded rows contains all the valid rows corresponding to the SELECT statement.
- ends with completion code of 8 if the maximum number of errors specified by MAXERR has been reached. The data set that contains the unloaded rows contains a subset of the valid rows corresponding to the SELECT statement.

- if MAXERR_STRICT(NO) is set

When row level errors occur, the unload

- ends with completion code of 4 if the maximum number of errors specified by MAXERR has not been reached and the latest row processed by Db2 HPU is not affected by such an error. The data set that contains the unloaded rows contains all the valid rows corresponding to the SELECT statement.
- ends with completion code of 8 if the maximum number of errors specified by MAXERR has been reached or the latest row processed by Db2 HPU is affected by such an error. The data set that contains the unloaded rows contains a subset of the valid rows corresponding to the SELECT statement and an extra invalid row at the bottom of the data set.

Valid values are: 0-2147483647 (0 means 'no limit').

The default value is 0.

The corresponding SYSIN parameter is DISCARDS.

This parameter is also referred to as VUU073/MAXERR.

Error message limit, FASTUNLOAD syntax (VUU073/MAXERR)

This parameter is optional. It specifies the maximum number of messages that are issued if, while processing an unload requested via the FASTUNLOAD syntax, Db2 HPU encounters errors (conversion, formatting...) affecting a specific row, i.e. a data related error. Specifying 0 means no limit applies. Use this parameter to limit the number of messages that are written into the JES spool.

The way Db2 HPU behaves and ends when such errors are encountered depends on the value of the MAXERR_STRICT subparameter of the VUU060/ULOPTNS parmlib parameter.

- if MAXERR_STRICT(YES) is set

When row level errors occur, the unload

- ends with completion code of 4 if the maximum number of errors specified by MAXERR has not been reached. The data set that contains the unloaded rows contains all the valid rows corresponding to the SELECT statement.
- ends with completion code of 8 if the maximum number of errors specified by MAXERR has been reached. The data set that contains the unloaded rows contains a subset of the valid rows corresponding to the SELECT statement.

- if MAXERR_STRICT(NO) is set

When row level errors occur, the unload

- ends with completion code of 4 if the maximum number of errors specified by MAXERR has not been reached and the latest row processed by Db2 HPU is not affected by such an error. The data set that contains the unloaded rows contains all the valid rows corresponding to the SELECT statement.
- ends with completion code of 8 if the maximum number of errors specified by MAXERR has been reached or the latest row processed by Db2 HPU is affected by such an error. The data set that contains the unloaded rows contains a subset of the valid rows corresponding to the SELECT statement and an extra invalid row at the bottom of the data set.

Valid values are: 0-2147483647 (0 means 'no limit').

The default value is 0.

The corresponding SYSIN parameter is DISCARDS.

This parameter is also referred to as VUU073/MAXERR.

Fill NULL with padding character, format USER (VUU075/NULLPAD)

This parameter is optional. It specifies whether the padding character is used to fill the output field when a null value is unloaded. Specify one of the following values:

NO

When a null value is unloaded, the output field is filled with binary zeroes(x'00').

YES

When a null value is unloaded, the output field is filled with the padding character.

The default value is YES.

The corresponding SYSIN parameter is OPTIONS NULLPAD.

Fill NULL with padding character, format DSNTIAUL (VUU075/NULLPAD)

This parameter is optional. It specifies whether the padding character is used to fill the output field when a null value is unloaded. Specify one of the following values:

NO

When a null value is unloaded, the output field is filled with binary zeroes(x'00').

YES

When a null value is unloaded, the output field is filled with the padding character.

The default value is NO.

The corresponding SYSIN parameter is OPTIONS NULLPAD.

Fill NULL with padding character, format VARIABLE (VUU075/NULLPAD)

This parameter is optional. It specifies whether the padding character is used to fill the output field when a null value is unloaded. Specify one of the following values:

NO

When a null value is unloaded, the output field is filled with binary zeroes(x'00').

YES

When a null value is unloaded, the output field is filled with the padding character.

The default value is YES.

The corresponding SYSIN parameter is OPTIONS NULLPAD.

Fill NULL with padding character, format EXTERNAL (VUU075/NULLPAD)

This parameter is optional. It specifies whether the padding character is used to fill the output field when a null value is unloaded. Specify one of the following values:

NO

When a null value is unloaded, the output field is filled with binary zeroes(x'00').

YES

When a null value is unloaded, the output field is filled with the padding character.

The default value is YES.

The corresponding SYSIN parameter is OPTIONS NULLPAD.

Fill NULL with padding character, DSNTIAUL-like compatibility format (VUU075/NULLPAD)

This parameter is optional. It applies to all the following formats:

- FASTU-FIXED
- UPLUS-INTERNAL

It specifies whether the padding character is used to fill the output field when a null value is unloaded. Specify one of the following values:

NO

When a null value is unloaded, the output field is filled with binary zeroes(x'00').

YES

When a null value is unloaded, the output field is filled with the padding character.

The default value depends on the compatibility format. Refer to the parameter default for compatibility formats table.

The corresponding SYSIN parameter is OPTIONS NULLPAD.

This parameter is also referred to as VUU075/NULLPAD

Fill NULL with padding character, VARIABLE-like compatibility format (VUU075/NULLPAD)

This parameter is optional. It applies to all the following formats:

- FASTU-VARIABLE
- UPLUS-STANDARD
- DB2U-DEFAULT

It specifies whether the padding character is used to fill the output field when a null value is unloaded. Specify one of the following values:

NO

When a null value is unloaded, the output field is filled with binary zeroes(x'00').

YES

When a null value is unloaded, the output field is filled with the padding character.

The default value depends on the compatibility format. Refer to the parameter default for compatibility formats table.

The corresponding SYSIN parameter is OPTIONS NULLPAD.

This parameter is also referred to as VUU075/NULLPAD

Fill NULL with padding character, EXTERNAL-like compatibility format (VUU075/NULLPAD)

This parameter is optional. It applies to all the following formats :

- FASTU-EXTERNAL
- UPLUS-EXTERNAL

It specifies whether the padding character is used to fill the output field when a null value is unloaded. Specify one of the following values:

NO

When a null value is unloaded, the output field is filled with binary zeroes(x'00').

YES

When a null value is unloaded, the output field is filled with the padding character.

The default value depends on the compatibility format. Refer to the parameter default for compatibility formats table.

The corresponding SYSIN parameter is OPTIONS NULLPAD.

This parameter is also referred to as VUU075/NULLPAD

NULL processing in DELIMITED format (VUU078/ULNULLFL)

This parameter is optional. Use it to specify processing of NULL value for the DELIMITED format. Specify one of the following values:

UNDELIMITED_EMPTY_STRING

Specifies that null values for strings will not be enclosed by the delimiter character that is specified in DELIM delimiter-character.

DELIMITED_EMPTY_STRING

Specifies that null values for strings will be enclosed by the delimiter character that is specified in DELIM delimiter-character.

NULLVAL(string)

Specifies the string value that is written in the output field whenever the corresponding column table has a NULL value. The specified string must be surrounded between apostrophes but it is not enclosed in any delimiter in the output data set. The string is written as is regardless of any format. The string is converted into the output file CCSID. The value NULLVAL() specifies that the NULL value is an empty string. The string must be free of any space character and its length must not exceed 50 characters

The valid values are UNDELIMITED_EMPTY_STRING, DELIMITED_EMPTY_STRING and NULLVAL(string) where string is a up to 50 characters blank free character string.

The default value is DELIMITED_EMPTY_STRING.

This parameter is also referred to as VUU078/ULNULLFL.

NULL processing in DELIMITED-like compatibility format (VUU078/ULNULLFL)

This parameter is optional. It applies to all the following formats:

- FASTU-DELIMITED
- UPLUS-CSV
- DB2U-DELIMITED

Specify one of the following values:

UNDELIMITED_EMPTY_STRING

Specifies that null values for strings will not be enclosed by the delimiter character that is specified in DELIM delimiter-character.

DELIMITED_EMPTY_STRING

Specifies that null values for strings will be enclosed by the delimiter character that is specified in DELIM delimiter-character.

NULLVAL(string)

Specifies the string value that is written in the output field whenever the corresponding column table has a NULL value. The specified string must be surrounded between apostrophes but it is not enclosed in any delimiter in the output data set. The string is written as is regardless of any format. The string is converted into the output file CCSID. The value NULLVAL() specifies that the NULL value is an empty string. The string must be free of any space character and its length must not exceed 50 characters

The valid values are UNDELIMITED_EMPTY_STRING, DELIMITED_EMPTY_STRING and NULLVAL(string) where string is a up to 50 characters blank free character string.

The default value is DELIMITED_EMPTY_STRING.

This parameter is also referred to as VUU078/ULNULLFL

LISTDEF behavior for table selection (VUU081/UNLLDTBB)

Specifies how the "table spec" (TABLE creator-ID.table-name) of a LISTDEF statement is used to determine the list of table spaces associated with the LISTDEF statement. Specify one of the following values to get the selection mode described below:

TABLE

a table space is selected if it contains at least:

- a table which name matches the "table spec"

VIEW

a table space is selected if it contains at least:

- a table which name matches the "table spec"
- a table involved in a view which name matches the "table spec"

The valid values are: TABLE,VIEW.

The default value is TABLE.

Processing when LOB/XML not retrieved (VUU084/ULLOBBHV)

The processing of a logical unload run in native mode and involving LOB or XML data might fail to retrieve the LOB or XML data associated with some of the records of the base table if no action to ensure the consistency of the table space containing the base table and the related LOB or XML table spaces is taken. This parameter allows specifying what action to take whenever such a situation occurs.

STOP

the processing stops with a return code of 8. The unloaded data are unusable.

IGNORE

the processing continues and the step ends with a return code 4. The unloaded data is available but some LOB or XML data are erroneous.

ABEND

a user ABEND is issued. The unloaded data are unusable.

The default value is STOP.

Maximum number of issued messages for LOB/XML errors (VUU085/ULLOBBHM)

When IGNORE is specified for the VUU084/ULLOBBHV parmlib parameter, Db2 HPU may unload inconsistent LOB or XML data for some records of the unloaded table and normally issues a message for every affected record. This parameter specifies the maximum number of messages issued in such a case. This number may be chosen from 1 to 100000.

The default value is 30.

Default exclusion criteria for EXCLUDE_FIC option (VUU086/EXCLFIC)

Specifies an exclusion criterion to apply when the eligible full image copies (FIC) are searched as requested by the COPYDDN LAST_IC or COPYDDN -integer options.

NONE

no kind of FIC is excluded.

TO_SORT

the images copies which processing by Db2 HPU requires a sort process are not eligible. This kind of image copies is created by the LOAD or REORG utilities (inline image copies) or by the COPYTOCOPY utility. The eligible image copy(ies) is(are) selected according to the selection criteria expressed by the GLOBAL, PARTITIONED,ANYTPE or CONSISTENT suboptions if any.

The default value is NONE.

This parameter is also referred to as VUU086/EXCLFIC.

For more details about the impact of the chosen value, the explanation of the counterpart EXCLUDE_FIC option.

Request the display of a EXPLAIN report (VUU087/DISPEXPL)

This parameter is optional. It specifies whether and where to display the report about the EXPLAIN statements performed during an unload. The report gives the following information:

- Excerpt of the rows of PLAN_TABLE and DSN_PGRANGE_TABLE resulting from an EXPLAIN statement related to a process of a SELECT.
- It also gives information about the information extracted: TABLES, PARTITIONS.

Specify either of the following allowed values:

NO

no report is displayed.

IF,ddname

the report is displayed to the specified ddname, only if this ddname is allocated. The specified ddname may be any valid ddname including SYSPRINT but should not be set with any other Db2 HPU reserved ddname (see [“Ddname allocation” on page 97](#)).

YES,ddname

the report is displayed to the specified ddname which is allocated by Db2 HPU as a SYSOUT data set if the corresponding ddname is not allocated. The specified ddname may be any valid ddname including SYSPRINT but should not be set with any other Db2 HPU reserved ddname (see [“Ddname allocation” on page 97](#)).

The content of the report produced by the DISEXPL feature is described below.

A header:

```
*****
*                               HPU EXPLAIN REPORT                               *
*               AS REQUESTED BY VUU087/DISPEXPL =value of VUU087/DISPEXPL *
*****
```

that reminds what the current file contains.

It is followed by one section per logical unload which processing involved the EXPLAIN statement mechanism. Each section contains the following subsections:

A first subsection with information related to a given logical unload:

```
- SELECT LOCATION IN SYSIN : NO select_number POS(line,col)
- FEATURE REQUIRING EXPLAIN : requesting_feature

- SET QUERYNO EXPLAIN STATEMENT : query_number
- EXPLAINED STATEMENT :
SELECT_statement
```

where:

- select_number is the number assigned by Db2 HPU to the select located at the line and columns mention in the POS(line,col) part
- line,col are the line and column in the SYSIN data set where the SELECT in question starts
- requesting_feature is the Db2 HPU feature that required the use of the EXPLAIN statement. It can be either LOCK YES IN SQL MODE or OPTIMIZE_PART_RANGE
- query_number is the query_number assigned by Db2 HPU to the SELECT statement
- SELECT_statement is the text of the SELECT statement on which the logical unload in question is based

A second subsection displays the excerpt of the PLAN_TABLE related to the logical unload

```
+-----+
| PLAN_TABLE ROWS FOR QUERYNO: query_number
+-----+
```

```
column_name : value
...
```

where:

- query_number is the query_number assigned by Db2 HPU o the SELECT statement
- columnn_name is the name of the column from the DSN_PRGANGE_TABLE
- value is the value of the related column surrounded by | and | for value in external format and in binary format for binary values

A third subsection displays the excerpt of the PLAN_TABLE related to the logical unload

```
+-----+
| DSN_PRGANGE_TABLE ROWS FOR QUERYNO: query_number
+-----+
column_name : value
...
```

where:

- query_number is the query_number assigned by Db2 HPU o the SELECT statement
- column_name is the name of the column from the DSN_PRGANGE_TABLE
- value is the value of the related column surrounded by | and | for value in external format and in binary format for binary values.

A last subsection displays the feature conclusion which is formatted as described below.

If the feature is OPTIMIZE_PART_RANGE:

```
- FEATURE CONCLUSION :
SELECTED PARTITIONS : list_of_partitions
```

where:

- list_of_partitions is the subset of partition to unload.

If the feature is LOCK YES IN SQL MODE:

```
- FEATURE CONCLUSION :
TABLES AND PARTITIONS TO LOCK :
TABLE : creator.table
+- PARTITIONS : list_of_partitions
...
TABLE : creator.table
+- PARTITIONS : list_of_partitions
```

where:

- creator.table is the name of a table involved in the SELECT statement which has to be locked
- list_of_partitions is the subset of partitions of the table to be locked when the table is partitioned

Default value: NO

INTO clause rule if field_name without output-data-type(VUU089/INTORUL1)

This parameter is optional. It allows to change the behavior of INTO clause, when the *field-name* is explicitly specified, but its *output-data-type* is not specified. Set one of the following values:

COLTYPE

The INTO clause get the *output-data-type* from the column type of the resulting table, the *column-format-options* specified in the INTO clause apply. Any REFORMAT clause is ignored.

REFORMAT

If a REFORMAT clause applies to the column type of the resulting table, the *output-data-type* specified through the REFORMAT clause applies, as well as the *column-format-options* except if a format option already exists in the INTO clause. If no REFORMAT clause applies, the *output-data-type* is the one of the column of the resulting table, and options from the INTO clause apply.

The default value is COLTYPE.

Enable **RESTART** mode (VUU090/RSTENABL)

This parameter is optional. It specifies whether the restartable mode (see "Db2 HPU batch mode operation/RESTART mode") is enabled by default, i.e. when no RESTART subparameter is specified in the PARM attribute of the Db2 HPU EXEC statement.

YES

the restartable mode is enabled. For eligible unload commands and if neither RESTART(DISABLE) nor RESTART(YES[,CONSISTENT]) is specified in the PARM attribute of the Db2 HPU EXEC statement, Db2 HPU creates the resources necessary to allow the unload job to be restarted.

NO

the restartable mode is not enabled. Unless RESTART(ENABLE) is specified in the PARM attribute of the Db2 HPU EXEC statement, Db2 HPU does not create the resources necessary to allow the unload job to be restarted.

The default value is NO

This parameter is also referred to as VUU090/RSTENABL.

RESTART dataset template (VUU091/RSTTMPL)

Specifies the template used to determine the name of the RESTART dataset used when the RESTARTABLE or RESTART mode are in action (see "Db2 HPU batch mode operation/RESTART mode"). This template must be coded according to the rules that apply to the TEMPLATE statements (see "Db2 HPU batch mode operation//Db2 HPU syntax/TEMPLATE block syntax and description") with the following specific requirements:

- only the &SSID, &UID and &USERID variables are allowed
- the &SSID and &UID variables are mandatory

Important: when evaluated for the RESTART dataset, the &SSID variable is systematically replaced by the group attachment name, when a the Db2 HPU step is run against a member of a data sharing group, regardless of the setting of the TEMPLATE_SSID_SUBSTITUTION subparameter of the VUU030/ULOPTNS parmlib parameter. A typical and basic value is hlq.&UID.&SSID. where hlq stands for a first qualifier allowed on your system for the users of Db2 HPU.



CAUTION:

- if the UIDs specified for your steps are sometimes more than 8 character long, specify a substring of &UID up to 8 character long instead of the &UID variable. For example, specify hlq.&UID(1,8)..&SSID. To choose the relevant part of the UID string, consider the impact on the RESTART dataset uniqueness and your needs in terms of concurrency between Db2 HPU steps.
- if the Db2 HPU jobs running at the same time use the same UID and involve Db2 objects of the same Db2 subsystem, consider changing the UTILID specified for these jobs or disabling the RESTART mode for these jobs, as the RESTART dataset would have the same name for several jobs and the allocation would fail.

There is no default value.

This parameter is also referred to as VUU091/RSTTMPL.

RESTART dataset unit (VUU092/RSTUNIT)

This parameter is optional. Specifies the name of the unit used to allocate the RESTART dataset when the RESTART mode is enabled (see "Db2 HPU batch mode operation/RESTART mode"). If no value is specified, Db2 HPU attempts to create the RESTART dataset without specifying any unit name. If your system settings do not allow such an allocation or if the default unit on which the dataset would be stored is not relevant, consider specifying a value for this parameter. The value must be a valid unit name defined on your system.

There is no default value.

This parameter is also referred to as VUU092/RSTUNIT.

Enable the display of Db2 HPU activity (VUU095/ENBDISP)

This parameter is optional. It specifies whether to enable the feature that allows to display the current Db2 HPU activity through the DISPLAY UTILITY command of the Db2 HPU tools.

YES

the display of the Db2 HPU activity feature is enabled. This feature implies extra interruptions of the Db2 HPU processes and the use of extra memory buffers that do not have any significant impact neither on Db2 HPU performance nor on the system resources consumption.

NO

the display of the Db2 HPU activity feature is not enabled.

The default value is NO.

This parameter is also referred to as VUU095/ENBDISP.

Time out for getting HPU JOB activity (VUU096/DISPTMOT)

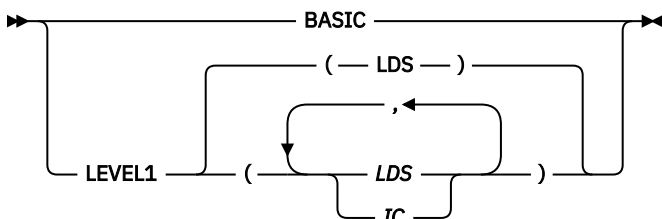
Specifies the maximum amount of time - expressed in seconds - that the DISPLAY process waits for updated information from a running Db2 HPU step. When the DISPLAY UTILITY process starts, it asks all running Db2 HPU processes to send information and waits for feedback during the maximum duration specified through this parameter. When a process does not send updated information in time, the DISPLAY UTILITY process issues the message INZUXXXI and continues.

The default value is equal to 10 (seconds).

This parameter is also referred to as VUU096/DISPTMOT.

Level of data integrity control of input data (VUX038/CHECKINT)

Specifies the level and scope of data integrity control to be performed when reading the input data from the LDS of a Db2 object or from an Image Copy dataset. It only applies to unloads run in native mode. Specify the level and scope of the control by specifying a value using the following syntax:

**BASIC**

Basic controls of broken page indicator and PGCOMB and some other controls are performed for LDS and Image Copies.

LEVEL1

The same controls as for BASIC are performed and the additional controls described below are performed against LDS or Image Copies if the LEVEL1 suboptions or the default (LDS) requires it.

LDS

the following additional control is performed against the LDS, if applicable : check if the read page is the expected one. If the control detects an anomaly, the job terminates with ABENDU1021 and the following registers contains :

- R15=12
- R2 contains the expected page number
- R3 contains the number of the page that has been read

IC

the following additional control is performed against the input image copies, if applicable : check validity of each record prefix.If the control detects an anomaly the job terminates with ABENDU1021 and the following registers contains :

- R15=14
- R2 contains the page number which contains the invalid record
- R3 contains the idmap of the invalid record

Important: Before enabling a higher level of checking, consider the related impact on performance.

Enabling and scope of the utility history collection (VUU100/ENBHIST)

This parameter is optional. It specifies if (and optionally which) information related to the Db2 HPU activity must be stored into the History Db2 Catalog tables. This historization implies extra CPU and ELAPSED time consumption and is only available for Db2 sub-systems at version 13 or later.

UTILITY

The utility history collection is enabled, only the utility history table is populated.

DETAIL

The utility history collection is enabled, both the object history and the utility history tables are populated

NONE

The utility history collection is not enabled.

AS_DB2_ZPARM

the utility history collection is driven - for both enabling and scope - by the UTILITY_HISTORY Db2 DSNZPARM.

The default value is NONE.

When this feature is enabled, Db2 HPU populates the SYSIBM.SYSUTILITIES and SYSIBM.SYSOBJEVENTS tables as indicated in the tables below:

Column Name	Data Type	Null Attribute	Default	Identity or Sequence	Description
EVENTID	BIGINT	NOT NULL		SEQUENCE is SYSIBM.DSNS EQ_EVENTID.	Utility event identifier. Unique identifier for the utility. Displayed in message INZU593I
NAME	VARCHAR(60)	NOT NULL	No default		'UNLOAD'
INSERTEDBY	VARCHAR(9)	NOT NULL	No default		'HPU'
JOBNAME	VARCHAR(24)	NOT NULL	No default		Job name for the utility
UTILID	VARCHAR(48)	NOT NULL	No default		Utility ID UID specified in Db2 HPU EXEC statement or by default userid.jobname
USERID	VARCHAR(24)	NOT NULL	No default		User ID of invoker
STARTTS	TIMESTAMP	NOT NULL	Current local timestamp		Start (local) timestamp of utility execution
ENDTS	TIMESTAMP	nullable			End (local) timestamp of utility execution.

Column Name	Data Type	Null Attribute	Default	Identity or Sequence	Description
ELAPSEDTIME	BIGINT	nullable			Elapsed time in microsecond
CPUTIME	BIGINT	nullable			Total general processor CPU time in microseconds. Does not include zIIP time (if applicable).
ZIIPTIME	BIGINT	nullable			Total zIIP time in microseconds.
RETURNCODE	INTEGER	nullable			Final return code
CONDITION	VARCHAR(3)	nullable			Blank for an active or stopped utility <ul style="list-style-type: none"> • 'E' – utility execution ended • 'R' – utility was restarted
NUMOBJECTS	INTEGER	v			Number of objects processed Number of unloaded tablespace. An SQL select in DB2 FORCE or when the tablespace has not been determined is equivalent to one tablespace.
LISTNAME	VARCHAR(18)	nullable			Name of LISTDEF list, when applicable. If various LISTDEF are used, only one LISTDEF is specified.

Column Name	Data Type	Null Attribute	Default	Identity or Sequence	Description
STARTLOGPOINT	CHAR(10) FOR BIT DATA	nullable			Current log point at the start of the utility. The log point is an LRSN for a data sharing system or an RBA for non data sharing.
GROUP_MEMBER	VARCHAR(24)	nullable			Db2 data sharing member name where the utility started. Null for non-data-sharing Db2 subsystem.
SORTNAME	VARCHAR(24)	nullable			DFSORT or DB2SORT, when applicable.
SORTCPU TIME	BIGINT	nullable			Sort CPU time in microseconds
SORTZIIPTIME	BIGINT	nullable			Sort zIIP time in microseconds, if applicable and provided by the sort program. Always NULL for Db2 HPU
PHASE1NAME	VARCHAR(24)	nullable			1st phase name. 'INITIALIZATION' (1)
PHASE1ET	BIGINT	nullable			1st phase elapsed time in time-of-day format
PHASE1CPUT	BIGINT	nullable			1st phase CPU time in time-of-day format.
PHASE1ZIIPT	BIGINT	nullable			NULL
PHASE1DATA	BIGINT	nullable			NULL

Column Name	Data Type	Null Attribute	Default	Identity or Sequence	Description
PHASE2NAME	VARCHAR(24)	nullable			2st phase name. 'UNLOAD' (1)
PHASE2ET	BIGINT	nullable			2st phase elapsed time in time-of day format
PHASE2CPUT	BIGINT	nullable			2st phase CPU time in time-of-day format. Does not include zIIP time (when applicable)
PHASE2ZIIP	BIGINT	nullable			2st phase zIIP time in time-of-day format (when applicable).
PHASE2DATA	BIGINT	nullable			2st phase data (utility specific). Contains the count of unloaded rows,
PHASE3NAME	VARCHAR(24)	nullable			3rd phase name. 'TERMINATION' (1)
PHASE3ET	BIGINT	nullable			3rd phase elapsed time in time-of day format
PHASE3CPUT	BIGINT	nullable			3rd phase CPU time in time-of-day format.
PHASE3ZIIP	BIGINT	nullable			NULL
PHASE3DATA	BIGINT	nullable			NULL

Note: (1) An UNLOAD of the following utility consists in three main phases:

1. INITIALIZATION: Db2 HPU analyzes the UNLOAD command, gathers and prepares the information needed for the actual unload processes
2. UNLOAD: Db2 HPU retrieves the data to unload and write them to the output dataset with the requested format and writes the LOAD control card if requested
3. TERMINATION: Db2 HPU does the technical operations requested for a proper end such as closing the thread opened during the UNLOAD phase

<i>Table 46. SYSIBM.SYSOBJEVENTS</i>					
Column name	Data type	Nullable	Default	Identity of sequence	Description
EVENTID	BIGINT	NOT NULL			same value than the one of SYSUTILITIES table
DBID	SMALLINT	NOT NULL			database identifier o if unknown in case of SQL mode
PSID	SMALLINT	NOT NULL			tablespace identifier o if unknown in case of SQL mode
PARTITION	SMALLINT	NOT NULL			0 or partition number
INSTANCE	SMALLINT	NOT NULL			INSTANCE
DBNAME	VARCHAR(24)	NOT NULL			DATABASE NAME BLANK if not determined
SPACENAME	VARCHAR(24)	NOT NULL			TABLESPACE NAME BLANK if not determined
OBJTYPE	CHAR	NOT NULL			T table space
EVENTTS	TIMESTAMP	nullable			Start (local) timestamp of unload process of the object
COUNT	BIGINT	nullable			number of unloaded rows for the partition
ELAPSEDTIME	BIGINT	nullable			elapsed time or NULL when undetermined
INSERTEDBY	VARCHAR(9)	NOT NULL			HPU

User to update the Db2 Catalog History tables (VUU101/USERHIST)

This parameter is optional. It is used only if the utility history collection is enabled, i.e., if the utility history collection feature is enabled (see “Enabling and scope of the utility history collection (VUU100/ENBHIST) parmlib parameter). It specifies on behalf of which userid the SQL statements to update the following Db2 Catalog History tables are performed:

- SYSIBM.SYSUTILITIES

- SYSIBM.SYSOBJEVENTS

The specified userid must have the privilege to update these tables.

Specify one of the following values:

CURRENT_USER

the update of the SYSIBM.SYSUTILITIES and SYSIBM.SYSOBJEVENTS tables is performed on behalf of the userid used to submit the job that contains the unload step.

userid

the update of the SYSIBM.SYSUTILITIES and SYSIBM.SYSOBJEVENTS tables is performed on behalf of the specified userid.

Valid values are CURRENT_USER and a valid 1-8 character userid.

This parameter is also referred to as VUU101/USERHIST.

The default value is CURRENT_USER.

Related concepts

DELIMITED format

When you create output in the DELIMITED format, you can specify a separator character and a delimiter character.

VARIABLE format

When you create output in the VARIABLE format, the output is compatible with the Db2 LOAD utility input data set.

EXTERNAL format

When you create output in the EXTERNAL format, output fields are in the EXTERNAL format that corresponds to their default type, output records are fixed, and a field separator is not used.

Related reference

FORMAT block syntax and description

Use the FORMAT block to specify the format of the data that is unloaded. The FORMAT block is a part of the SELECT block.

DATE format types

Use the DATE format type to specify the output data format.

TIME format types

Use the TIME format type to specify the output data format.

TIMESTAMP format types

Use the TIMESTAMP format type to specify the output data format.

Db2 HPU Db2 Administration Tool and Db2 Launchpad parameters

The Db2 Administration Tool and Db2 Launchpad parameters section on the Product Parameters panel (CCQPPRD) in Tools Customizer contains the parameters that are required to integrate Db2 HPU with Db2 Admin.

The Db2 HPU parameters are designated in three ways:

- a long designation that describes what the parameter is used for
- two short names used as a reference especially within the messages texts:
 - one has the following format Vxxnnnn where xx are characters and nnnn are figures
 - the other one is a short label of 8 characters

The following list describes the Db2 HPU Db2 Administration Tool and Db2 Launchpad parameters. The parameters are listed in the following format:

description (Vxxnnnn/parameter-name)

High-level qualifier for the Db2 Admin data sets

This parameter is optional. It specifies the high-level qualifier of the Db2 Administration Tool libraries. This information is used by the sample programs INZADBI and INZDB2IX (in the SINZCLIST library) to update the Db2 Administration Tool and the Data Management Tools Launchpad tables.

This parameter is also referred to as VUU025.

Library which contains Db2 Admin commands tables

This parameter is optional. It specifies the name of the library that contains the Db2 Administration Tool command tables. This information is used by the sample programs INZADBI and INZDB2IX (in the SINZCLIST library) to update the Db2 Administration Tool and the Db2 Tools Launchpad tables.

This parameter is also referred to as VUU026.

Library which contains the ADBMTI EXEC

This parameter is optional. It specifies the name of the library that contains the ADBMTI EXEC. This information is used by the sample programs INZADBI and INZDB2IX (in the SINZSAMP library) to update the Db2 Administration Tool and the Db2 Tools Launchpad tables.

This parameter is also referred to as VUU027.

Db2 HPU conversion parameters

The Db2 HPU conversion parameters section on the Product Parameters panel (CCQPPRD) in Tools Customizer contains the conversion parameters that are used by Db2 HPU.

The Db2 HPU parameters are designated in three ways:

- a long designation that describes what the parameter is used for
- two short names used as a reference especially within the messages texts:
 - one has the following format Vxxnnnn where xx are characters and nnnn are figures
 - the other one is a short label of 8 characters

The following list describes the Db2 HPU conversion parameters. The parameters are listed in the following format:

description (Vxxnnnn/parameter-name)

Unicode Conversion Services load library (VZM006/SCUNMOD)

This parameter is optional. It specifies the name of the IBM Conversion Service Load Library. If you want to perform conversions that imply non-SBCS CCSIDs or pairs of SBCS CCSIDs that are not supported by the SYSSTRINGS catalog table, you must first install IBM OS/390® Support for Unicode. For more information about this program, see *Program Directory for z/OS Support for Unicode* and *z/OS Support for Unicode Using Conversion Services*.

This parameter is also referred to as VZM006/SCUNMOD.

Unicode Conversion Services technique search order (VZM007/SCUNTSO)

This parameter is optional. It specifies a list of technique search orders to be searched for the z/OS Unicode Services. Separate each value with a comma. When a conversion between two CCSIDs is required, Db2 HPU looks for a conversion that specifies one of the listed technique search orders until it finds one valid conversion.

Example: SCUNTSO = ER,,RE means that Db2 HPU will for the ER technique search order, followed by the *blank* technique search order, and then the RE technique search order.

The default value is blank.

If Db2 Version 8 or later is installed, usually the technique search order is equal to ER.

See *z/OS Support for Unicode Using Conversion Services* for more information.

This parameter is also referred to as VZM007/SCUNTSO.

Unicode Conversion Services substitution character mode (VZM008/SCUNSUB)

This parameter is optional. It specifies how the UNLOAD utility manages conversions through z/OS Unicode Services.

YES

Indicates that if a character in a string cannot be converted between two CCSIDs, it is replaced by the substitution character of the converter.

NO

Indicates that if a character in a string cannot be converted, the conversion of all the strings fails.

The default value is YES.

This parameter is also referred to as VZM008/SCUNSUB.

Db2 HPU file management parameters

The Db2 HPU file management parameters section on the Product Parameters panel (CCQPPRD) in Tools Customizer contains the file management parameters that are used by Db2 HPU.

The Db2 HPU parameters are designated in three ways.

- a long designation that describes what the parameter is used for
- two short names used as a reference especially within the messages texts:
 - one has the following format Vxxnnnn where xx are characters and nnnn are figures
 - the other one is a short label of 8 characters

The following list describes the Db2 HPU file management parameters. The parameters are listed in the following format:

description (Vxxnnnn/parameter-name)

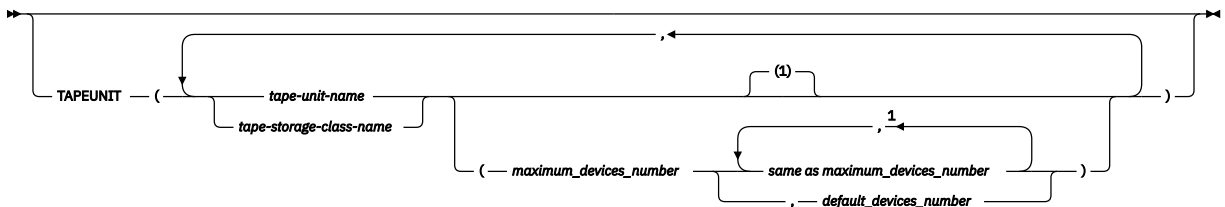
Volume name of migrated object (VZM005/INFVSMIG)

This parameter is optional. It specifies the volume name that is located in the ICF catalog for migrated files. The default value is MIGRAT, which corresponds to the value that is used by the DFSMSHsm component of the IBM Data Facility Storage Management Subsystem (DFSMS).

This parameter is also referred to as VZM005/INFVSMIG.

Numbers of devices for tape unit/storage class (VZM010/TAPEUNIT)

This parameter is optional. Use this parameter to specify the maximum and default numbers of devices that can be used by Db2 HPU when you request that output files be allocated on tape by specifying a tape unit name or a storage class name. These devices numbers must be specified for each tape unit name or storage class name you intend to use for allocating the Db2 HPU output data sets. The value of this parameter must be formed according to the following syntax diagram :



Notes:

¹ the rule depends on whether TAPEUNIT_DEFAULT_DEV_TO_MAX is specified in the value of the VUU030/ULOPTNS parmlib parameter.

Maximum number of disk units to allocate a work file (VUX010/LIMUNIT)

This parameter is optional. It specifies the maximum number of disk units (unit-count JCL parameter) to be used when Db2 HPU allocates a temporary work file. It is also taken into account to determine the number of work data sets specified as the DYNALLOC first operand of the SORT program when a Db2 HPU needs to perform a sort task.

The default value is 9.

Valid values are 1 - 59.

The corresponding SYSIN keyword is LIMUNIT in the Technical Parameters options block, which can be coded in the GLOBAL OPTIONS block.

This parameter is also referred to as VUX010/LIMUNIT.

Maximum size for primary allocation of a work data set (VUX019/WRKMXPR)

This parameter is optional. It specifies the maximum size, in kilobytes, for the primary allocation of a work data set on DASD. When very large work data sets are used, the primary allocation might be distributed among several volumes according to the limit that was specified in the VUX010/LIMUNIT parameter.

Requirement: Regardless of the limit that was specified on the VUX010/LIMUNIT parameter, the value that you provide for the VUX019/WRKMXPR parameter must be lower than the capacity of the units that is used for these work data sets (i.e. the "Unit name for batch work data sets" parameter from the "LPAR Parameters: Db2 HPU" Tools Customizer panel). You must also consider that these units might be distributed among several volumes.

Valid values are 1 - 16777215.

The default value is 500000.

The corresponding SYSIN keyword is WRKMXPR in the Technical Parameters options block, which can be coded in the GLOBAL OPTIONS block.

This parameter is also referred to as VUX019/WRKMXPR.

Note: When Db2 HPU invokes the sort program, the number of work datasets to be used by the sort program is determined according to the following rules:

- The size of a work data set is assumed to be VUX019/WRKMXPR.
- The number of work files per allowed volume (i.e. VUX010/LIMUNIT) must not exceed 2.

These rules are implemented via the following formula: Number of work data sets = $\min(\text{upper_round}(2 * \text{FILSZ} * \text{RECORD_LENGTH} / \text{WRKMXPR} / 1024), 2 * \text{LIMUNIT})$ where FILSZ stands for the estimated number of records to be sorted and RECORD_LENGTH for the mean value of the record length.

Although the above formula is always used to determine the allowed number of work data sets, the actual number of data sets might be lower if this calculated number exceeds the number of files the sort program can handle. For example, DFSORT V1R12.0 cannot use more than 255. Therefore, although LIMUNIT is set to a value greater than or equal to 128, which would theoretically allow the sort program, to use more than 256 work data sets, no more than 255 files will be actually used.

DSCB model for allocation of GDS (VUX033/TMPLDSCB)

This parameter is optional. It specifies the model data set control block (DSCB) to use when allocating generation data sets (GDS) and when a TEMPLATE is used to allocate new generations of a generation data group (GDG).

This parameter is also referred to as VUX033/TMPLDSCB.

Volumes for allocation of temporary data sets (VUM018/WRKVOL)

This parameter is optional. It specifies the name of the volume where temporary data sets will reside.

This parameter is also referred to as VUM018/WRKVOL.

Tape unit where the work data sets must be allocated (VUA007/WRKTUNIT)

This parameter is optional. It specifies the name of the tape unit that is used to allocate temporary files.

If you use temporary files on tape, specify a tape unit or DASD device on this parameter. If you specify a DASD device, ensure that the pool of volumes that are associated with that unit has enough free space to store large data sets. If you do not specify a value, the utility allocates temporary files on the unit that is specified on the WRKUNIT parameter.

The corresponding SYSIN keyword is WRKTUNIT of the Technical Parameters options block, which can be coded in the GLOBAL OPTIONS block.

This parameter is also referred to as VUA007/WRKTUNIT.

Maximum size for work data set on DASD (VUX016/WRKUNTSW)

This parameter is optional. It specifies a threshold size (in kilobytes) for work data sets. All work data sets that exceed this threshold size will be allocated on the unit that is specified on the VUA007/WRKTUNIT parameter.

The corresponding SYSIN keyword is WRKUNTSW in the Technical Parameters options block, which can be coded in the GLOBAL OPTIONS block.

This parameter is also referred to as VUX016/WRKUNTSW.

Maximum number of unit for tape temporary data set (VUX017/MAXTUNIT)

This parameter is optional. It specifies the maximum number of tape units that are provided for work data sets that are used by a Db2 HPU job.

Valid values are 1 - 255.

The default value is 2.

The corresponding SYSIN keyword is MAXTUNIT in the Technical Parameters options block, which can be coded in the GLOBAL OPTIONS block.

This parameter is also referred to as VUX017/MAXTUNIT.

Number of volumes for temporary data set on tape (VUX032/WRKTVCNT)

This parameter is optional. It specifies the number of volumes to use for temporary data sets that are allocated on tape. Specifying 0 indicates that no VOLCOUNT parameter will be used for allocating tape files. In this case, up to five volumes are used.

Valid values are 0 - 255.

The default value is 0.

The corresponding SYSIN keyword is WRKTVCNT in the Technical Parameters options block, which can be coded in the GLOBAL OPTIONS block.

This parameter is also referred to as VUX032/WRKTVCNT.

BUFNO for sequential QSAM (VUM022/QSBUFNO)

This parameter is optional. It specifies the number of data buffers for sequential QSAM (the BUFNO parameter of the DCB for QSAM).

Valid values are 1 - 255.

The default value is 60.

This parameter is also referred to as VUM022/QSBUFNO.

BUFND for sequential VSAM (VUM023/VSBUFND)

This parameter is optional. It specifies the number of data buffers for sequential VSAM (the BUFND parameter of the ACB for VSAM).

Note: Keep the default value for this parameter unless directed to change it by your IBM support. Specifying a larger value might uselessly increase the amount of memory that Db2 HPU requires. Specifying a lower value makes the error described by the APAR PH36904 more likely. This issue occurs only when the use of zIIP processors is enabled. Therefore, if you need to specify a low value for VUM023/VSBUFND and you intend to enable the use of zIIP processors, consider applying the fixes for PH36904, PH40030 and PH40369 and setting the VUU030/ULOPTNS parmli parameter with a value containing FIX(APAR_PH36904) so that the use of zIIP processor is disabled for reading VSAM datasets thus avoiding the occurrence of the issue.

Valid values are 0 - 65535.

The default value is 360.

This parameter is also referred to as VUM023/VSBUFND.

BUFNO for SORTIN sequential QSAM (VUM038/QSSBUFNO)

This parameter is optional. It specifies the number of data buffers for sequential QSAM (the BUFNO parameter of the DCB for QSAM), exclusively for the temporary dataset SORTIN used during SORT process. This parameter is meant to help solving unexpected situations where using the same BUFNO value to access to the SORTIN data set as the BUFNO value used for QSAM access to any other data set (i.e. the VUM022/QSBUFNO parmlib parameter) causes troubles. Otherwise, this parameter should be left blank.

Use case

One situation where this parameter can help is described here after.

Db2 HPU writes into the SORTIN data set using QSAM access with a BUFNO value as specified through the VUM022/QSBUFNO parmlib parameter. Unexpectedly, DFSORT uses/inherits this BUFNO value - meant for QSAM access - for accessing SORTIN in BSAM access.

As the typical value for QSBUFNO is too big as a BUFNO parameter for BSAM, the fact that Db2 HPU launches SORTIN sort tasks - if DFSORT and zHPF are involved - can lead to a shortage of the private storage below 16MB line resulting in an ABENDS878-10.

As VUM022/QSBUFNO drives the BUFNO value for any QSAM data set access, decreasing the value of VUM022/QSBUFNO is not a suitable solution as it would decrease the overall performance of Db2 HPU. When this situation applies, setting VUM038/QSSBUFNO to a lower value than VUM022/QSBUFNO help solve the issue.

Valid values are 1 - 255.

The default value is the value of VUM022/QSBUFNO.

Db2 HPU reporting parameters

The Db2 HPU reporting parameters section on the Product Parameters panel (CCQPPRD) in Tools Customizer contains the reporting parameters that are used by Db2 HPU.

The Db2 HPU parameters are designated in three ways.

- a long designation that describes what the parameter is used for
- two short names used as a reference especially within the messages texts:
 - one has the following format Vxxnnnn where xx are characters and nnnn are figures
 - the other one is a short label of 8 characters

The following list describes the reporting parameters. The parameters are listed in the following format:

description (Vxxnnnn/parameter-name)

List of system codes for which no dump is produced (VZM009)

This parameter is optional. It defines a list of system codes for which no dump is produced if an abend occurs during execution of Db2 HPU. You can specify up to eight lines. Each line can contain up to eight values. Separate each value by a comma.

After changing the content of this variable, you must regenerate the installation job related to the INZZSCOD template to activate the change.

The list can contain specific system codes that are coded on three hexadecimal digits or generic system codes that begin with X and include all the system codes for the number that follows it. For example, 0c1 is a specific system code, and X78 is a generic system code that includes all system codes that end with 78 (B78, D78, E78, and so on).

The default value is X22, X06, X37, 913, X78, X0A.

This parameter is also referred to as VZM009.

Generate a tape usage report in SYSPRINT (VZM011/TAPERPT)

This parameter is optional. Use it to specify whether to generate a report about the tape usage. The report displays the data set names (DSN) and their positions on the tape (FILESEQ) for each volume that is used.

Specify one of the following values:

YES

The tape usage report is generated.

NO

The tape usage report is not generated.

The default value is NO.

This parameter is also referred to as VZM011/TAPERPT.

Maximum number of messages for row structure errors (VUX018/LDSERRLM)

This parameter is optional. It specifies the maximum number of messages that are issued if Db2 HPU encounters a row structure error while reading the rows of a table space. Use this parameter to limit the number of messages that are written into the spool.

Valid values are 0 - 2147483647.

Important: Specifying a large number of records might increase the amount of storage that Db2 HPU requires.

This parameter does not have a default value.

This parameter is also referred to as VUX018/LDSERRLM.

Return code if zero row is unloaded (VUU024/UNLZLRC)

This parameter is optional. It specifies the return code that applies when no rows are unloaded by all SELECT statements of the UNLOAD command.

Valid values are 0 - 4 095.

The default value is 4.

Alteration applies only when original return code is zero unless keyword MAXRC is specified.

This parameter is also referred to as VUU024/UNLZLRC.

Return code if an object is missing (VUU024/UNLZLRC)

This parameter is optional. Specifies the return code that applies when an object included in a LISTDEF or LISTDEFTBV does not exist or when a LISTDEF or LISTDEFTBV expands to contain no objects. When this parameter is not specified, no specific return code applies for this situation..

Valid values are 1 - 4095.

There is no default value.

Alteration applies only when original return code is zero unless keyword MAXRC is specified.

This parameter is also referred to as VUU024/UNLZLRC.

Return code if no object returned by LISTDEF/LISTDEFTBV (VUU024/UNLZLRC)

Specifies the return code when a LISTDEF or LISTDEFTBV clause returns no objects. When this parameter is not specified, no specific return code applies for this situation.

Valid values are 1 - 4095.

There is no default value.

Alteration applies only when original return code is zero unless keyword MAXRC is specified.

This parameter is also referred to as VUU024/UNLZLRC.

Return code if SELECT statement retrieves no row (VUU024/UNLZLRC)

This parameter is optional. It specifies the return code when a LISTDEF or LISTDEFTBV clause returns no objects. When this parameter is not specified, no specific return code applies for this situation.

Valid values are 1 - 4095.

There is no default value.

Alteration applies only when original return code is zero unless keyword MAXRC is specified.

This parameter is also referred to as VUU024/UNLZLRC.

Return code for the utility history collection (VUU024/UNLZLRC)

This parameter is optional. It specifies the return code that applies when the utility history collection fails.

Valid values are 1-4095.

The default value is 0.

This parameter is also referred to as VUU024/UNLZLRC.

Alteration applies only when original return code is zero unless keyword MAXRC is specified.

This parameter is also referred to as VUU024/UNLZLRC.

MAXRC alteration return code (VUU024/UNLZLRC)

This parameter is optional. When MAXRC is not specified, the original return code can be altered only when it is 0. When MAXRC is specified, it can also be altered when its value is 1 - 8.

Action when fully compliant LOADDN cannot be generated (VUU082/ULRLDRC)

This parameter specifies how to handle the situation when Db2 HPU cannot generate LOAD control cards (or the corresponding features for the non HPU-native syntaxes) fully compliant with the DB2 LOAD utility requirements.

The concerned situations are:

- a column of the target table is different from a column of the source tables: i.e. it is defined by an SQL expression with at least a constant or an operator
- all the columns of the target table are not unloaded with the same CCSID
- no string delimiter is defined for an unload in DELIMITED format (or corresponding formats for non HPU-native syntaxes)
- SORTKEYS or NUMRECS is specified for an unload involving unsupported SELECT statement and can therefore not be computed.

Specify one of the following value:

IGNORE

Db2 HPU reports the situation by issuing information messages. The completion code related to this situation is 0 and does not affect the global completion code.

WARNING

Db2 HPU reports the situation by issuing warning messages. The completion code related to this situation is 4 and affects the global completion code if lower.

REJECT

Db2 HPU reports the situation by issuing error messages. The completion code related to this situation is 8 and affects the global completion code if lower.

The data set containing the unloaded data and the LOAD control statements are written regardless of the value specified for this parameter.

The default value is WARNING.

This parameter is also referred to as VUU082/ULRLDRC.

Frequency to display information messages (VUU050/ULFRQMSG)

This parameter is optional. It specifies that Db2 HPU issues informational messages that display the current number of unloaded rows for each output file.

n

At the end of processing, Db2 HPU issues message INZX089, which indicates the total number of rows for each output file. A non-null integer value means that this message is issued for each *n* rows.

The default value is 0.

This parameter is also referred to as VUU050/ULFRQMSG.

Additional parameter for information messages (VUU050/ULFRQMSG)

This parameter is optional. It specifies interval time since the previous message was issued or since the first record was unloaded.

Specify one of the following values:

DELTA

Messages INZX089 and INZX090 are issued to indicate the elapsed time since the previously issued message.

TOTAL

Messages INZX089 and INZX090 are issued to indicate the total elapsed time since the beginning of the unload process.

TOTAL is the default when a non-null value is specified and neither DELTA nor TOTAL is specified.

TOTAL and DELTA are mutually exclusive.

The default value is TOTAL.

This parameter is also referred to as VUU050/ULFRQMSG.

The location where Db2 HPU writes information messages (VUU051/PROCMSG)

This parameter is optional. It specifies where to write informational messages that correspond to the unload process of the table space, image copy, or partitions and indexes.

Specify one of the following values:

WTO

Messages are issued as write to operator messages in the system log.

ddname

Messages are issued in the corresponding ddname. If the corresponding ddname is not already allocated in the JCL, it is dynamically allocated as SYSOUT=*. This ddname can be equal to SYSPRINT, in which case these messages might be mixed with other messages that Db2 HPU issues.

All messages that are issued in the output file are prefixed with the system time in *hh:mm:ss* format.

The default value is WTO.

The corresponding SYSIN parameter is OPTIONS PROCMSG.

This parameter is also referred to as VUU051/PROCMSG.

Location of messages issued for each SELECT statement (VUU052/SELMSG)

This parameter is optional. It specifies where to write informational messages INZX089 and INZX090 that are issued for each SELECT statement.

Specify one of the following values:

WTO

Messages that correspond to the SELECT statements are issued as write to operator messages in the system log.

NUMBERED

Messages that correspond to the SELECT statements are issued in a ddname for each SELECT statement. If this ddname is not already allocated in the JCL, it is dynamically allocated as SYSOUT=*. The format of the generated ddname is UxxSyyyy, where xx is the two-digit UNLOAD number and yyyy is the SELECT number for this unload.

ddname

Messages that correspond to the SELECT statements are issued in the corresponding ddname. If this ddname is not already allocated in the JCL, it will be dynamically allocated as SYSOUT=*.

This ddname can be equal to SYSPRINT, in which case these messages might be mixed with other messages that Db2 HPU issues.

The default value is WTO.

The corresponding SYSIN parameter is OPTIONS SELMSG.

This parameter is also referred to as VUU052/SELMSG.

Generate a list of all OBIDs in the FIC (VUU053/OBIDRPT)

This parameter is optional. It specifies whether to generate a list of all object IDs (OBIDs) that are found in the full image copy (FIC). It applies only when you are unloading from an image copy.

YES

Generates a list of all OBIDs that are found in the FIC.

NO

Does not generate a list of all OBIDs that are found in the FIC.

The default value is NO.

The corresponding SYSIN parameter is OBID_REPORT in the COPYDDN option.

This parameter is also referred to as VUU053/OBIDRPT.

Return code when the utility has switched to SQL mode (VUU069/SQLSWIRC)

This parameter is optional. It specifies the return code that applies when the processing of a select statement has automatically switched to SQL mode when the statement is not supported in native mode. It is not applicable when the SQL mode is explicitly requested (e.g. Db2 HPU FORCE is specified).

Valid values are 0 - 4 095.

The default value is 4.

This parameter is also referred to as VUU069/SQLSWIRC.

Db2 HPU tuning parameters

The Db2 HPU tuning parameters section on the Product Parameters panel (CCQPPRD) in Tools Customizer contains the tuning parameters that are used by Db2 HPU.

The Db2 HPU parameters are designated in three ways.

- a long designation that describes what the parameter is used for
- two short names used as a reference especially within the messages texts:
 - one has the following format Vxxnnnn where xx are characters and nnnn are figures
 - the other one is a short label of 8 characters

The following list describes the tuning parameters. The parameters are listed in the following format:

description (Vxxnnnn/parameter-name)

Default size of the input file or object for Db2 HPU (VUX003/SIZE)

This parameter is optional. It specifies the default number of records when allocating the resources (work data sets and FILSZ parameter) that are required by the SORT processing. The default value is used only when Db2 HPU is unable to estimate the number of rows to be unloaded, which happens only in very specific cases.

This parameter is ignored when the rows are selected by Db2. Therefore, set VUX003/SIZE to a typical or maximum number of rows for the table spaces that are usually processed by Db2 HPU. VUX003/SIZE is expressed as a number of records.

Valid values are 1000 - 2147483647

Important: Specifying a large number of records might increase the amount of storage that Db2 HPU requires.

The default value is 1000000 records.

This parameter is also referred to as VUX003/SIZE.

Minimum memory size for each sort process (VUX004/LOWMEM)

This parameter is optional. It specifies the memory size, in bytes, below the 16 MB line that is used by the sort process. Db2 HPU considers LOWMEM only during parallel processing. When Db2 HPU prepares to start one or more SORT tasks (with the exception of the first SORT), it checks whether the amount of remaining memory under the line is greater than or equal to LOWMEM and decides whether to start an E15 sort or a SORTIN one accordingly. Db2 HPU starts an E15 sort if the amount of memory available below the 16 MB line is more than LOWMEM and if the number of active sort is less than the value set for MAXSORT and a SORTIN sort otherwise. When the number of active sorts exceeds the value of MAXSORT, Db2 HPU does not actually run the sorts but only write the unload data to a SORTIN dataset before a sort thread is available, in which case the sort can be run either as an E15 sort or a SORTIN one according to the rules mentioned above.

Take the following into account in order to determine the MAXSORT and LOWMEM parameters:

1. Determine the maximum storage that is allowed for a SORT below the 16 MB limit; this value is referred to as SORTMAXMEMBELOW hereafter. For example, SORTMAXMEMBELOW is the value of VSCORE parameter of the DFSORT installation and the value of VSCORE parameter of the SYNC SORT installation. Refer to the documentation of your SORT program to determine the SORTMAXMEMBELOW value if you use another one.
2. Determine the minimum amount of memory required below the 16 MB line by your SORT program : this value is referred to as SORTMINMEMBELOW hereafter. To do so, either refer to your SORT program documentation or run a sample of SORT program sorting no rows or a very little number of rows and check the amount of memory this program has used below the 16MB line (see the SYS value given by the IEF371I message). For example, SORTMINMEMBELOW is about 2070 000 bytes for DFSORT VR1R10.
3. Determine the remaining memory below the 16 MB limit when the INZUTILB module is loaded in memory: this value is referred as HPUMEMBELOW hereafter. To do so, run a sample Db2 HPU job requesting a basic unload (the INZCHECK customization job is suitable) with the QUIESCE YES option and no SORT request. Check the amount of memory this program has used below the 16 MB line (see the SYS value given by the IEF374I message).

Set the LOWMEM and MAXSORT according to the following rules:

- $\text{SORTMINMEMBELOW} \leq \text{LOWMEM} \leq \text{SORTMAXMEMBELOW}$
- $1 \leq \text{MAXSORT} \leq (16 \text{ MB} - \text{HPUMEMBELOW}) / \text{LOWMEM}$
- To prevent failures, do not set LOWMEM lower than SORTMINMEMBELOW.
- To maximize the amount of memory that is used, set LOWMEM to a value less than or equal to the value of SORTMAXMEMBELOW. Setting LOWMEM to a higher value would lead to a waste of memory equal to $\text{LOWMEM} - \text{SORTMAXMEMBELOW}$. Setting LOWMEM equal to LOWMAXMEMBELOW ensures that any SORT task launched by Db2 HPU can use an amount of memory up to that value of SORTMAXMEMBELOW. However, as less memory than SORTMAXMEMBELOW is usually needed, this might be a too demanding requirement that would prevent Db2 HPU to launch E15 sorts thus decreasing its performance. As a consequence, consider setting LOWMEM to a lower value so that Db2 HPU will attempt to launch more SORT tasks. Do not decrease LOWMEM to a too low value as it can lead to failures because some SORT tasks might run out of memory.
- To improve performance in terms of elapse time, increase MAXSORT and decrease LOWMEM so that as many sorts as possible are run in parallel and as E15 sorts.
- To minimize the consumption of memory below the 16 MB line, decrease MAXSORT and increase LOWMEM. The default setting (in parmlib) might not be relevant for some complex unload jobs where a lot of tasks are involved and parallelism is enabled. In such a case, it is recommended to adjust the value of LOWMEM and MAXSORT via the Technical Parameters option block in the GLOBAL block in SYSIN.

Valid values are 1 - 2147483647.

Note:

If available, use the PROBE_E15 suboption of the SORTUIL option to check if the value determined according to the above rules is suitable.

The default value is 270000.

The corresponding SYSIN keyword is LOWMEM in the Technical Parameters options block, which can be coded in the GLOBAL OPTIONS block.

This parameter is also referred to as VUX004/LOWMEM

Wait unit in seconds/100 (VUX007/WAITUNIT)

This parameter is required. It specifies the wait time (in hundredths of seconds) between two unsuccessful tests of the STOP command.

Valid values are 1 - 2147483647.

The default value is 100 (1 second).

This parameter is also referred to as VUX007/WAITUNIT.

Number of wait periods before issuing a WTOR (VUX008/WAITQTY)

This parameter is required. It specifies the number of times an unsuccessful STOP command will be tested before a WTOR is sent to the console. If the operator answers CANCEL (C), Db2 HPU will stop with return code 8. If the operator answers WAIT (W), the wait process starts again.

Valid values are 1 - 2147483647.

The default value is 20.

This parameter is also referred to as VUX008/WAITQTY.

Wait time for the WTOR reply (VUX009/WAITQTYM)

This parameter is required. It specifies the maximum wait time (in seconds) before an answer is sent to the WTOR message. Utility execution will stop beyond this limit (return code 8).

Valid values are 1 - 2147483647.

The default value is 60.

This parameter is also referred to as VUX009/WAITQTYM.

Maximum degree of parallelism for LDS reading (VUX025/PARALLEL)

This parameter is optional. It specifies the parallelism degree for an unload job when you are unloading a partitioned table space. This parameter indicates the maximum number of partitions that are processed in parallel. However, if the unload job includes a sort process, the VUX025 parameter is limited to the use of the VUX005/MAXSORT parameter. When a sort process is included, if the value of the VUX005/MAXSORT parameter is lower than the value that is specified in the VUX025/PARALLEL parameter, the VUX005/MAXSORT parameter is used. You can specify a value of 1 or greater.

Valid values are 1 - 65535.

The default value is 20.

This parameter is also referred to as VUX025/PARALLEL.

Maximum degree of parallelism between unload tasks (VUX030/UTLPARAL)

This parameter is optional. It specifies the parallelism degree when you are starting several unload tasks for the same UNLOAD command. An unload task can be when you unload a table space (each table space that is accessed counts for one task, whether it is partitioned or not), or a SELECT statement that is processed by Db2. If more than one SELECT statement is processed by using Db2, Db2 HPU will count one task for all of these SELECT statements. You can specify a value of 1 or greater.

Valid values are 1 - 65535.

The default value is 5.

This parameter is also referred to as VUX030/UTLPARAL.

Number of rows retrieved by an SQL FETCH function (VUU035/ULROWSET)

This parameter is optional. It specifies the number of rows that will be retrieved by a single SQL FETCH. Specifying the number of rows that will be retrieved improves the performance for SELECT statements that are processed by Db2 (using DB2 FORCE or DB2 YES with unsupported SELECT statements). When you specify 1, the multi-fetch function is not used. A standard single-row FETCH is used instead. This function is available only in Db2 Version 8 and later releases.

Valid values are 1 - 32767.

The default value is 100.

This parameter is also referred to as VUU035/ULROWSET.

Enforce partition parallelism for unloading a table into a single file (VUU036/GBLPARAL)

This parameter is optional. For unloads run in native mode from data sets per into a single output file, it specifies whether parallelism regarding partitions must be used when reading the input data.

Specify one of the following values:

YES

Parallelism is enforced when table spaces are unloaded. The parallelism degree is set in variables VUX025/PARALLEL and VUX005/MAXSORT when a sort is requested. YES is the recommended value.

NO

Parallelism is disabled unless the PARALLELISM(n,,) option (Db2 HPU syntax only) is specified with $n > 1$. This value is meant for the unexpected case where the overall benefit for such jobs would not be sufficient compared to the extra cost of parallelism in terms of CPU and memory resources.

For compatibility reasons, the default value is NO.

This parameter is also referred to as VUU036/GBLPARAL

ZIIP usage (VUX039/ZIIP)

This parameter is optional. It allows to enable or disable the usage of ZIIP processors. Valid values are a percentage from 0 to 100 or OFF.

percentage

Specify an integer value from 0 to 100 to specify the percentage of eligible tasks (SRB tasks) Db2 HPU requests the system to offload to ZIIP processors

OFF

Disables the usage of zIIP processors.

The default value is OFF.

Important: do not set this parameter to 0 to disable the usage of zIIP processors. Specifying 0 would request Db2 HPU to prepare the tasks eligible for zIIP processing which implies an extra CPU cost but would not request any offload of those tasks to zIIP processor because of the percentage set to 0. This would lead to an undesirable increase of the Global Purpose CPU use. This value is meant for diagnosis purpose. Ask your system specialist to determine the best value of the percentage to choose.

This parameter is also referred to as VUX039/ZIIP.

Size of work areas buffers (VUX040/UBUFSIZE)

This parameter is optional. It allows to specify the size expressed in kB of the buffers that are used for communication between some Db2 HPU tasks, such as reading LDS, formatting data, and sorting data. A higher value has little impact on performance, but a lower value forces Db2 HPU to change tasks more frequently, which increases the wait and CPU times. The shipped value, i.e. the default value, is suitable for most of the use cases. Do not change the shipped value unless directed to do so by the IBM support.

Valid values are 256 to 8192.

The default value is 512.

This parameter is also referred to as VUX040/UBUFSIZE.

Number of buffers of work areas (VUX041/UBUFNO)

This parameter is optional. It allows to specify the number of buffers that are used for communication between some Db2 HPU tasks, such as reading LDS, formatting data, and sorting data. The shipped value, i.e. the default value, is suitable for most of the use cases. Do not change the shipped value unless directed to do so by the IBM support.

Default value is 3. This settings is meant for balanced performance over all kind of unloads.

Valid values are 2 to 8.

This parameter is also referred to as VUX041/UBUFNO.

ZIIP maximum parallelism (VUX042/ZIIPMXPL)

This parameter is optional. It specifies the maximum parallelism degree applicable to Linear Data Set reading when the zIIP processors use is put into action. This parameter might be needed to tune the sharing of the zIIP processors with other processes. Valid values are integers 0 - 65535.

0

This specific value means the maximum parallelism degree is given by the number of zIIP processors available on the LPAR

integer from 1 to 65535

The specified number is taken, as is, as the maximum parallelism degree.

The default value is 0.

This parameter is also referred to as VUX042/ZIIPMXPL.

ZIIP maximum parallelism (VUX043/ZIIPMXPU)

This parameter is optional. It specifies the maximum parallelism degree applicable when several unload tasks are started for the same UNLOAD command and zIIP processors is put into action. This parameter might be needed to tune the sharing of the zIIP processors with other processes. Valid values are 0 - 65535.

0

This specific value means the maximum parallelism degree is given by the number of zIIP processors available on the LPAR.

integer from 1 to 65535

The specified number is taken, as is, as the maximum parallelism degree.

The default value is 0.

This parameter is also referred to as VUX043/ZIIPMXPU.

Support parallelism for unloading several partitions (VUU044/SUBTKSOF)

This parameter is optional. For unloads run in native mode from data sets per partition into a single output file, it specifies whether parallelism regarding partitions must be used when writing the output data and applies only if VUU036/GBLPARAL is set to YES.

Specify one of the following values:

NO

Does not support parallelism when data is unloaded from several partitions into a single output data set.

YES

Supports parallelism when data is unloaded from several partitions into a single output data set. YES is the recommended value.

For compatibility reasons, the default value is NO.

This parameter is also referred to as VUU044/SUBTKSOF.

Maximum number of partitions processed in one unload (VUU060/ULMAXPAR)

This parameter is optional. It specifies the maximum number of partitions that Db2 HPU can process in a single unload operation. ULMAXPAR affects logical unload operations (SELECT) that are

processed natively and physical unload operations only. You can use this parameter to reduce the memory consumption of Db2 HPU.

If the total number of partitions that have to be processed for a table space is larger than the value that is specified in ULMAXPAR, Db2 HPU automatically splits the single unload operation into several unload operations to respect the value of ULMAXPAR. If the value of ULMAXPAR is smaller than the value of PARALLELISM at the partition level, the effective partition parallelism is limited by ULMAXPAR.

Valid values are 0 - 4096.

The default value is 0, which means that splitting is not done. When you specify a non-zero value, ORDER BY and ORDER CLUSTER clauses can be used only when each partition is unloaded into a separate file. When you specify a non-zero value and a split is done, the OUTMAXROWS or UNLMAXROWS setting applies to each partition.

The corresponding SYSIN keyword is MAXPART, which can be specified in the GLOBAL OPTIONS block or the UNLOAD block.

This parameter is also referred to as VUU060/ULMAXPAR.

Size of the buffer used to retrieve LOB data (VUU041/ULOCSIZE)

This parameter is optional. It applies when LOB data is unloaded in SQL mode and the internal process to retrieve the LOB data uses LOB locators which occurs as indicated in the table below:

LOB data in output	Retrieval mode	VUU041/ULOCSIZE applicable
In-stream	N/A	No
LOB file	LOB file reference	No
SPANNED	LOB locator	Yes

Keep the default value or consider cautious changes to improve the performance of unload of LOB data in SQL mode. Make sure to run a comprehensive set of unload run in SQL mode and involving LOB where VUU041/ULOCSIZE applies afterward.

Valid values are 1 - 16000000.

The default value is 1000000.

This parameter is also referred to as VUU041/ULOCSIZE.

Wait/retry function when resources are unavailable (VUU047/RETRYMOD)

This parameter is optional. If a resource is not available, it specifies whether Db2 HPU uses wait/retry logic. This parameter controls the following availability criteria:

- The status of the Db2 object (table space, partition, or index) that prevents processing.
- If LOCK YES is specified in the SYSIN and a LOCK cannot be taken on the corresponding object.
- If the dynamic allocation of the LDS files of the table space or index to be unloaded fails.

Specify one of the following values:

NONE

Db2 HPU does not use wait/retry logic.

ALL

Db2 HPU uses wait/retry logic for the three kinds of situations in the previous list.

STATUS

Db2 HPU uses wait/retry logic when the status of the Db2 object, table space, partition, or index prevents processing. The following statuses prevent processing:

- CHKP
- GRECP
- UTUT

- PSRBD
- WEPR
- RBDP
- RBDP*
- REORP
- DBETE
- RESTP
- PSRCP
- LPL
- RELDP
- REFP
- RECP
- RECP*

LOCK

Db2 HPU uses wait/retry logic when a LOCK is requested by the LOCK YES option and the LOCK cannot be taken.

LDS

Db2 HPU uses wait/retry logic when LDS allocation fails.

You can specify multiple values except when you specify ALL or NONE. If you specify multiple values, separate them by using commas without spaces. Specify the wait time (in hundredths of a second) between two unsuccessful tests of the resource availability with PARMLIB parameter VUU048/RETRYW, and specify the number of retries with PARMLIB parameter VUU049/RETRYNB.

The default value is NONE.

This parameter is also referred to as VUU047/RETRYMOD.

Wait time between tries to access unavailable resources (VUU048/RETRYW)

This parameter is optional. It specifies the wait time (in hundredths of seconds) between two unsuccessful tests of the resource availability that is defined by the VUU047/RETRYMOD parameter.

Valid values are 1 - 32767.

The default value is 100 (1 second).

This parameter is also referred to as VUU048/RETRYW.

Number of retries when resources are unavailable (VUU049/RETRYNB)

This parameter is optional. It specifies the number of times to test the availability of a resource before stopping with return code 8.

Valid values are 1 - 32767.

The default value is 20.

This parameter is also referred to as VUU049/RETRYNB.

Concurrent access resolution for prepared statement (VUU061/ACCPREP)

This parameter is optional. Use it to specify the CONCURRENT ACCESS RESOLUTION option for the PREPARE statement that Db2 HPU will use to process SELECT statements by using Db2.

Specify one of the following values:

WAIT

The WAIT FOR OUTCOME clause is specified to wait for the commit or rollback of data that is being updated or deleted.

USE

The USE CURRENTLY COMMITTED clause is specified to use the currently committed version of the data that is being updated or deleted. The USE option is supported only in Db2 10 and later releases.

The VUU061 parameter does not have a default value.

This parameter is also referred to as VUU061/ACCPREP.

Management of exit written in C or COBOL (VUU079/EXITHLL)

This parameter is optional. It specifies whether your unload jobs invoke user-exits written in high-level language (C, COBOL) or exploit the Db2 HPU DDL generation feature that invokes a high-level language embedded exit. The later is request either via the UNLOAD PLUS syntax with the CNTLCARDS DB2 or CNTLCARDS DB2DDL options or via the HPU native syntax via the LOADDDL TABLE option).

YES

Some of your unload jobs invoke user-exits written in high-level language (C, COBOL) or exploit the Db2 HPU DDL generation feature.

NO

None of your unload jobs invoke user-exits written in high-level language (C, COBOL) or exploit the Db2 HPU DDL generation feature. Specifying NO saves up memory.

The default value is NO.

Note: When the setting for this parameter is changed, the installation job for the INZALIAS template must be regenerated and submitted to activate the change.

This parameter is also referred to as VUU079/EXITHLL.

Number of simultaneously opened LOB LDS(VUU080/MXOPNLLD)

This optional parameter specifies how many LDS, from 1 to 254, of a multi- LDS LOB tablespace can be kept allocated and opened simultaneously for unloading LOB data in native mode.

When the number of LDSes of the LOB table space is less than this value, each LDS of the LOB tablespace is allocated only once. Otherwise, some LDSes of the LOB table might be opened several times depending on where the data to be unloaded is located. For better performance, consider setting this parameter to the highest value but be aware that setting a too big value might lead to resource shortage when many LOB LDSes are involved.

The default value is 16.

The corresponding SYSIN keyword is MXOPNLLD in the Technical Parameters block. This parameter is also referred to as VUU080/MXOPNLLD.

Request the display of implicit parameters (VUU083/DISPPARM)

This parameter allows to specify whether and, when relevant, where to display the values of the implicit parameters (i.e. not specified by the UNLOAD command but set via the parmlib).

Specify either of the following allowed values:

NO

no comprehensive list of the values of the implicit paramaters is displayed.

IF,ddname

a comprehensive list of the values of the implicit parameters is printed to the specified ddname, only if this ddname is allocated. The specified ddname may be any valid ddname including SYSPRINT except for any other Db2 HPU reserved ddname (see the [Db2 HPU batch mode operation/Ddname allocation](#) section).

YES,ddname

a comprehensive list of the values of the implicit parameters is printed to the specified ddname which is allocated by Db2 HPU as a SYSOUT data set if the corresponding ddname is not allocated. The specified ddname may be any valid ddname including SYSPRINT except for any other Db2 HPU reserved ddname (see the [Db2 HPU batch mode operation/Ddname allocation](#) section).

When either IF,ddname is specified and ddname is allocated or YES,ddname is specified the values of the implicit parameters are written to the specified ddname as described below.

The output consists of the following parts :

1. a section that starts with

```

*****
* PARMLIB PARAMETERS
* READ FROM
* parmlib origin
*
* The values of format- or syntax-dependent parameters are formatted the
* following way: the values explicitly set at installation time are separated
* by commas and each single value is displayed with the following format:
* Z(value) where Z stands for the format or syntax the value applies to
* according to the following rule:
*
* (1) For format-dependent parameters:
* =====
* Z=Format
* -----
* U=USER
* D=DSNTIAUL
* L=DELIMITED
* V=VARIABLE
* E=EXTERNAL
* CD=DSNTIAUL-like compatibility
* CL=DELIMITED-like compatibility
* CV=VARIABLE-like compatibility
* CE=EXTERNAL-like compatibility
* =====
*
* (2) For syntax-dependent parameters:
* =====
* Z=Syntax
* -----
* HPU=HPU
* ULPLUS=UNLOAD PLUS
* FASTU=FAST-UNLOAD
* =====
*
*****
*****
*

```

shows the value of the parameters as set via the parmlib that includes the following subsections in the mentioned sequence:

- a. the "Product parameters" subsection that starts with

```
***** PRODUCT PARAMETERS *****
```

and ends with the beginning of the next section.

- b. the "LPAR parameters" subsection that starts with

```
***** LPAR PARAMETERS *****
```

and ends with the beginning of the next section.

- c. the "Db2 parameters" subsection that starts with

```
***** DB2 PARAMETERS FOR ssid *****
```

and ends with

```
*****
* END OF PARMLIB PARAMETERS *
*****
```

The format for the parameters displayed in this section is : VXXnnn/PARMNAME = parameter_value where VXXnnn/PARMNAME is the short name for a given parameter and parameter_value is the

value of the parameter as set via the parmlib for the concerned LPAR and Db2 subsystem or group attach.

2. a second section that starts with

```
***** PARAMETERS OVERRIDEN BY SYSIN OPTIONS *****
```

and ends at the bottom of the file. This section displays the values of the parameters that are explicitly overridden by a specification from the UNLOAD command as a table with the following columns:

PARMLIB PARAM

this column contains the short name of the overridden parmlib parameter.

OVERRIDDEN BY SYSIN OPTION

this column contains the keywords from the UNLOAD command responsible for the parmlib parameter to be overridden. It allows to determine the value that applies for a given parameter for the unload processes the SYSIN option applies to. The applicability of the value is given by the "location" columns.

LOCATION

a set of three columns gives the location of the SYSIN option that overrides the value of the related parameter. The three columns give the following details

- LEVEL: the hierarchical level where the option is specified (i.e. GLOBAL or UNLOAD or SELECT)
- UNL#: Unload number (if the option is specified at the UNLOAD or SELECT level)
- SEL#: Select number (if the option is specified at the SELECT level)

An additional note entry (*) at the end of the row (see the row for ULDATE in the following example) is added to indicate that the value only applies to the USER format as the VUU057/OPALLFMT parameter is set to NO.

```
*****
PARMLIB PARAM      ! OVERRIDDEN BY SYSIN OPTION      ! LOCATION
                   !                   ! LEVEL      UNL#      SEL#
*****
VUU011/ULSEDB2    ! DB2 NO                          ! UNLOAD    1
VUU014/ULNULL     ! NULL OFF                         ! SELECT    2          1
VUU015/ULDATE     ! DATE DATE_E                      ! UNLOAD    1          (*)
```

Note: The effect of the REFORMAT, INTO and FORMAT clauses do not explicitly override the parmlib parameter but actually set the value of some parameters to predetermined values is not reported by this section.

The default value is NO.

The corresponding SYSIN keyword is DISPLAY_PARMLIB in the Technical Parameters options block, which can be coded in the GLOBAL OPTIONS block.

This parameter is also referred to as VUU083/DISPPARM.

Db2 HPU sort parameters

The Db2 HPU sort parameters section on the Product Parameters panel (CCQPPRD) in Tools Customizer contains the sort parameters that are used by Db2 HPU.

The Db2 HPU parameters are designated in three ways.

- a long designation that describes what the parameter is used for
- two short names used as a reference especially within the messages texts:
 - one has the following format Vxxnnnn where xx are characters and nnnn are figures
 - the other one is a short label of 8 characters

The following list describes the common sort parameters. The parameters are listed in the following format:

description (Vxxnnnn/parameter-name)

Maximum number of active sorts processes (VUX005/MAXSORT)

This parameter is optional. It specifies the maximum number of active sorts that can run in the same step when parallel processing is involved. The maximum number of active sorts depends both on the memory used by the sort program below the 16 MB and the memory used above the 16 MB. The memory used below the line is not expected to depend on the unload and the amount of data to be sorted while the memory used above the line does. As a consequence, the value specified for VUX005/MAXSORT cannot fit all the use cases. Choose a value according to the following considerations:

- IBM DFSORT for z/OS supports MAXSORT values 1 - 20, and all of its modules are reusable.
- Most of the non-IBM sort products contain modules that require MAXSORT=1 because not all of their modules are reusable.
- To improve performance in terms of elapse time, increase MAXSORT and decrease LOWMEM.
- To minimize the consumption of memory, decrease MAXSORT and increase LOWMEM.
- Set VUX005/MAXSORT to a value lower than or equal to the value of VUX025/PARALLEL to get the optimal behavior.
- Set a pessimistic (low) value so that no unload fails for memory outage reasons: in this case, you might need to specify a more optimal value for MAXSORT for some of your jobs in order to get the best performance.
- Set an optimistic (high) value so that the parallelism of any unload requiring sorts is not limited : in this case, you might need to specify a lower value of MAXSORT for some of your jobs that might fail because of memory outage.

Valid values are 1 - 32767.

The default value is 20.

The corresponding SYSIN keyword is MAXSORT in the Technical Parameters options block, which can be coded in the GLOBAL OPTIONS block.

This parameter is also referred to as VUX005/MAXSORT

Allocation distribution for the sort input file (VUX006/WRKSPACE)

This parameter is optional. It specifies the percentage of space that is allocated for the sort input file. WRKSPACE can be one of the following values:

Specify one of the following values:

PARTIAL

Corresponds to a primary and secondary allocation that is equal to 50 percent of the estimated size of the file to be sorted. Two volumes are allowed for this allocation.

FULL

Corresponds to a primary allocation that is equal to 100 percent of the estimated size of the file to be sorted, and to a secondary allocation of 33 percent.

The default value is PARTIAL.

The corresponding SYSIN keyword is WRKSPACE in the Technical Parameters options block, which can be coded in the GLOBAL OPTIONS block.

This parameter is also referred to as VUX006/WRKSPACE.

Sort program that Db2 HPU uses to sort data (VUX037/SORTUTIL)

This parameter is optional. It allows you to specify which sort program to use when Db2 HPU needs to perform a sort operation outside of Db2.

Specify one of the following values:

SORT

The on-site sort program is used. The load module name is DFSORT.

DB2SORT

The IBM Db2 Sort for z/OS utility (Db2 Sort) is used. Db2 Sort can improve the performance of utility sort processing, especially in environments with large volumes of data, large table spaces, large indexes, or batch window constraints. These environments require a more sophisticated sorting approach than the approach that is used by tools that are used for general sorting purposes.

The load module name is DB2SORT. The relevant entry point load module of Db2 Sort must be installed in the system libraries. Specifying DB2SORT does not affect the Db2 settings. Therefore, if you want the sorts performed by Db2 (for unsupported SELECT statements or when DB2 FORCE is specified), you must change the appropriate Db2 settings.

Tip: Specify DB2SORT when you need to perform several sort operations in parallel.

For more information about Db2 Sort, see the *Db2 Sort for z/OS User's Guide*.

The default value is SORT.

The corresponding SYSIN keyword is SORTUTIL in the GLOBAL OPTIONS block.

This parameter is also referred to as VUX037/SORTUTIL.

Customization templates

Tools Customizer uses the following templates to generate the customization jobs for Db2 HPU.

Prerequisites

The typical installation and use of Db2 HPU assumes that the SCEERUN and SCEERUN2 Language Environment libraries are available through the linklist. If this condition is not fulfilled in your environment, the installation job generated for the INZCHECK template will fail. To avoid this, consider adding these libraries to the linklist or, if this cannot be done, consider adding a JOBLIB control card in the user jobcards that can be specified in Tools Customizer in the "User Job Card Settings for Customization Jobs " field accessible through the "0. User settings for Tools Customizer" option.

The following table lists and describes the templates:

Table 47. Template names and descriptions

Template	Description
INZTVAR	Generates the INZUTIL member containing the non Db2-dependent settings
INZPARM	Defines the dsname of the Db2 HPU PARMLIB to the load modules
INZHPUCL	Generates the members required to run the Db2 HPU ISPF interface
INZLAUNC	Generates the clist to be run to add Db2 HPU to Db2 Tools Launchpad
INZADTOO	Generates a member with instructions for adding Db2 HPU into Db2 Admin
INZBIND	Binds the plans and packages that are used by Db2 HPU and grants access
INZEXEUE	Generates a sample job for running Db2 HPU against a given subsystem
INZZSCOD	Defines the list of abend codes trapped for dump

Table 47. Template names and descriptions (continued)

Template	Description
INZCHECK	Generates members with the Db2-dependent settings, checks the setting of VUX004/LOWMEM is suitable and runs Db2 HPU IVP
INZFREE	Frees the Db2 HPU plan for a Db2 subsystem or a data sharing group

Locating a parameter in Tools Customizer panels

About this task

You may need to set a single parameter as instructed to by your IBM support or by the explanation of a Db2 HPU feature or message. The following sections explain how parameters are organized and gives information to help you locate a given parameter in the Tools Customizer panels.

One panel per category

The parameters are accessible through several Tools Customizer's panels. Each panel is dedicated to a specific category of parameters as described by the list below.

- **Product Parameters: Db2 HPU:** to set or browse parameters applicable to any LPAR or Db2 subsystem or group attach (See "<<< Product parameters" in the figure below).
- **LPAR parameters: Db2 HPU:** to set or browse parameters applicable to the local LPAR. See "<<<LPAR parameters" in the figure below).
- **DB2 Parameters: Db2 HPU:** to set or browse parameters applicable to a given Db2 subsystem or group attach. See "<<< Db2 parameters" in the figure below).

The Customizer Workplace; Db2 HPU panel

```

TCUSTMZR          Customizer Workplace: DB2 HPU                      Row 1 to 2 of 2
Command ==>>>                                         Scroll ==>>> CSR

Enter a line command under the Cmd column for each DB2 entry and press Enter.

Commands: ASSOCIATE DISCOVER GENERATEALL JOBLIST

Product to Customize
Product metadata library . : HINZ510.FLB.SINZDENU      > LPAR . . : S0W1
Product name . . . . . : IBM DB2 High Performance    > Version . : 5.1.0

Customization lib MZLFLB.TCZ.$S0W1$.INZ510.FLB2          Vol INF005

Product and LPAR Parameter Status
Line commands: E - Edit  B - Browse
_ Product parameters . . : Ready to Customize <<< Product parameters
_ LPAR parameters . . . : Ready to Customize <<< LPAR parameters

Associated DB2 Entries and Parameter Status
Line commands: G - Generate jobs  E - Edit  B - Browse  C - Copy  R - Remove
Cmd SSID GrpAttach Lvl Mode User ID Date      Status      Message
*   *   *   *   *   *   *   *   *   *   *
_  DZBA  --      111 NFM  MZLFLB  2019/05/20 Ready to Customize <<< Db2 parameters
_  DB0A  --      111 NFM  MZLFLB  2019/05/20 Ready to Customize <<< Db2 parameters
    
```

Tools Customizer panels and sections

On each Tools Customizer's panel, the parameters are gathered under sections. The bullet list is organized the following way:

- Panel
 - Section
 - Parameter

The parameter layout is as follows:

- Db2 parameters
 - (header)
 - N/A/N/A >DB2 subsystem ID "
 - N/A/N/A >Group attach name
 - General Db2 Information - common
 - N/A/N/A >Mode"
 - N/A/N/A >Level number
 - N/A/N/A >Mixed mode
 - DB2 Libraries - common
 - N/A/N/A >Load library"
 - N/A/N/A >Run library
 - N/A/N/A >Exit library
 - Utilities - Common
 - N/A/N/A >SYSAFF for DB2 utilities"
 - N/A/N/A >Plan name for the DSNTIAD utility
 - Db2 HPU DB2 parameters
 - VUM012/PLANOWN >Owner of the plan created for Db2 HPU "
 - VUX011/_____ >Grant on the plan created for Db2 HPU
 - VUM031/QUITSUSR >User who execute DB2 processes on the table space
 - VUM032/ACTLGUSR >User who issues SELECT by using dynamic SQL
 - VUM033/OPTRGPRT >Partition range filter optimization
 - VUM034/EXPLNTB >DELETE or KEEP rows inserted in EXPLAIN tables
 - VUM035/EXPLNUSR >User who issues EXPLAIN PLAN statements
 - VUM036/APPLCOMP >Specifies the compatibility level for SQL
 - VUM028/DISPLUSR >User who runs the DISPLAY command
 - VUU062/ULACCTRL >Unload controlled access table in native mode
 - VUX044/CLIPLAN >Db2 Plan name of the CLI
 - VUM037/CRYPTUSR >User who reads encrypted VSAM data set
- LPAR parameters
 - Other parameters - Common
 - N/A/N/A >Unit name for batch work data sets"
 - HPU Library Dsnames
 - VIZ003/SINZLOAD >Load modules library"
 - VIZ004/SINZLINK >APF load modules library
 - VIZ006/SINZSAMP >Samples library
 - VIZ007/SINZPARM >PARMLIB library
 - VIZ012/SINZDBRM >Product's DBRM library
 - VIZ014/SINZCLST >REXX EXEC library
 - VIZ013/SINZLLIB >ISPF load modules library
 - VIZ015/SINZMLIB >ISPF messages library
 - VIZ016/SINZPANL >ISPF panels library
 - VIZ017/SINZSLIB >ISPF skeletons library

- VIZ018/SINZTLIB >ISPF tables library
- HPU File Management parameters
 - VZM005/INFVSMIG >Volume name of migrated objects "
 - VZM010/TAPEUNIT >Numbers of devices for tape unit/storage class
 - VUX010/LIMUNIT >Maximum number of disk units to allocate a work file
 - VUX019/WRKMXPR >Maximum size for primary allocation of a work data set
 - VUX033/TMPLDSCB >DSCB model for allocation of GDS
 - VUM018/WRKVOL >Volumes for allocation of temporary data sets
 - VUA007/WRKTUNIT >Tape unit where the work data sets must be allocated
 - VUX016/WRKUNTSW >Maximum size for work data set on DASD
 - VUX017/MAXTUNIT >Maximum number of unit for tape temporary data set
 - VUX032/WRKTVCNT >Number of volumes for temporary data set on tape
 - VZM006/SCUNMOD >Unicode Conversion Services load library
- Db2 HPU Tuning Parameters
 - VUX004/LOWMEM >Minimum memory size for each sort process "
 - VUX007/WAITUNIT >Wait unit in seconds/100
 - VUX008/WAITQTY >Number of wait periods before issuing a WTOR
 - VUX009/WAITQTYM >Wait time for the WTOR reply
 - VUX025/PARALLEL >Maximum degree of parallelism for LDS reading
 - VUX030/UTLPARAL >Maximum degree of parallelism for unload tasks
 - VUX040/UBUFSIZE >Size of work areas buffers
 - VUX041/UBUFNO >Number of buffers of work areas
 - VUU041/ULOCSIZE >Size of the buffer used to retrieve LOB data
 - VUX039/ZIIP >ZIIP usage
 - VUX042/ZIIPMXPL >Maximum parallelism on zIIP for LDS
 - VUX043/ZIIPMXPU >Maximum parallelism on zIIP for unload tasks
 - VUU080/MXOPNLLD >Number of simultaneously opened LOB LDS
- HPU Sort parameters
 - VUX005/MAXSORT >Maximum number of active sorts processes "
 - VUX006/WRKSPACE >Allocation distribution for the sort input file
 - VUX037/SORTUTIL >Sort program that Db2 HPU uses to sort data "*" Product parameters
- Common parameters
 - VUM011/PLANOBJT >Application plan for Db2 HPU"
 - VUM030/COLLOBJT >Package collection for Db2 HPU
 - VUU079/EXITHLL >Management of exit written in C or COBOL.
 - VUM022/QSBUFNO >BUFNO for sequential QSAM
 - VUM023/VSBUFND >BUFND for sequential VSAM
 - VUM029/DFSIGDCB >Override DCB DB2, HPU parameters
 - VUM029/DFSIGDCB >Override DCB, UNLOAD PLUS syntax
 - VUM029/DFSIGDCB >Override DCB, FAST UNLOAD syntax
 - VUU011/ULSEDB2 >Use DB2 to process unsupported SELECT statements
 - VUU012/ULLOCK >Lock the tables in the table space
 - VUU074/ULLOCKTE >Specify the technique used to lock the unloaded object

- VUU013/ULQSCCE >Quiesce the table space
- VUU014/ULNULL >NULL indicator, format USER
- VUU014/ULNULL >NULL indicator, format DSNTIAUL
- VUU014/ULNULL >NULL indicator, format VARIABLE
- VUU014/ULNULL >NULL indicator, format EXTERNAL
- VUU015/ULDATE >DATE, format USER
- VUU015/ULDATE >DATE, format DSNTIAUL
- VUU015/ULDATE >DATE, format DELIMITED
- VUU015/ULDATE >DATE, format VARIABLE
- VUU015/ULDATE >DATE, format EXTERNAL
- VUU016/ULTIME >TIME, format USER
- VUU016/ULTIME >TIME, format DSNTIAUL
- VUU016/ULTIME >TIME, format DELIMITED
- VUU016/ULTIME >TIME, format VARIABLE
- VUU016/ULTIME >TIME, format EXTERNAL
- VUU017/ULTMSTP >TIMESTAMP, format USER
- VUU017/ULTMSTP >TIMESTAMP, format DSNTIAUL
- VUU017/ULTMSTP >TIMESTAMP, format DELIMITED
- VUU017/ULTMSTP >TIMESTAMP, format VARIABLE
- VUU017/ULTMSTP >TIMESTAMP, format EXTERNAL
- VUU018/ULPIC >Decimal picture, format USER
- VUU018/ULPIC >Decimal picture, format DSNTIAUL
- VUU018/ULPIC >Decimal picture, format DELIMITED
- VUU018/ULPIC >Decimal picture, format VARIABLE
- VUU018/ULPIC >Decimal picture, format EXTERNAL
- VUU019/ULOPTLDT >Options for global LOAD statement
- VUU020/ULOPTLDP >Options of partition LOAD statement
- VUU070/ULOPTLDB >Options of table LOAD statement
- VUU071/LOSSCHAR >Manage character loss, Db2 HPU parameters
- VUU071/LOSSCHAR >Manage character loss, UNLOAD PLUS syntax
- VUU071/LOSSCHAR >Manage character loss, FAST UNLOAD syntax
- VUU072/LOSSNUM >Manage numeric loss, Db2 HPU parameters
- VUU072/LOSSNUM >Manage numeric loss, UNLOAD PLUS syntax
- VUU072/LOSSNUM >Manage numeric loss, FAST UNLOAD syntax
- VUU073/MAXERR >Error message limit, Db2 HPU parameters
- VUU073/MAXERR >Error message limit, UNLOAD PLUS syntax
- VUU073/MAXERR >Error message limit, FAST UNLOAD syntax
- VUU021/ULDEGREE >Degree of parallel processing
- VUU022/NULLPOS >Position for NULL indicator, format USER
- VUU022/NULLPOS >Position for NULL indicator, format DSNTIAUL
- VUU022/NULLPOS >Position for NULL indicator, format VARIABLE
- VUU022/NULLPOS >Position for NULL indicator, format EXTERNAL
- VUU075/NULLPAD >Fill NULL with padding character, format USER

- VUU075/NULLPAD >Fill NULL with padding character, format DSNTIAUL
- VUU075/NULLPAD >Fill NULL with padding character, format VARIABLE
- VUU075/NULLPAD >Fill NULL with padding character, format EXTERNAL
- VUU023/UNLSCHEM >Default scheme for UNLOAD TABLESPACE
- VUU024/UNLZLRC >Return code if zero row is unloaded
- VUU024/UNLZLRC >Return code if zero row is unloaded
- VUU024/UNLZLRC >Return code if no object is returned by LISTDEF
- VUU024/UNLZLRC >Return code if SELECT statement retrieves no row
- VUU024/UNLZLRC >MAXRC alteration return code
- VUU028/ULQSCBHE >Quiesce process
- VUU029/UNLDDDN >Use the same DDN for UNLDDN, OUTDDN, and LOADDN
- VUU030/ULOPTNS >Db2 HPU additional features
- VUU031/DTDELIM >DATE/TIME delimiter option
- VUU032/ULMASK >Display format for numeric values, format USER
- VUU032/ULMASK >Display format for numeric values, format DSNTIAUL
- VUU032/ULMASK >Display format for numeric values, format DELIMITED
- VUU032/ULMASK >Display format for numeric values, format VARIABLE
- VUU032/ULMASK >Display format for numeric values, format EXTERNAL
- VUU033/ULCHKCPY >Check image copy before unloading
- VUU076/ULICTYPE >Image copies selected for a partitioned table space
- VUU077/ULCENT >Year to set the century for DECIMAL to DATE conversion
- VUU078/ULNULLFL >Output field for NULL values in DELIMITED format
- VUU081/UNLLDTBB >LISTDEF behavior for table selection
- VUU082/ULRLDRC >Action if fully compliant LOADDN cannot be generated
- VUU083/DISPPARM >Request the display of implicit parameters
- VUU084/ULLOBBHV >Processing when LOB/XML not retrieved
- VUU085/ULLOBBHM >Maximum number of issued messages for LOB/XML errors
- VUU034/ULLIKE >Option to modify the like behavior in SQL statement
- VUU035/ULROWSET >Number of rows retrieved by an SQL FETCH function
- VUU036/GBLPARAL >Enforce partition parall. unloading into a single file
- VUU037/ULSIGZ >Sign values for zoned-decimal numeric values
- VUU038/ULSIGDTP >Positive sign for date-time packed values
- VUU039/UNLLDER >Db2 HPU response when a LOADDN cannot be generated
- VUU040/ULTR32K >Truncate variable records exceeding 32756
- VUU042/ULHIDDEN >Unload HIDDEN Column by select *
- VUU043/DTNULDLM >NULL DATE/TIME delimiter option
- VUU044/SUBTKSOF >Support parallelism for unloading several partitions
- VUU045/ULFORMAT >Default output format for a logical unload
- VUU046/ULAUTAG >Size of the autotag in the output file
- VUU047/RETRYMOD >Wait/retry function when resources are unavailable
- VUU048/RETRYW >Wait time between tries to access unavailable resource
- VUU049/RETRYNB >Number of retries when resources are unavailable
- VUU050/ULFRQMSG >Frequency to display information messages

- VUU050/ULFRQMSG >Additional parameter for information messages
- VUU051/PROCMSG >The location where Db2 HPU writes information messages
- VUU052/SELMSG >Location of messages issued for each SELECT statement
- VUU053/OBIDRPT >Generate a list of all OBIDs in the FIC
- VUU055/DATEDEL >Delimiter for external date, format USER
- VUU055/DATEDEL >Delimiter for external date, format DSNTIAUL
- VUU055/DATEDEL >Delimiter for external date, format DELIMITED
- VUU055/DATEDEL >Delimiter for external date, format VARIABLE
- VUU055/DATEDEL >Delimiter for external date, format EXTERNAL
- VUU056/TIMEDEL >;Delimiter in external time, format USER
- VUU056/TIMEDEL >Delimiter in external time, format DSNTIAUL
- VUU056/TIMEDEL >Delimiter in external time, format DELIMITED
- VUU056/TIMEDEL >Delimiter in external time, format VARIABLE
- VUU056/TIMEDEL >Delimiter in external time, format EXTERNAL
- VUU057/OPALLFMT >Options apply to all formats
- VUU058/ULIDENT >LOAD technique for identity column
- VUU065/ULRTTST >LOAD technique for ROW-TRANSACTION-TIMESTAMP column
- VUU066/ULRTSID >LOAD technique for ROW-TRANSACTION-START-ID col
- VUU059/ULTRIM >Trim the trailing blanks, format USER
- VUU059/ULTRIM >Trim the trailing blanks, format DSNTIAUL
- VUU059/ULTRIM >Trim the trailing blanks, format DELIMITED
- VUU059/ULTRIM >Trim the trailing blanks, format VARIABLE
- VUU059/ULTRIM >Trim the trailing blanks, format EXTERNAL
- VUU060/ULMAXPAR >Maximum number of partitions processed in one unload
- VUU061/ACCPREP >Concurrent access resolution for prepared statement
- VUU063/ULOPTXL >Technical parameter to unload XML columns
- VUU064/STRNGCST >String constant is unloaded as CHAR/VARCHAR data types
- VUU067/ULCNVTRC >Option to specify conversion truncation policy
- VUU068/ULUNIEXP >Expansion ratio for conversion to UTF8 CCSID
- VUU069/SQLSWIRC >Return code when the utility has switched to sql mode
- VUX003/SIZE >Default size of the input file or object for Db2 HPU
- VUX018/LDSERRLM >Maximum number of messages for row structure errors
- VUX023/PGDFIN >Percentage of displaced pages in inline FIC
- VUX031/DB2PARAL >Maximum degree of parallelism for SELECT
- VUX036/RTSESTIM >Use real-time statistics tables for size estimation
- VUX038/CHECKINT >Level of data integrity control of input data
- VZM007/SCUNTSO >Unicode Conversion Services technique search order
- VZM008/SCUNSUB >Unicode Conversion Services character substitution
- VZM011/TAPERPT >Generate a tape usage report in SYSPRINT
- VUU025/_____ >High-level qualifier for the DB2 Admin data sets
- VUU027/_____ >Library that contains the ADBDMTI EXEC
- VUU026/_____ >Library that contains DB2 Admin commands tables
- VUU027/_____ >Library that contains the ADBDMTI EXEC

- VZM009/_____ >List of system codes for which no dump is produced
- Db2 parameters
 - (header)
 - N/A/N/A >DB2 subsystem ID "
 - N/A/N/A >Group attach name
 - General Db2 Information - common
 - N/A/N/A >Mode"
 - N/A/N/A >Level number
 - N/A/N/A >Mixed mode
 - DB2 Libraries - common
 - N/A/N/A >Load library"
 - N/A/N/A >Run library
 - N/A/N/A >Exit library
 - Utilities - Common
 - N/A/N/A >SYSAFF for DB2 utilities"
 - N/A/N/A >Plan name for the DSNTIAD utility
 - Db2 HPU DB2 parameters
 - VUM012/PLANOWN >Owner of the plan created for Db2 HPU "
 - VUX011/_____ >Grant on the plan created for Db2 HPU
 - VUM031/QUITSUSR >User who execute DB2 processes on the table space
 - VUM032/ACTLGUSR >User who issues SELECT by using dynamic SQL
 - VUM033/OPTRGPRT >Partition range filter optimization
 - VUM034/EXPLNTB >DELETE or KEEP rows inserted in EXPLAIN tables
 - VUM035/EXPLNUSR >User who issues EXPLAIN PLAN statements
 - VUM036/APPLCOMP >Specifies the compatibility level for SQL
 - VUM028/DISPLUSR >User who runs the DISPLAY command
 - VUU062/ULACCTRL >Unload controlled access table in native mode
 - VUX044/CLIPLAN >Db2 Plan name of the CLI
 - VUM037/CRYPTUSR >User who reads encrypted VSAM data set
- LPAR parameters
 - Other parameters - Common
 - N/A/N/A >Unit name for batch work data sets"
 - HPU Library Dsnames
 - VIZ003/SINZLOAD >Load modules library"
 - VIZ004/SINZLINK >APF load modules library
 - VIZ006/SINZSAMP >Samples library
 - VIZ007/SINZPARM >PARMLIB library
 - VIZ012/SINZDBRM >Product's DBRM library
 - VIZ014/SINZCLST >REXX EXEC library
 - VIZ013/SINZLLIB >ISPF load modules library
 - VIZ015/SINZMLIB >ISPF messages library
 - VIZ016/SINZPANL >ISPF panels library

- VIZ017/SINZSLIB >ISPF skeletons library
- VIZ018/SINZTLIB >ISPF tables library
- HPU File Management parameters
 - VZM005/INFVSMIG >Volume name of migrated objects "
 - VZM010/TAPEUNIT >Numbers of devices for tape unit/storage class
 - VUX010/LIMUNIT >Maximum number of disk units to allocate a work file
 - VUX019/WRKMXPR >Maximum size for primary allocation of a work data set
 - VUX033/TMPLDSCB >DSCB model for allocation of GDS
 - VUM018/WRKVOL >Volumes for allocation of temporary data sets
 - VUA007/WRKTUNIT >Tape unit where the work data sets must be allocated
 - VUX016/WRKUNTSW >Maximum size for work data set on DASD
 - VUX017/MAXTUNIT >Maximum number of unit for tape temporary data set
 - VUX032/WRKTVCNT >Number of volumes for temporary data set on tape
 - VZM006/SCUNMOD >Unicode Conversion Services load library
- Db2 HPU Tuning Parameters
 - VUX004/LOWMEM >Minimum memory size for each sort process "
 - VUX007/WAITUNIT >Wait unit in seconds/100
 - VUX008/WAITQTY >Number of wait periods before issuing a WTOR
 - VUX009/WAITQTYM >Wait time for the WTOR reply
 - VUX025/PARALLEL >Maximum degree of parallelism for LDS reading
 - VUX030/UTLPARAL >Maximum degree of parallelism for unload tasks
 - VUX040/UBUFSIZE >Size of work areas buffers
 - VUX041/UBUFNO >Number of buffers of work areas
 - VUU041/ULOCSIZE >Size of the buffer used to retrieve LOB data
 - VUX039/ZIIP >zIIP usage
 - VUX042/ZIIPMXPL >Maximum parallelism on zIIP for LDS
 - VUX043/ZIIPMXPU >Maximum parallelism on zIIP for unload tasks
 - VUU080/MXOPNLLD >Number of simultaneously opened LOB LDS
- HPU Sort parameters
 - VUX005/MAXSORT >Maximum number of active sorts processes "
 - VUX006/WRKSPACE >Allocation distribution for the sort input file
 - VUX037/SORTUTIL >Sort program that DB2 HPU uses to sort data
- Product parameters
 - Common parameters
 - VUM011/PLANOBJT >Application plan for Db2 HPU"
 - VUM030/COLLOBJT >Package collection for Db2 HPU
 - VUU079/EXITHLL >Management of exit written in C or COBOL.
 - VUM022/QSBUFNO >BUFNO for sequential QSAM
 - VUM023/VSBUFND >BUFND for sequential VSAM
 - VUM029/DFSIGDCB >Override DCB DB2, HPU parameters
 - VUM029/DFSIGDCB >Override DCB, UNLOAD PLUS syntax
 - VUM029/DFSIGDCB >Override DCB, FAST UNLOAD syntax
 - VUU011/ULSEDB2 >Use DB2 to process unsupported SELECT statements

- VUU012/ULLOCK >Lock the tables in the table space
- VUU074/ULLOCKTE >Specify the technique used to lock the unloaded object
- VUU013/ULQSCE >Quiesce the table space
- VUU014/ULNULL >NULL indicator, format USER
- VUU014/ULNULL >NULL indicator, format DSNTIAUL
- VUU014/ULNULL >NULL indicator, format VARIABLE
- VUU014/ULNULL >NULL indicator, format EXTERNAL
- VUU015/ULDATE >DATE, format USER
- VUU015/ULDATE >DATE, format DSNTIAUL
- VUU015/ULDATE >DATE, format DELIMITED
- VUU015/ULDATE >DATE, format VARIABLE
- VUU015/ULDATE >DATE, format EXTERNAL
- VUU016/ULTIME >TIME, format USER
- VUU016/ULTIME >TIME, format DSNTIAUL
- VUU016/ULTIME >TIME, format DELIMITED
- VUU016/ULTIME >TIME, format VARIABLE
- VUU016/ULTIME >TIME, format EXTERNAL
- VUU017/ULTMSTP >TIMESTAMP, format USER
- VUU017/ULTMSTP >TIMESTAMP, format DSNTIAUL
- VUU017/ULTMSTP >TIMESTAMP, format DELIMITED
- VUU017/ULTMSTP >TIMESTAMP, format VARIABLE
- VUU017/ULTMSTP >TIMESTAMP, format EXTERNAL
- VUU018/ULPIC >Decimal picture, format USER
- VUU018/ULPIC >Decimal picture, format DSNTIAUL
- VUU018/ULPIC >Decimal picture, format DELIMITED
- VUU018/ULPIC >Decimal picture, format VARIABLE
- VUU018/ULPIC >Decimal picture, format EXTERNAL
- VUU019/ULOPTLDT >Options for global LOAD statement
- VUU020/ULOPTLDP >Options of partition LOAD statement
- VUU070/UOPTLDB >Options of table LOAD statement
- VUU071/LOSSCHAR >Manage character loss, Db2 HPU parameters
- VUU071/LOSSCHAR >Manage character loss, UNLOAD PLUS syntax
- VUU071/LOSSCHAR >Manage character loss, FAST UNLOAD syntax
- VUU072/LOSSNUM >Manage numeric loss, Db2 HPU parameters
- VUU072/LOSSNUM >Manage numeric loss, UNLOAD PLUS syntax
- VUU072/LOSSNUM >Manage numeric loss, FAST UNLOAD syntax
- VUU073/MAXERR >Error message limit, Db2 HPU parameters
- VUU073/MAXERR >Error message limit, UNLOAD PLUS syntax
- VUU073/MAXERR >Error message limit, FAST UNLOAD syntax
- VUU021/ULDEGREE >Degree of parallel processing
- VUU022/NULLPOS >Position for NULL indicator, format USER
- VUU022/NULLPOS >Position for NULL indicator, format DSNTIAUL
- VUU022/NULLPOS >Position for NULL indicator, format VARIABLE

- VUU022/NULLPOS >Position for NULL indicator, format EXTERNAL
- VUU075/NULLPAD >Fill NULL with padding character, format USER
- VUU075/NULLPAD >Fill NULL with padding character, format DSNTIAUL
- VUU075/NULLPAD >Fill NULL with padding character, format VARIABLE
- VUU075/NULLPAD >Fill NULL with padding character, format EXTERNAL
- VUU023/UNLSCHEM >Default scheme for UNLOAD TABLESPACE
- VUU024/UNLZLRC >Return code if zero row is unloaded
- VUU024/UNLZLRC >Return code if an object is missing
- VUU024/UNLZLRC >Return code if no object is returned by LISTDEF
- VUU024/UNLZLRC >Return code if SELECT statement retrieves no row
- VUU024/UNLZLRC >MAXRC alteration return code
- VUU028/ULQSCEBH >Quiesce process
- VUU029/UNLDDDN >Use the same DDN for UNLDDN, OUTDDN, and LOADDDN
- VUU030/ULOPTNS >Db2 HPU additional features
- VUU031/DTDELIM >DATE/TIME delimiter option
- VUU032/ULMASK >Display format for numeric values, format USER
- VUU032/ULMASK >Display format for numeric values, format DSNTIAUL
- VUU032/ULMASK >Display format for numeric values, format DELIMITED
- VUU032/ULMASK >Display format for numeric values, format VARIABLE
- VUU032/ULMASK >Display format for numeric values, format EXTERNAL
- VUU033/ULCHKCPY >Check image copy before unloading
- VUU076/ULICTYPE >Image copies selected for a partitioned table space
- VUU077/ULCENT >Year to set the century for DECIMAL to DATE conversion
- VUU078/ULNULLFL >Output field for NULL values in DELIMITED format
- VUU081/UNLLDTBB >LISTDEF behavior for table selection
- VUU082/ULRLDRC >Action if fully compliant LOADDDN cannot be generated
- VUU083/DISPPARM >Request the display of implicit parameters
- VUU084/ULLOBBHV >Processing when LOB/XML not retrieved
- VUU085/ULLOBBHM >Maximum number of issued messages for LOB/XML errors
- VUU034/ULLIKE >Option to modify the like behavior in SQL statement
- VUU035/ULROWSET >Number of rows retrieved by an SQL FETCH function
- VUU036/GBLPARAL >Enforce partition parall. unloading into a single file
- VUU037/ULSIGZ >Sign values for zoned-decimal numeric values
- VUU038/ULSIGDTP >Positive sign for date-time packed values
- VUU039/UNLLDER >Db2 HPU response when a LOADDDN cannot be generated
- VUU040/ULTR32K >Truncate variable records exceeding 32756
- VUU042/ULHIDDEN >Unload HIDDEN Column by select *
- VUU043/DTNULDLM >NULL DATE/TIME delimiter option
- VUU044/SUBTKSOF >Support parallelism for unloading several partitions
- VUU045/ULFORMAT >Default output format for a logical unload
- VUU046/ULAUTAG >Size of the autotag in the output file
- VUU047/RETRYMOD >Wait/retry function when resources are unavail
- VUU048/RETRYW >Wait time between tries to access unavailable resource

- VUU049/RETRYNB >Number of retries when resources are unavailable
- VUU050/ULFRQMSG >Frequency to display information messages
- VUU050/ULFRQMSG >Additional parameter for information messages
- VUU051/PROCMSG >The location where Db2 HPU writes information messages
- VUU052/SELMSG >Location of messages issued for each SELECT statement
- VUU053/OBIDRPT >Generate a list of all OBIDs in the FIC
- VUU055/DATEDEL >Delimiter for external date, format USER
- VUU055/DATEDEL >Delimiter for external date, format DSNTIAUL
- VUU055/DATEDEL >Delimiter for external date, format DELIMITED
- VUU055/DATEDEL >Delimiter for external date, format VARIABLE
- VUU055/DATEDEL >Delimiter for external date, format EXTERNAL
- VUU056/TIMEDEL >Delimiter in external time, format USER
- VUU056/TIMEDEL >Delimiter in external time, format DSNTIAUL
- VUU056/TIMEDEL >Delimiter in external time, format DELIMITED
- VUU056/TIMEDEL >Delimiter in external time, format VARIABLE
- VUU056/TIMEDEL >Delimiter in external time, format EXTERNAL
- VUU057/OPALLFMT >Options apply to all formats
- VUU058/ULIDENT >LOAD technique for identity column
- VUU065/ULRTTST >LOAD technique for ROW-TRANSACTION-TIMESTAMP column
- VUU066/ULRTSID >LOAD technique for ROW-TRANSACTION-START-ID col
- VUU059/ULTRIM >Trim the trailing blanks, format USER
- VUU059/ULTRIM >Trim the trailing blanks, format DSNTIAUL
- VUU059/ULTRIM >Trim the trailing blanks, format DELIMITED
- VUU059/ULTRIM >Trim the trailing blanks, format VARIABLE
- VUU059/ULTRIM >Trim the trailing blanks, format EXTERNAL
- VUU060/ULMAXPAR >Maximum number of partitions processed in one unload
- VUU061/ACCPREP >Concurrent access resolution for prepared statement
- VUU063/ULOPTXL >Technical parameter to unload XML columns
- VUU064/STRNGCST >String constant is unloaded as CHAR/VARCHAR data types
- VUU067/ULCNVTRC >Option to specify conversion truncation policy
- VUU068/ULUNIEXP >Expansion ratio for conversion to UTF8 CCSID
- VUU069/SQLSWIRC >Return code when the utility has switched to sql mode
- VUX003/SIZE >Default size of the input file or object for Db2 HPU
- VUX018/LDSERRLM >Maximum number of messages for row structure errors
- VUX023/PGDFIN >Percentage of displaced pages in inline FIC
- VUX031/DB2PARAL >Maximum degree of parallelism for SELECT
- VUX036/RTSESTIM >Use real-time statistics tables for size estimation
- VUX038/CHECKINT >Level of data integrity control of input data
- VZM007/SCUNTSO >Unicode Conversion Services technique search order
- VZM008/SCUNSUB >Unicode Conversion Services character substitution
- VZM011/TAPERPT >Generate a tape usage report in SYSPRINT
- VUU025/_____ >High-level qualifier for the DB2 Admin data sets
- VUU027/_____ >Library that contains the ADBDMTI EXEC

- VUU026/_____ >Library that contains DB2 Admin commands tables
- VUU027/_____ >Library that contains the ADBDMTI EXEC
- VZM009/_____ >List of system codes for which no dump is produced

Parameters location

The table below lists all the parameters used by Db2 HPU and for each parameters, provides the name of the Tools Customizer's panel and the name of the Section in the panel where the parameter is located. The rank column displays the rank of the parameter within the panel described as n/N which mean the parameter is the n th parameter starting from the top of the panel that contains a total of N parameters.

Key	Short name	Parameter label	Panel	Section	Rank
N/A	N/A	DB2 subsystem ID	Db2 parameters	(header)	1/22
N/A	N/A	Exit library	Db2 parameters	DB2 Libraries - common	8/22
N/A	N/A	Group attach name	Db2parameters	(header)	2/22
N/A	N/A	Level number	Db2 parameters	General Db2 Information - common	4/22
N/A	N/A	Load library	Db2 parameters	DB2 Libraries - common	6/22
N/A	N/A	Mixed mode	Db2 parameters	General Db2 Information - common	5/22
N/A	N/A	Mode	Db2 parameters	General Db2 Information - common	3/22
N/A	N/A	Plan name for the DSNTIAD utility	Db2 parameters	Utilities - Common	10/22
N/A	N/A	Run library	Db2 parameters	DB2 Libraries - common7/22	7/22
N/A	N/A	SYSAFF for DB2 utilities	Db2 parameters	Utilities - Common	9/22
N/A	N/A	Unit name for batch work data sets	LPAR parameters	Other parameters - Common	1/39
VIZ003	SINZLOAD	Load modules library	LPAR parameters	HPU Library Dsnames	2/39
VIZ004	SINZLINK	APF load modules library	LPAR parameters	HPU Library Dsnames	3/39
VIZ006	SINZSAMP	Samples library	LPAR parameters	HPU Library Dsnames	4/39
VIZ007	SINZPARM	PARMLIB library	LPAR parameters	HPU Library Dsnames	5/39

Key	Short name	Parameter label	Panel	Section	Rank
VIZ012	SINZDBRM	Product's DBRM library	LPAR parameters	HPU Library Dsnames	6/39
VIZ013	SINZLLIB	ISPF load modules library	LPAR parameters	HPU Library Dsnames	8/39
VIZ014	SINZCLST	REXX EXEC library	LPAR parameters	HPU Library Dsnames	7/39
VIZ015	SINZMLIB	ISPF messages library	LPAR parameters	HPU Library Dsnames	9/39
VIZ016	SINZPANL	ISPF panels library	LPAR parameters	HPU Library Dsnames	10/39
VIZ017	SINZSLIB	ISPF skeletons library	LPAR parameters	HPU Library Dsnames	11/39
VIZ018	SINZTLIB	ISPF tables library	LPAR parameters	HPU Library Dsnames	12/39
VUA007	WRKTUNIT	Tape unit where the work data sets must be allocated	LPAR parameters	HPU File Management parameters	19/39
VUM011	PLANOBJT	Application plan for Db2 HPU	Product parameters	Common parameters	1/141
VUM012	PLANOWN	Owner of the plan created for Db2 HPU	Db2 parameters	Db2 HPU DB2 parameters	11/22
VUM018	WRKVOL	Volumes for allocation of temporary data sets	LPAR parameters	HPU File Management parameters	18/39
VUM022	QSBUFNO	BUFNO for sequential QSAM	Product parameters	Common parameters	4/141
VUM023	VSBUFND	BUFND for sequential VSAM	Product parameters	Common parameters	5/141
VUM028	DISPLUSR	User who runs the DISPLAY command	Db2 parameters	Db2 HPU DB2 parameters	19/22
VUM029	DFSIGDCB	Override DCB DB2, HPU parameters	Product parameters	Common parameters	6/141
VUM029	DFSIGDCB	Override DCB, FAST UNLOAD syntax	Product parameters	Common parameters	8/141
VUM029	DFSIGDCB	Override DCB, UNLOAD PLUS syntax	Product parameters	Common parameters	7/141

Key	Short name	Parameter label	Panel	Section	Rank
VUM030	COLLOBJT	Package collection for Db2 HPU	Product parameters	Common parameters	2/141
VUM031	QUITSUSR	User who execute DB2 processes on the table space	Db2 parameters	Db2 HPU DB2 parameters	13/22
VUM032	ACTLGUSR	User who issues SELECT by using dynamic SQL	Db2 parameters	Db2 HPU DB2 parameters	14/22
VUM033	OPTRGPRT	Partition range filter optimization	Db2 parameters	Db2 HPU DB2 parameters	15/22
VUM034	EXPLNTB	DELETE or KEEP rows inserted in EXPLAIN tables	Db2 parameters	Db2 HPU DB2 parameters	16/22
VUM035	EXPLNUSR	User who issues EXPLAIN PLAN statements	Db2 parameters	DB2 HPU DB2 parameters	17/22
VUM036	APPLCOMP	Specifies the compatibility level for SQL	Db2 parameters	Db2 HPU DB2 parameters	18/22
VUM037	CRYPTUSR	User who reads encrypted VSAM data set	Db2 parameters	Db2 HPU DB2 parameters	19/22
VUU011	ULSEDB2	Use DB2 to process unsupported SELECT statements	Product parameters	Common parameters	9/141
VUU012	ULLOCK	Lock the tables in the table space	Product parameters	Common parameters	10/141
VUU013	ULQSCE	Quiesce the table space	Product parameters	Common parameters	12/141
VUU014	ULNULL	NULL indicator, format DSNTIAUL	Product parameters	Common parameters	14/141
VUU014	ULNULL	NULL indicator, format EXTERNAL	Product parameters	Common parameters	16/141
VUU014	ULNULL	NULL indicator, format USER	Product parameters	Common parameters	13/141
VUU014	ULNULL	NULL indicator, format VARIABLE	Product parameters	Common parameters	15/141

Key	Short name	Parameter label	Panel	Section	Rank
VUU015	ULDATE	DATE, format DELIMITED	Product parameters	Common parameters	19/141
VUU015	ULDATE	DATE, format DSNTIAUL	Product parameters	Common parameters	18/141
VUU015	ULDATE	DATE, format EXTERNAL	Product parameters	Common parameters	21/141
VUU015	ULDATE	DATE, format USER	Product parameters	Common parameters	17/141
VUU015	ULDATE	DATE, format VARIABLE	Product parameters	Common parameters	20/141
VUU016	ULTIME	TIME, format DELIMITED	Product parameters	Common parameters	24/141
VUU016	ULTIME	TIME, format DSNTIAUL	Product parameters	Common parameters	23/141
VUU016	ULTIME	TIME, format USER	Product parameters	Common parameters	22/141
VUU016	ULTIME	TIME, format EXTERNAL	Product parameters	Common parameters	26/141
VUU016	ULTIME	TIME, format VARIABLE	Product parameters	Common parameters	25/141
VUU017	ULTMSTP	TIMESTAMP, format DELIMITED	Product parameters	Common parameters	29/141
VUU017	ULTMSTP	TIMESTAMP, format DSNTIAUL	Product parameters	Common parameters	28/141
VUU017	ULTMSTP	TIMESTAMP, format EXTERNAL	Product parameters	Common parameters	31/141
VUU017	ULTMSTP	TIMESTAMP, format USER	Product parameters	Common parameters	27/141
VUU017	ULTMSTP	TIMESTAMP, format VARIABLE	Product parameters	Common parameters	30/141
VUU018	ULPIC	Decimal picture, format DSNTIAUL	Product parameters	Common parameters	33/141
VUU018	ULPIC	Decimal picture, format USER	Product parameters	Common parameters	32/141
VUU018	ULPIC	Decimal picture, format DELIMITED	Product parameters	Common parameters	34/141
VUU018	ULPIC	Decimal picture, format EXTERNAL	Product parameters	Common parameters	36/141

Key	Short name	Parameter label	Panel	Section	Rank
VUU018	ULPIC	Decimal picture, format VARIABLE	Product parameters	Common parameters	35/141
VUU019	ULOPTLDT	Options for global LOAD statement	Product parameters	Common parameters	37/141
VUU020	ULOPTLDP	Options of partition LOAD statement	Product parameters	Common parameters	38/141
VUU021	ULDEGREE	Degree of parallel processing	Product parameters	Common parameters	49/141
VUU022	NULLPOS	Position for NULL indicator, format DSNTIAU	Product parameters	Common parameters	51/141
VUU022	NULLPOS	Position for NULL indicator, format EXTERNAL	Product parameters	Common parameters	53/141
VUU022	NULLPOS	Position for NULL indicator, format USER	Product parameters	Common parameters	50/141
VUU022	NULLPOS	Position for NULL indicator, format USER	Product parameters	Common parameters	52/141
VUU023	UNLSCHEM	Default scheme for UNLOAD TABLESPACE	Product parameters	Common parameters	58/141
VUU024	UNLZLRC	Return code if an object is missing	Product parameters	Common parameters	60/141
VUU024	UNLZLRC	Return code if no object is returned by LISTDEF	Product parameters	Common parameters	61/141
VUU024	UNLZLRC	Return code if zero row is unloaded	Product parameters	Common parameters	59/141
VUU024	UNLZLRC	MAXRC alteration return code	Product parameters	Common parameters	63/141
VUU024	UNLZLRC	Return code if SELECT statement retrieves no row	Product parameters	Common parameters	62/141
VUU025	-----	High-level qualifier for the DB2 Admin data sets	Product parameters	Common parameters	137/141

Key	Short name	Parameter label	Panel	Section	Rank
VUU026	-----	Library that contains DB2 Admin commands tables	Product parameters	Common parameters	139/141
VUU027	-----	Library that contains the ADBDMTI EXEC	Product parameters	Common parameters	138/141
VUU027	-----	Library that contains the ADBDMTI EXEC	Product parameters	Common parameters	140/141
VUU028	ULQSCEBH	Quiesce process	Product parameters	Common parameters	64/141
VUU029	UNLDDDN	Use the same DDN for UNLDDN, OUTDDN, and LOADDDN	Product parameters	Common parameters	65/141
VUU030	ULOPTNS	Db2 HPU additional features	Product parameters	Common parameters	66/141
VUU031	DTDELIM	DATE/TIME delimiter option	Product parameters	Common parameters	64/141
VUU032	ULMASK	Display format for numeric values, format DSNTIAUL	Product parameters	Common parameters	69/141
VUU032	ULMASK	Display format for numeric values, format USER	Product parameters	Common parameters	68/141
VUU032	ULMASK	Display format for numeric values, format DELIMITED	Product parameters	Common parameters	70/141
VUU032	ULMASK	Display format for numeric values, format EXTERNAL	Product parameters	Common parameters	72/141
VUU032	ULMASK	Display format for numeric values, format VARIABLE	Product parameters	Common parameters	71/141
VUU033	ULCHKCPY	Check image copy before unloading	Product parameters	Common parameters	73/141

Key	Short name	Parameter label	Panel	Section	Rank
VUU034	ULLIKE	Option to modify the like behavior in SQL statement	Product parameters	Common parameters	82/141
VUU035	ULROWSET	Number of rows retrieved by an SQL FETCH function	Product parameters	Common parameters	83/141
VUU036	GBLPARAL	Enforce partition parall. unloading into a single file	Product parameters	Common parameters	84/141
VUU037	ULSIGZ	Sign values for zoned-decimal numeric values	Product parameters	Common parameters	85/141
VUU038	ULSIGDTP	Positive sign for date-time packed values	Product parameters	Common parameters	86/141
VUU039	UNLLDER	Db2 HPU response when a LOADDDN cannot be generated	Product parameters	Common parameters	87/141
VUU040	ULTR32K	Truncate variable records exceeding 32756	Product parameters	Common parameters	88/141
VUU041	ULOCSIZE	Size of the buffer used to retrieve LOB data	Product parameters	Common parameters	32/39
VUU042	ULHIDDEN	Unload HIDDEN Column by select *	Product parameters	Common parameters	89/141
VUU043	DTNULDLM	NULL DATE/TIME delimiter option	Product parameters	Common parameters	90/141
VUU044	SUBTKSOF	Support parallelism for unloading several partitions	Product parameters	Common parameters	91/141
VUU045	ULFORMAT	Default output format for a logical unload	Product parameters	Common parameters	92/141
VUU046	ULAUTAG	Size of the autotag in the output file	Product parameters	Common parameters	93/141
VUU047	RETRYMOD	Wait/retry function when resources are unavailable	Product parameters	Common parameters	94/141

Key	Short name	Parameter label	Panel	Section	Rank
VUU048	RETRYW	Wait time between tries to access unavailable resource	Product parameters	Common parameters	95/141
VUU049	RETRYNB	Number of retries when resources are unavailable	Product parameters	Common parameters	96/141
VUU050	ULFRQMSG	Additional parameter for information messages	Product parameters	Common parameters	98/141
VUU050	ULFRQMSG	Frequency to display information messages	Product parameters	Common parameters	97/141
VUU051	PROCMSG	The location where Db2 HPU writes information messages	Product parameters	Common parameters	99/141
VUU052	SELMSG	Location of messages issued for each SELECT statement	Product parameters	Common parameters	100/141
VUU053	OBIDRPT	Generate a list of all OBIDs in the FIC	Product parameters	Common parameters	101/141
VUU055	DATEDEL	Delimiter for external date, format DELIMITED	Product parameters	Common parameters	104/141
VUU055	DATEDEL	Delimiter for external date, format DSNTIAUL	Product parameters	Common parameters	103/141
VUU055	DATEDEL	Delimiter for external date, format EXTERNAL	Product parameters	Common parameters	106/141
VUU055	DATEDEL	Delimiter for external date, format USER	Product parameters	Common parameters	102/141
VUU055	DATEDEL	Delimiter for external date, format VARIABLE	Product parameters	Common parameters	105/141

Key	Short name	Parameter label	Panel	Section	Rank
VUU056	TIMEDEL	Delimiter in external time, format DSNTIAUL	Product parameters	Common parameters	108/141
VUU056	TIMEDEL	Delimiter in external time, format USER	Product parameters	Common parameters	107/141
VUU056	TIMEDEL	Delimiter in external time, format DELIMITED	Product parameters	Common parameters	109/141
VUU056	TIMEDEL	Delimiter in external time, format EXTERNAL	Product parameters	Common parameters	111/141
VUU056	TIMEDEL	Delimiter in external time, format VARIABLE	Product parameters	Common parameters	110/141
VUU057	OPALLFMT	Options apply to all formats	Product parameters	Common parameters	112/141
VUU058	ULIDENT	LOAD technique for identity column	Product parameters	Common parameters	113/141
VUU059	ULTRIM	Trim the trailing blanks, format DELIMITED	Product parameters	Common parameters	118/141
VUU059	ULTRIM	Trim the trailing blanks, format DSNTIAUL	Product parameters	Common parameters	117/141
VUU059	ULTRIM	Trim the trailing blanks, format EXTERNAL	Product parameters	Common parameters	120/141
VUU059	ULTRIM	Trim the trailing blanks, format VARIABLE	Product parameters	Common parameters	119/141
VUU059	ULTRIM	Trim the trailing blanks, format USER	Product parameters	Common parameters	116/141
VUU060	ULMAXPAR	Maximum number of partitions processed in one unload	Product parameters	Common parameters	121/141
VUU061	ACCPREP	Concurrent access resolution for prepared statement	Product parameters	Common parameters	122/141

Key	Short name	Parameter label	Panel	Section	Rank
VUU062	ULACCTRL	Unload controlled access table in native mode	Db2 parameters	Db2 HPU DB2 parameters	20/22
VUU063	ULOPTLX	Technical parameter to unload XML columns	Product parameters	Common parameters	123/141
VUU064	STRNGCST	String constant is unloaded as CHAR/VARCHAR data types	Product parameters	Common parameters	124/141
VUU065	ULRTTST	LOAD technique for ROW-TRANSACTION-TIMESTAMP column	Product parameters	Common parameters	114/141
VUU066	ULRTSID	LOAD technique for ROW-TRANSACTION-START-ID col	Product parameters	Common parameters	115/141
VUU067	ULCNVTRC	Option to specify conversion truncation policy	Product parameters	Common parameters	125/141
VUU068	ULUNIEXP	Expansion ratio for conversion to UTF8 CCSID	Product parameters	Common parameters	126/141
VUU069	SQLSWIRC	Return code when the utility has switched to sql mode	Product parameters	Common parameters	127/141
VUU070	ULOPTLDB	Options of table LOAD statement	Product parameters	Common parameters	39/141
VUU071	LOSSCHAR	Manage character loss, Db2 HPU parameters	Product parameters	Common parameters	40/141
VUU071	LOSSCHAR	Manage character loss, FAST UNLOAD syntax	Product parameters	Common parameters	42/141
VUU071	LOSSCHAR	Manage character loss, UNLOAD PLUS syntax	Product parameters	Common parameters	41/141
VUU072	LOSSNUM	Manage numeric loss, Db2 HPU parameters	Product parameters	Common parameters	43/141

Key	Short name	Parameter label	Panel	Section	Rank
VUU072	LOSSNUM	Manage numeric loss, FAST UNLOAD syntax	Product parameters	Common parameters	45/141
VUU072	LOSSNUM	Manage numeric loss, UNLOAD PLUS syntax	Product parameters	Common parameters	44/141
VUU073	MAXERR	Error message limit, Db2 HPU parameters	Product parameters	Common parameters	46/141
VUU073	MAXERR	Error message limit, FAST UNLOAD syntax	Product parameters	Common parameters	48/141
VUU073	MAXERR	Errormessage limit, UNLOAD PLUS syntax	Product parameters	Common parameters	47/141
VUU074	ULLOCKTE	Specify the technique used to lock the unloaded object	Product parameters	Common parameters	11/141
VUU075	NULLPAD	Fill NULL with padding character, format DSNTIAUL	Product parameters	Common parameters	55/141
VUU075	NULLPAD	Fill NULL with padding character, format EXTERNAL	Product parameters	Common parameters	57/141
VUU075	NULLPAD	Fill NULL with padding character, format USER	Product parameters	Common parameters	54/141
VUU075	NULLPAD	Fill NULL with padding character, format VARIABLE	Product parameters	Common parameters	56/141
VUU076	ULICTYPE	Image copies selected for a partitioned table space	Product parameters	Common parameters	74/141
VUU077	ULCENT	Year to set the century for DECIMAL to DATE conversion	Product parameters	Common parameters	75/141
VUU078	ULNULLFL	Output field for NULL values in DELIMITED format	Product parameters	Common parameters	76/141

Key	Short name	Parameter label	Panel	Section	Rank
VUU079	EXITHLL	Management of exit written in C or COBOL.	Product parameters	Common parameters	3/141
VUU080	MXOPNLLD	Number of simultaneously opened LOB LDS	LPAR parameters	Db2 HPU Tuning Parameters	36/39
VUU081	UNLLDTBB	LISTDEF behaviour for table selection	Product parameters	Common parameters	77/141
VUU082	ULRLDRC	Action if fully compliant LOADDDN cannot be generated	Product parameters	Common parameters	78/141
VUU083	DISPPARM	Request the display of implicit parameters	Product parameters	Common parameters	79/141
VUU084	ULLOBBHV	Processing when LOB/XML not retrieved	Product parameters	Common parameters	80/141
VUU085	ULLOBBHM	Maximum number of issued messages for LOB/XML errors	Product parameters	Common parameters	81/141
VUX003	SIZE	Default size of the input file or object for Db2 HPU	Product parameters	Common parameters	128/141
VUX004	LOWMEM	Minimum memory size for each sort process	LPAR parameters	Db2 HPU Tuning Parameters	24/39
VUX005	MAXSORT	Maximum number of active sorts processes	LPAR parameters	HPU Sort parameters	37/39
VUX006	WRKSPACE	Allocation distribution for the sort input file	LPAR parameters	HPU Sort parameters	38/39
VUX007	WAITUNIT	Waitunit in seconds/100	LPAR parameters	Db2 HPU Tuning Parameters	25/39
VUX008	WAITQTY	Number of wait periods before issuing a WTOR	LPAR parameters	Db2 HPU Tuning Parameters	26/39
VUX009	WAITQTYM	Wait time for the WTOR reply	LPAR parameters	Db2 HPU Tuning Parameters	27/39

Key	Short name	Parameter label	Panel	Section	Rank
VUX010	LIMUNIT	Maximum number of disk units to allocate a work file	LPAR parameters	HPU File Management parameters	15/39
VUX011	-----	Grant on the plan created for Db2 HPU	Db2 parameters	Db2 HPU DB2 parameters	12/22
VUX016	WRKUNTSW	Maximum size for work data set on DASD	LPAR parameters	HPU File Management parameters	20/39
VUX017	MAXTUNIT	Maximum number of unit for tape temporary data set	LPAR parameters	HPU File Management parameters	21/39
VUX018	LDSERRLM	Maximum number of messages for row structure errors	Product parameters	Common parameters	129/141
VUX019	WRKMXPR	Maximum size for primary allocation of a work data set	LPAR parameters	HPU File Management parameters	16/39
VUX023	PGDFIN	Percentage of displaced pages in inline FIC	Product parameters	Common parameters	130/141
VUX025	PARALLEL	Maximum degree of parallelism for LDS reading	LPAR parameters	Db2 HPU Tuning Parameters	28/39
VUX030	UTLPARAL	Maximum degree of parallelism for unload tasks	LPAR parameters	Db2 HPU Tuning Parameters	29/39
VUX031	DB2PARAL	Maximum degree of parallelism for SELECT	Product parameters	Common parameters	131/141
VUX032	WRKTVCNT	Number of volumes for temporary data set on tape	LPAR parameters	HPU File Management parameters	22/39
VUX033	TMPDSCB	DSCB model for allocation of GDS	LPAR parameters	HPU File Management parameters	17/39
VUX036	RTSESTIM	Use real-time statistics tables for size estimation	Product parameters	Common parameters	132/141

Key	Short name	Parameter label	Panel	Section	Rank
VUX037	SORTUTIL	Sort program that Db2 HPU uses to sort data	LPAR parameters	HPU Sort parameters	39/39
VUX038	CHECKINT	Level of data integrity control of input data	Product parameters	Common parameters	133/141
VUX039	ZIIP	zIIPusage	LPAR parameters	Db2 HPU Tuning Parameters	33/39
VUX040	UBUFSIZE	Size of work areas buffers	LPAR parameters	Db2 HPU Tuning Parameters	30/39
VUX041	UBUFNO	Number of buffers of work areas	LPAR parameters	Db2 HPU Tuning Parameters	31/39
VUX042	ZIIPMXPL	Maximum parallelism on zIIP for LDS	LPAR parameters	Db2 HPU Tuning Parameters	34/39
VUX043	ZIIPMXPU	Maximum parallelism on zIIP for unload tasks	LPAR parameters	Db2 HPU Tuning Parameters	35/39
VUX044	CLIPLAN	Db2 Plan name of the CLI	Db2 parameters	Db2 HPU DB2 parameters	21/22
VZM005	INFVSMIG	Volume name of migrated objects	LPAR parameters	HPU File Management parameters	13/39
VZM006	SCUNMOD	Unicode Conversion Services load library	LPAR parameters	HPU File Management parameters	23/39
VZM007	SCUNTSO	Unicode Conversion Services technique search order	Product parameters	Common parameters	134/141
VZM008	SCUNSUB	Unicode Conversion Services character substitution	Product parameters	Common parameters	135/141
VZM009	-----	List of system codes for which no dump is produced	Product parameters	Common parameters	141/141

Key	Short name	Parameter label	Panel	Section	Rank
VZM010	TAPEUNIT	Numbers of devices for tape unit/storage class	LPAR parameters	HPU File Management parameters	14/39
VZM011	TAPERPT	Generate a tape usage report in SYSPRINT	Product parameters	Common parameters	136/141

To locate and access a specific Db2 HPU parameter in Tools Customizer's panels, search the key of the parameter in the "key" column of the table and access the Tools Customizer's panel indicated in the "Panel" column. Browse this panel until you reach the section indicated by the "Section" column. Browse the section till you find the searched parameter. The value in the "Rank in the panel" column helps you figure out how much to browse. The "key/shortname" value on the right side of the panel helps you check you have reached the searched location/parameters.

INZDB21X member

Use the INZDB21X member to integrate Db2 HPU with Db2 Administration Tool.

The following example shows the INZDB21X member. It is not customized.

```

/*-----*/
/*
/* Member : INZDB21X
/*
/*-----*/
/*
* 5655-HP5
* (c) Copyright Infotel 1996, 2023 All Rights Reserved.
/*-----*/
/*
/* This member describes the instructions to apply in order to
/* integrate DB2 HPU into the DB2 Administration Tool.
/*
/*-----*/
/*
/* INSTRUCTIONS :
/* HPU installation :Please read all the procedure before beginning.
/*
/*-----*/
/* 1) FIRST PART : make a backup
/*-----*/
/* a) Please back up the following db2 rexx procedures before
/* beginning any modification :
/*
* - &VUU027(ADB21S)
* - &VUU027(ADB21T)
/*
/*
/* INSTRUCTIONS :
/* HPU installation :Please read all the procedure before beginning.
/*
/*-----*/
/* 1) FIRST PART : make a backup
/*-----*/
/* a) Please back up the following db2 rexx procedures before
/* beginning any modification :
/*
* - &VUU027(ADB21S)
* - &VUU027(ADB21T)
/*
ADDRESS ISPEXEC "LIBDEF ISPTABL DATASET" ,
"ID('&VUU026')" ,
"STACK"
ADDRESS ISPEXEC "LIBDEF ISPTLIB DATASET" ,

```

```

        "ID('&VUU026')",
        "STACK"
    **/
/* If you do so, the two following lines must be added at the end of */
/* the rexx procedures before the exit command                        */
/*                                                                     */
ADDRESS ISPEXEC "LIBDEF ISPTABL DATASET"
ADDRESS ISPEXEC "LIBDEF ISPTLIB DATASET"
    **/
/*-----*/
/* 2) SECOND PART : update the ADB21S table.                          */
/* ( Command lines table for the DB2ADMIN tablespace panel )         */
/*-----*/
/* Look for HPU in the file                                           */
/*
    &VUU027(ADB21S)

/* If it is not in, then, after backing up this file, insert the */
/* following lines.                                               */
/* These lines should be added before the TBSORT and TBCLOSE      */
/* command, near the end of the file. Be careful not to insert    */
/* these lines before the TBADD statement of another command.     */
/*
ACMD=''
PAN=''
SQL=''
CMD='HPU'
DESCRIP='Additional command - High Performance Unload'
ISPF='SELECT CMD(INZHPU D TS &&DB2N &&DBNAME &&NAME)' "TBADD" table
    **/
/*-----*/
/* 3) THIRD PART : update the ADB21T table                          */
/* ( Command lines table for the DB2ADMIN table panel )           */
/*-----*/
/* Look for HPU in the file                                           */
/*
    &VUU027(ADB21T)

/* If it is not in, then, after backing up this file, insert the */
/* following lines.                                               */
/* These lines should be added before the TBSORT and TBCLOSE      */
/* command, near the end of the file. Be careful not to insert    */
/* these lines before the TBADD statement of another command.     */
/*
ACMD=''
PAN=''
SQL=''
CMD='HPU'
DESCRIP='Additional command - High Performance Unload'
ISPF='SELECT CMD(INZHPU D TB &&DB2N &&DBNAME &&TSNAME &&CREATOR &&NAME)'
"TBADD" table
    **/
/* If APAR PK15597 is applied, replace the above                  */
/* "TBADD" table' statement with the following 4 statements:       */
/*
"TBADD" tableT
"TBADD" tableG
"TBADD" tableM
"TBADD" tableV
    **/
/*-----*/
/* 4) LAST PART : execute the updated rexx procedures              */
/*-----*/
/* This modifications will be taken into account only if the rexx */
/* procedures, ADB21S and ADB21T, are executed.                    */
/*
/*-----*/

```

This example contains the following variables:

&VUU026

The library that contains the Db2 Admin Tool commands tables, such as DBTOOL.SADBTLIB.

&VUU027

The library that contains the ADBDMTI EXEC, such as DBTOOL.SADBEXEC.

Related tasks

Optional: [Integrating Db2 HPU into Db2 Administration Tool](#)

Optionally, you can integrate Db2 HPU into Db2 Administration Tool (Db2 Admin). Tools Customizer will create the necessary JCL, but you must manually complete some steps after you submit the customization job.

Data types for output (TYPE keyword)

The TYPE keyword of the SELECT statement (OPTION block for FORMAT USER) is used to create several types of data in the output. These types are declared in the keyword TYPE. The use of this keyword implies that data is to be converted from the original column type to the type that is declared in the TYPE keyword.

The output data types that are allowed are described in the following topics:

- [“Numeric data” on page 678](#)
- [“Nonnumeric data” on page 679](#)
- [“DATE, TIME, and TIMESTAMP data” on page 679](#)
- [“Supported conversions” on page 682](#)

Numeric data

The numeric data type declared in the TYPE keyword is used to specify the output numeric data type.

You can use the following formats to code numeric data:

INTEGER or INT

Whole numbers in a binary word of 31 bits plus the sign.

SMALLINT

Whole numbers in a binary halfword of 15 bits plus the sign.

DECIMAL(*n,m*) or DEC(*n,m*)

Standard decimal value that is contained in ($n/2+1$) bytes. The default value is DECIMAL or DEC and is equivalent to DECIMAL (5,0).

DECIMAL ZONED(*len,scale*)DECIMAL ZONED(*len*)DECIMAL ZONED

The format of a zoned number is $znznzn\dots z/sn$, where n denotes a 4-bit decimal digit (called the numeric bits); z is the digit's zone (the left four bits of a byte); s is the right-most operand that can be a zone (z) or a sign value (hexadecimal A, C, E, or F for a positive number, and hexadecimal B or D for a negative number).

len

Specifies the number bytes (decimal digits) in the output field. The length must be 1 - 31. If the source data type is DECIMAL and the length parameter is omitted, the default length is determined by the column attribute that is defined in the table. Otherwise, the default length is 31 bytes.

scale

Specifies the number of digits to the right of the decimal point (a decimal point is not included in the output field in this case). There must be an integer that is greater than or equal to zero and must be less than or equal to the length. The default depends on the column attributes that are defined in the table. If the source data type is DECIMAL, the defined scale value is taken as the default value; otherwise, the default is 0.

An error occurs if the output field size that is specified is less than the data length. If the size of the output field is less than the data length, 'X'F0' is padded on the left.

FLOAT(*n*)

Number (*n*) is simple floating point precision if ($0 < n < 22$) in a fullword. Number is double floating point precision if ($21 < n < 54$).

The default type for FLOAT is double precision.

Nonnumeric data

The nonnumeric data type declared in the TYPE keyword is used to specify the output nonnumeric data type.

You can use the following formats to code nonnumeric data:

CHARACTER(*n*) or CHAR(*n*)

Character string of length *n* ($0 < n < 255$) bytes.

VARCHAR(*n*)

A two-byte length field that is followed by *n* characters. The size equals $n+2$ bytes. The Db2 type LONG VARCHAR is not used in a sequential data set.

GRAPHIC(*n*)

Graphic character string that is coded on $2n$ bytes. One character equals 2 bytes.

VARGRAPHIC(*n*)

Variable-length graphic character string that is coded on $2n+2$ bytes. The Db2 type LONG VARGRAPHIC is not used in a sequential data set.

DATE, TIME, and TIMESTAMP data

The DATE, TIME, and TIMESTAMP data types that are declared in the TYPE keyword are used to specify the output data types.

DATE format types

Use the DATE format type to specify the output data format.

The formats, data types, and default length for DATE are shown in the following table:

Table 48. DATE format types

Format	Output data	Data type	Default length (bytes)
DATE_A	MM-DD-YYYY	Character	10
DATE_B	MM-DD-YY	Character	8
DATE_C	YYYY-MM-DD	Character	10
DATE_D	YY-MM-DD	Character	8
DATE_E	DD-MM-YYYY	Character	10
DATE_F	DD-MM-YY	Character	8
DATE_G	YYYY-DDD	Character	8
DATE_H	YY-DDD	Character	6
DATE_I	MMDDYYYY	Character	8
DATE_J	MMDDYY	Character	6
DATE_K	YYYYMMDD	Character	8
DATE_L	YYMMDD	Character	6
DATE_M	DDMMYYYY	Character	8

Table 48. DATE format types (continued)

Format	Output data	Data type	Default length (bytes)
DATE_N	DDMMYY	Character	6
DATE_O	YYYYDDD	Character	7
DATE_P	YYDDD	Character	5
DATE_Q	YYDDMM	Zoned decimal	6
DATE_R	YYYYDDMM	Zoned decimal	8
DATE_0	YYYYMMDD	Packed decimal	5
DATE_1	MMDDYY	Packed decimal	4
DATE_2	DDMMYY	Packed decimal	4
DATE_3	YYMMDD	Packed decimal	4
DATE_4	YYDDMM	Packed decimal	4
DATE_5	MMDDYYYY	Packed decimal	5
DATE_6	DDMMYYYY	Packed decimal	5
DATE_7	YYYYDDMM	Packed decimal	5
DATE_DB2	Date format of the site	Character	10 or the length of the LOCAL date format

By default, Db2 HPU uses the hyphen character (-) or content of the PARMLIB variable VUU055/DATEDEL as a delimiter. To change this delimiter, code DATEDELIM 'd', where *d* is the new delimiter, in the OPTIONS block.

Related reference

[OPTIONS block syntax and description](#)

Use the OPTIONS block to specify the default conversions that are with the SELECT statements. This block can be used in the GLOBAL block, the UNLOAD block, and the SELECT block.

[Db2 HPU output data parameters](#)

The Db2 HPU output data parameters section on the Product Parameters panel (CCQPPRD) in Tools Customizer contains the parameters for configuring output data.

TIME format types

Use the TIME format type to specify the output data format.

The formats, data types, and default length for TIME are shown in the following table:

Table 49. TIME format types

Format	Output data	Data type	Default length (bytes)
TIME_A	HH.MM.SS	Character	8
TIME_B	HH.MM	Character	5
TIME_C	HH.MM AM	Character	8
TIME_D	HHMMSS	Character	6
TIME_E	HHMM	Character	4
TIME_0	HHMMSS	Packed decimal	4

Table 49. TIME format types (continued)

Format	Output data	Data type	Default length (bytes)
TIME_DB2	Time format of the site	Character	8 or the length of the LOCAL time format

By default, Db2 HPU uses the '!' delimiter character or content of PARMLIB variable VUU056/TIMEDEL. To change the delimiter, code TIMEDELIM 'd', where *d* is the new delimiter, in the OPTIONS block.

Related tasks

Selecting time formats

The **Type Values - TIME** panel is used to select a time format.

Related reference

[OPTIONS block syntax and description](#)

Use the OPTIONS block to specify the default conversions that are with the SELECT statements. This block can be used in the GLOBAL block, the UNLOAD block, and the SELECT block.

[Db2 HPU output data parameters](#)

The Db2 HPU output data parameters section on the Product Parameters panel (CCQPPRD) in Tools Customizer contains the parameters for configuring output data.

TIMESTAMP format types

Use the TIMESTAMP format type to specify the output data format.

The formats, data types, and default length for TIMESTAMP are shown in the following table:

Table 50. TIMESTAMP format types

Format	Output data	Data type	Default length (bytes)
TIMESTAMP_A	YYYY-MM-DD-HH.MM.SS	Character	19
TIMESTAMP_B	YYYY-MM-DD-HH.MM.SS.NNN...NNN	Character	19 - 31 ¹
TIMESTAMP_C	YYYYMMDDHHMMSS	Character	14
TIMESTAMP_D	YYMMDDHHMMSS	Character	12
TIMESTAMP_E	YYYYMMDDHHMMSSNNN...NNN	Character	14 - 26 ¹
TIMESTAMP_F	YYMMDDHHMMSSNNN...NNN	Character	12 - 24 ¹
TIMESTAMP_G	YYYY-MM-DD HH:MM:SS.NNN	Character	23
TIMESTAMP_O	YYYYMMDDHHMMSSNNN...NNN	Packed decimal	8 - 14 ¹

Note:

1. The default length depends on the precision of the input data type.

Related tasks

Selecting timestamp formats

The **Type Values - TIMESTAMP** panel is used to select a timestamp format.

Related reference

[OPTIONS block syntax and description](#)

Use the OPTIONS block to specify the default conversions that are with the SELECT statements. This block can be used in the GLOBAL block, the UNLOAD block, and the SELECT block.

[Db2 HPU output data parameters](#)

The Db2 HPU output data parameters section on the Product Parameters panel (CCQPPRD) in Tools Customizer contains the parameters for configuring output data.

Supported conversions

Db2 HPU supports conversions to specific output data types.

The following table shows all the supported conversions for Db2 data types and Db2 HPU data types. Conversions that are not contained in this table are not supported by Db2 HPU.

Table 51. Supported conversions

Db2 data type	Output data types
INTEGER	SMALLINT, DECIMAL, FLOAT, CHAR
SMALLINT	INTEGER, DECIMAL, FLOAT, CHAR
DECIMAL(<i>m,n</i>)	SMALLINT, INTEGER, CHAR, DECIMAL(<i>p,q</i>), FLOAT
FLOAT	SMALLINT, INTEGER, CHAR, DECIMAL, FLOAT
CHAR(<i>n</i>)	CHAR(<i>m</i>), VARCHAR(<i>m</i>)
VARCHAR(<i>n</i>)	CHAR(<i>m</i>), VARCHAR(<i>m</i>)
LONG VARCHAR(<i>n</i>)	CHAR(<i>m</i>), VARCHAR(<i>m</i>)
GRAPHIC(<i>n</i>)	GRAPHIC(<i>m</i>), VARGRAPHIC(<i>m</i>), CHAR(<i>m</i>)
VARGRAPHIC(<i>n</i>)	GRAPHIC(<i>m</i>), VARGRAPHIC(<i>m</i>)
LONG VARGRAPHIC(<i>n</i>)	GRAPHIC(<i>m</i>), VARGRAPHIC(<i>m</i>)

Compatibility with other unload tools

Considerations about replacing unload tools by Db2 HPU

The numerous features offered by Db2 HPU cover most of the features from the following unload tools:

Topics:

- [“Considerations about replacing unload tools by Db2 HPU” on page 682](#)
- [“Exploiting the syntax compatibility” on page 683](#)
 - [Fast Unload syntax compatibility](#)
 - [“UNLOAD PLUS syntax compatibility” on page 690](#)
 - [“Db2 unload syntax compatibility” on page 696](#)
- [“Exploiting the feature compatibility” on page 697](#)
 - [“Fast Unload syntax options equivalence” on page 698](#) [“UNLOAD PLUS syntax options equivalence” on page 699](#)
 - [“Db2 Unload syntax options equivalence” on page 701](#)

Considerations about replacing unload tools by Db2 HPU

The numerous features offered by Db2 HPU cover most of the features from the following unload tools:

- Fast Unload
- UNLOAD PLUS
- Db2 Unload utility

Db2 HPU also provides limited support of the syntaxes of these tools. Therefore, there are two ways to replace these tools by Db2 HPU:

- a short-term replacement that consists in making sure the former tool entry point is rerouted to the Db2 HPU relevant entry point, thus allowing to keep the legacy unload JCL unchanged
- a long-term replacement that consists in converting the JCL involving the former tool by steps using the Db2 HPU native syntax

The short-term replacement minimizes the workload to move from the alternate unload tool to Db2 HPU but it does not allow to update or maintain the legacy JCL to take benefit from the Db2 HPU specific features which the heavier workload long term way does.

Exploiting the syntax compatibility

Fast Unload syntax compatibility

Db2 HPU provides limited support for the JCL that is used with Fast Unload for Db2, Version 3.1; however, some features of the Fast Unload product might be ignored or be interpreted differently when they are issued by Db2 HPU. In most cases, the amount of work that is required to convert Fast Unload JCL to Db2 HPU JCL is significantly reduced.

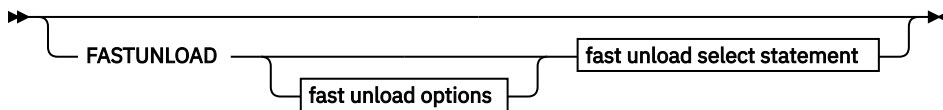
For a description of the syntax shown here, refer to the Fast Unload documentation.

Important:

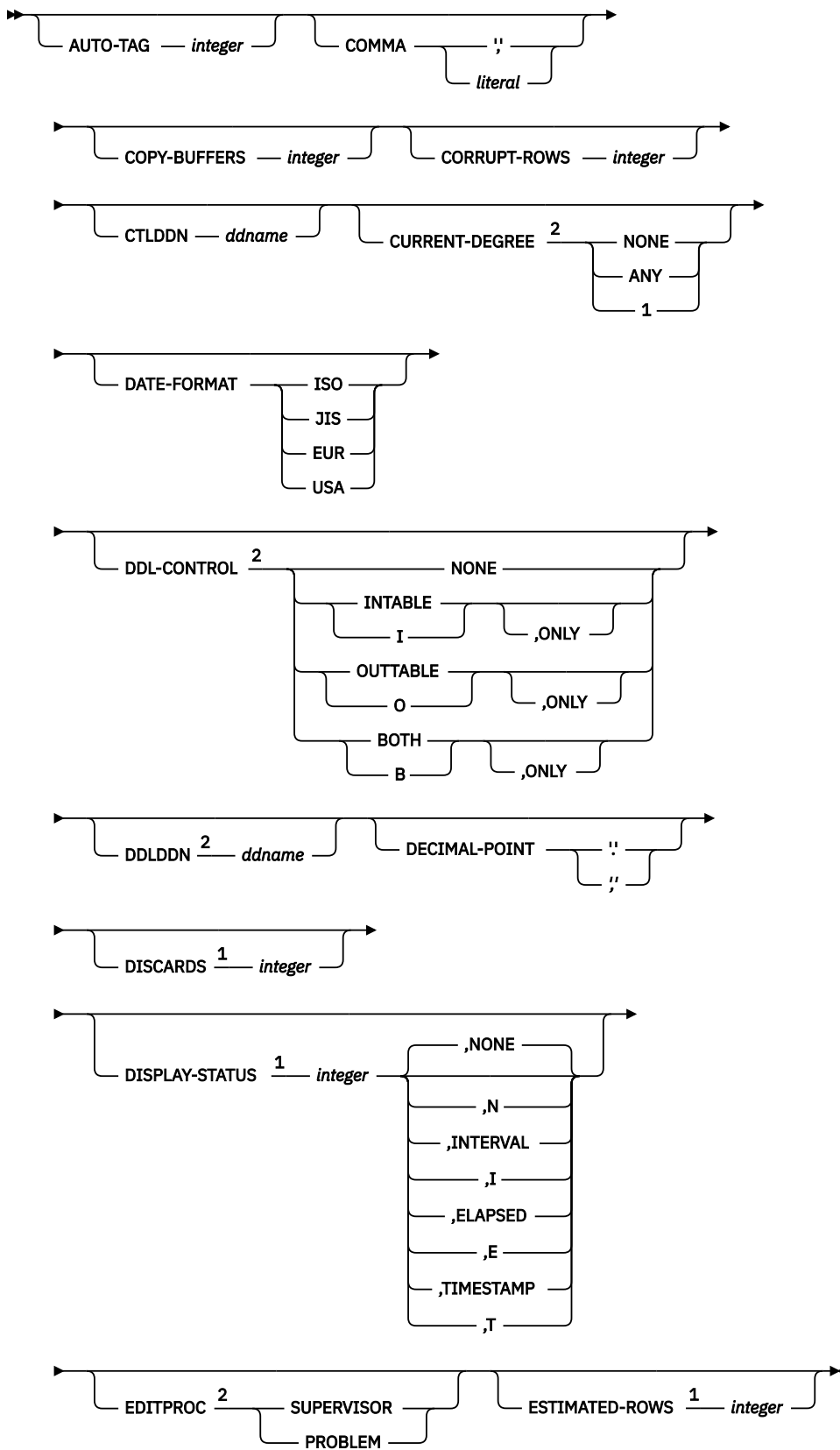
- Do not use this syntax to create new JCL. Fast Unload JCL support is provided only to simplify converting from Fast Unload to Db2 HPU. This syntax is supported to the extent that Db2 HPU can perform processing that is like the processing that is described in the syntax. Many keywords are ignored. Some options are automatically converted to Db2 HPU syntax. For example, OUTPUT-FORMAT LOAD is converted to OUTPUT-FORMAT DSNTIAUL.
- If you specify FASTUNLOAD in SYSIN to use the Fast Unload syntax, precede *subsystem_name/group_attachment_name.job_id* in the PARM field with the EP=UTLGLCTL positional parameter, as shown in the following example:

```
PARM= 'EP=UTLGLCTL/DSN5, DB2UNLOAD'
```

fast unload



fast unload options

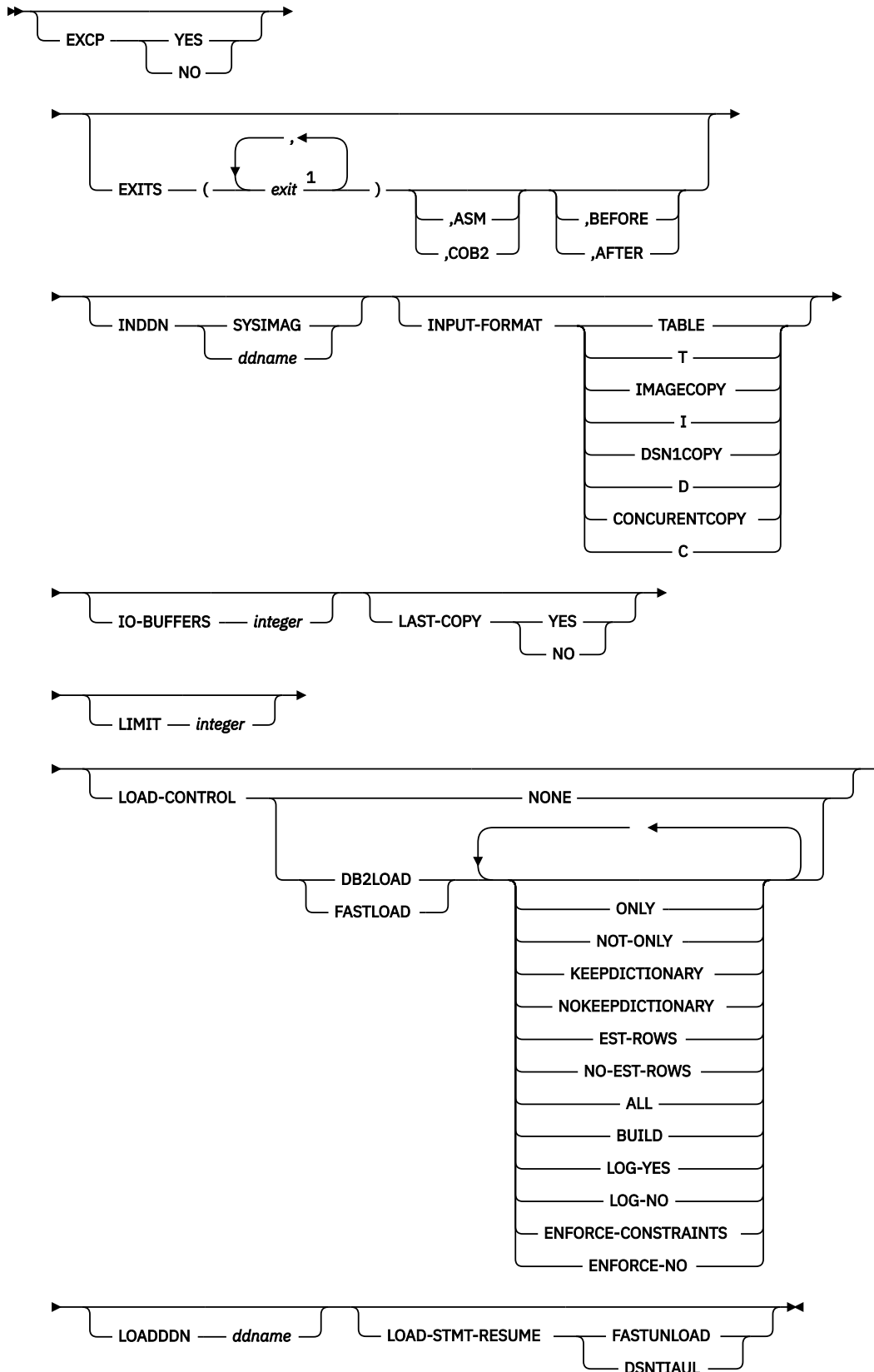


Notes:

¹ Keywords that are ignored are identified by an asterisk (*). Dependent keywords and variables are also ignored.

² Keywords that are not supported are identified by two asterisks (**). Dependent keywords and variables are also not supported.

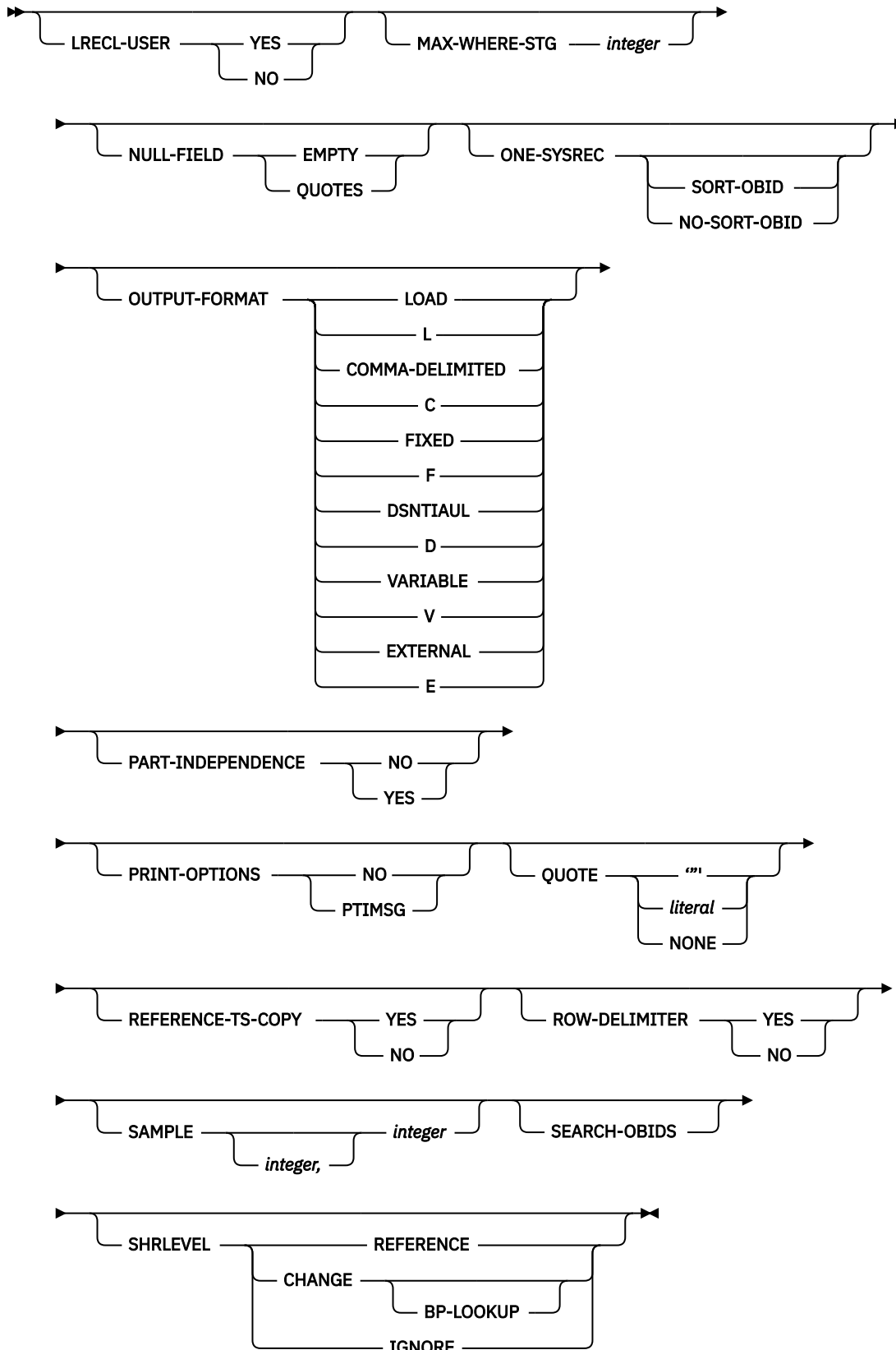
Continuation of the fast unload option syntax diagram:



Notes:

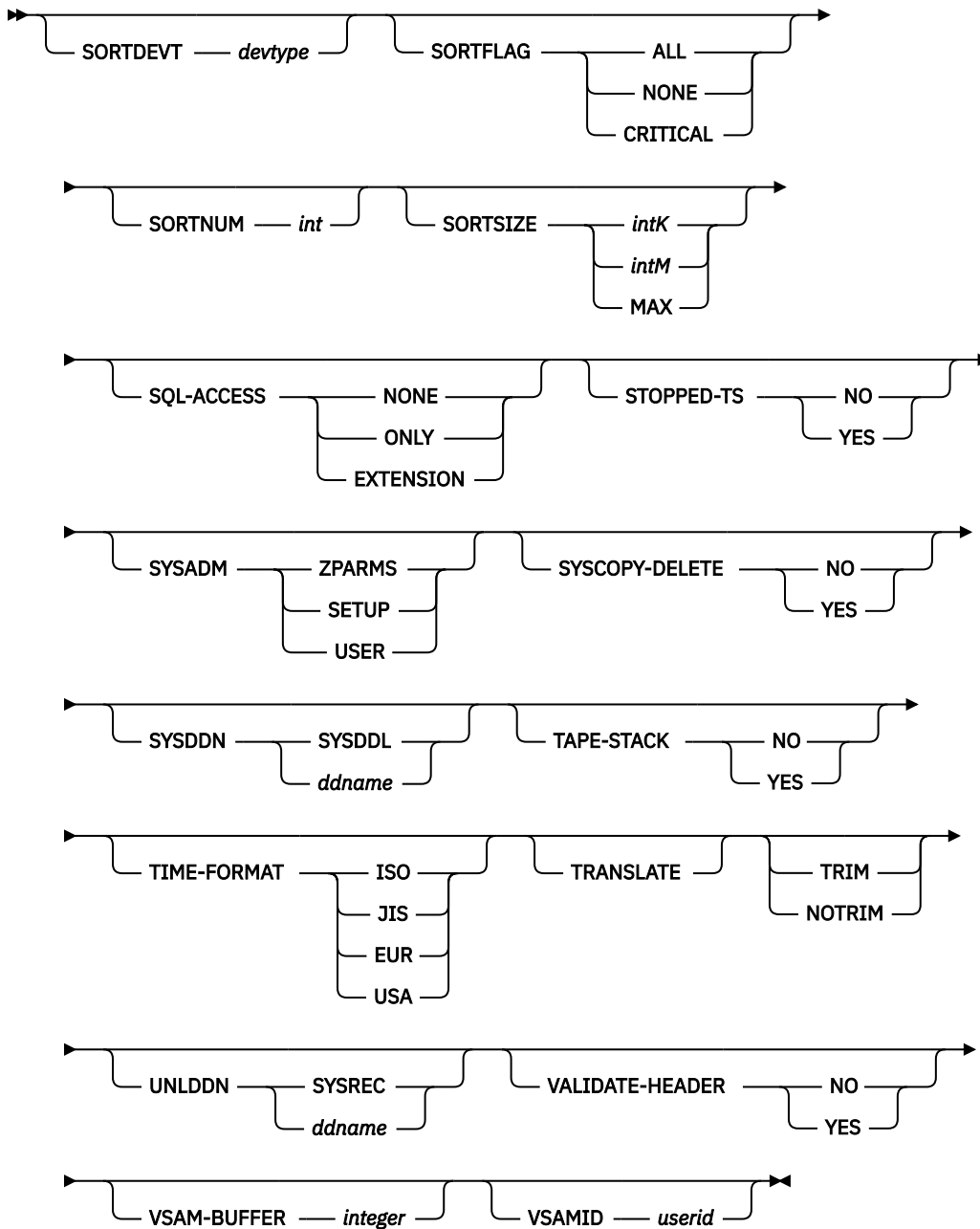
¹ You can specify a maximum of four exits.

Continuation of the fast unload option syntax diagram:

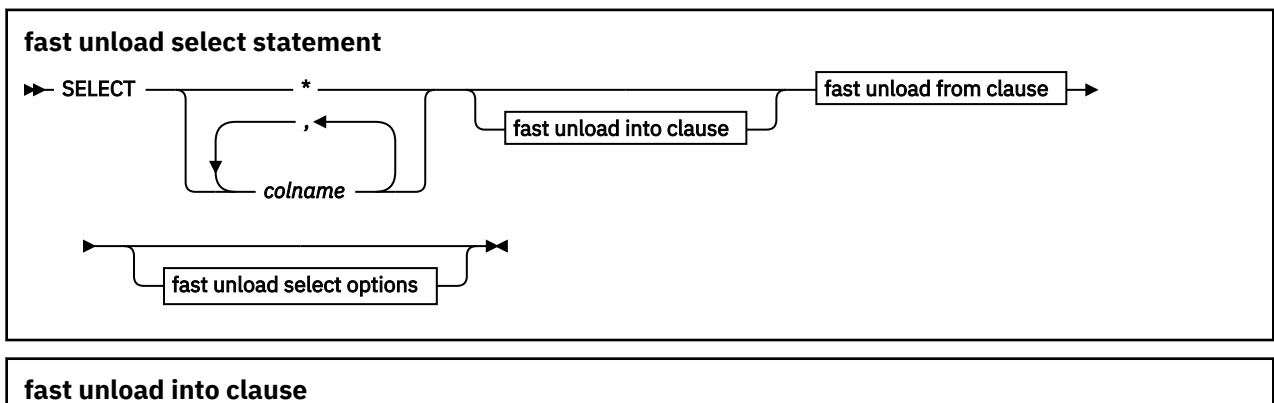


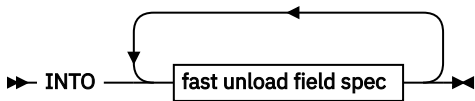
Notes:

Continuation of the fast unload option syntax diagram:

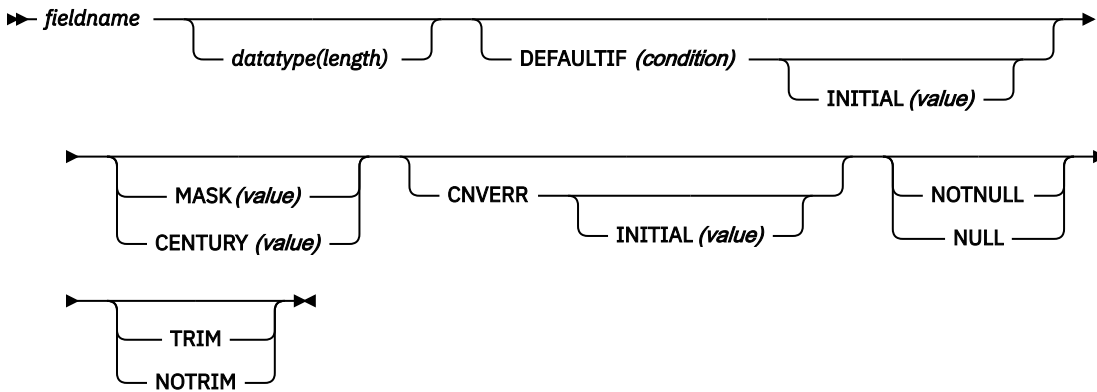


Notes:





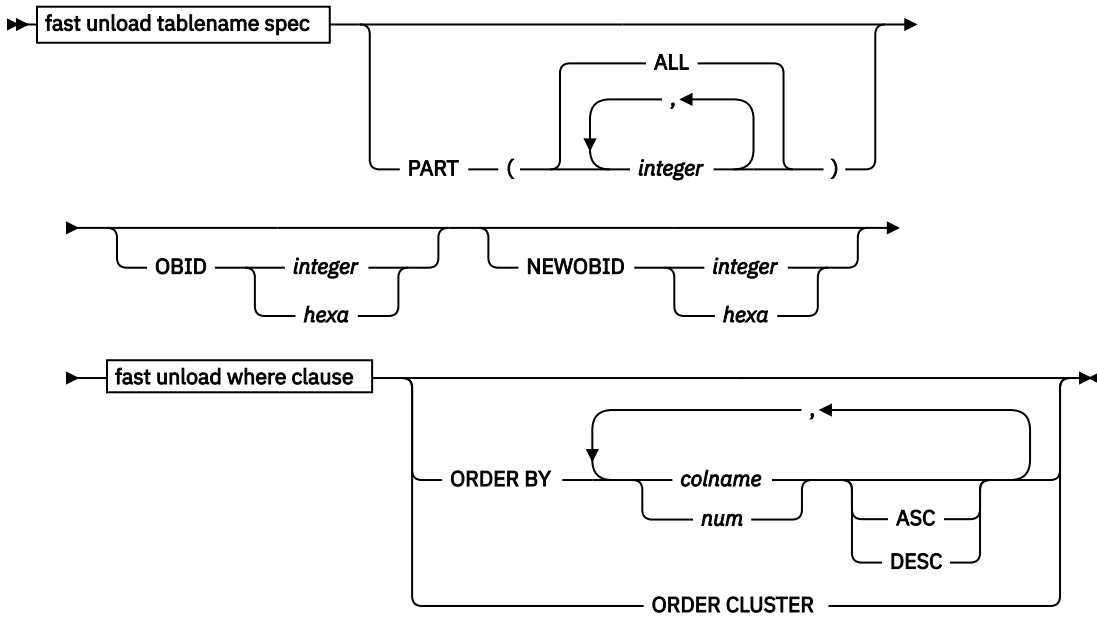
fast unload field spec



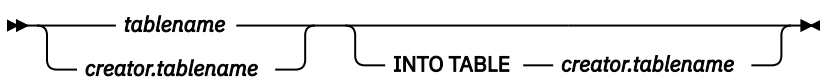
Notes:

¹ Keywords that are ignored are identified by an asterisk (*). Dependent keywords and variables are also ignored.

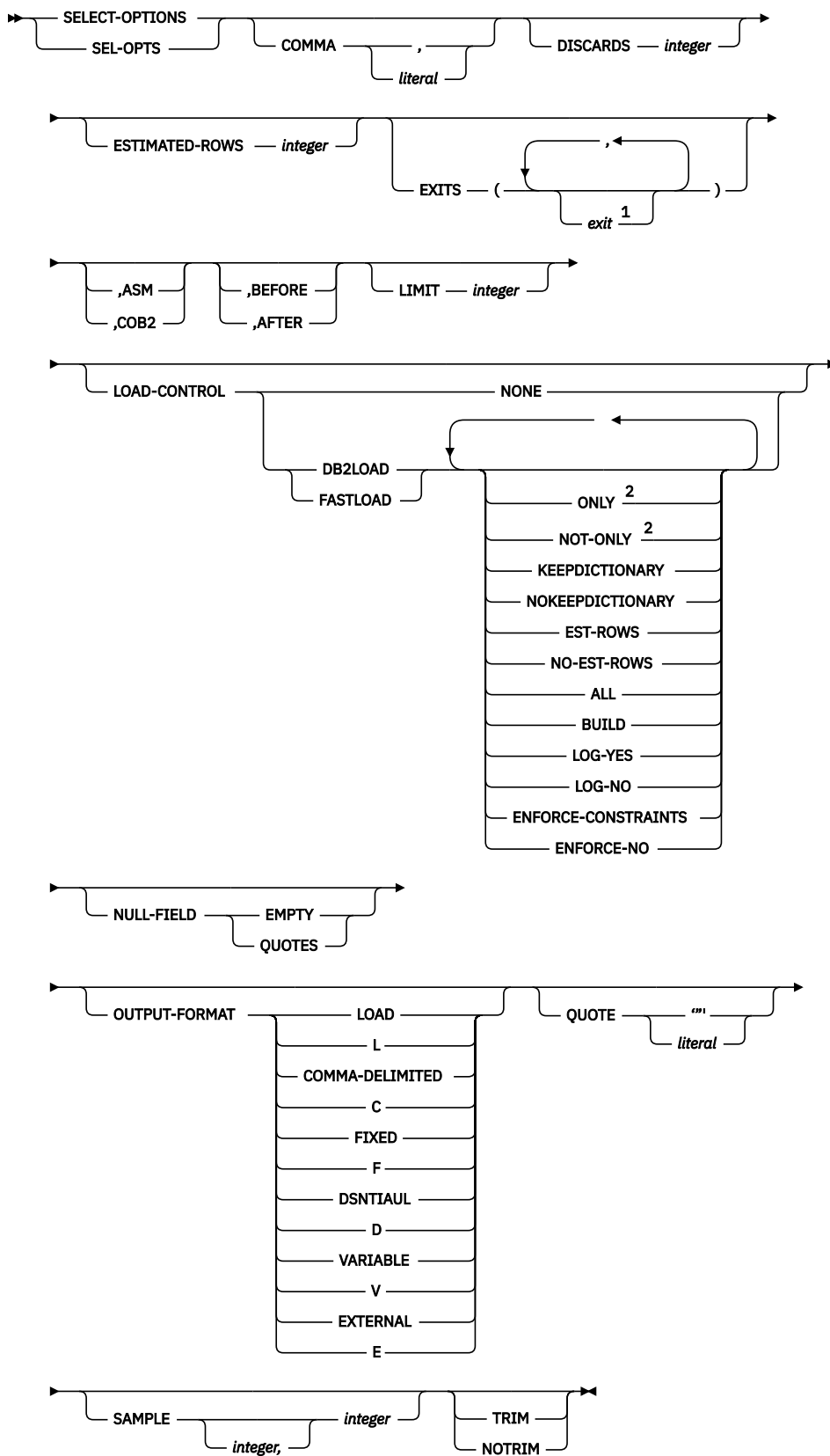
fast unload from clause



fast unload tablename spec



fast unload select options



Notes:

¹ You can specify a maximum of four exits.

² Keywords that are ignored are identified by an asterisk (*). Dependent keywords and variables are also ignored.

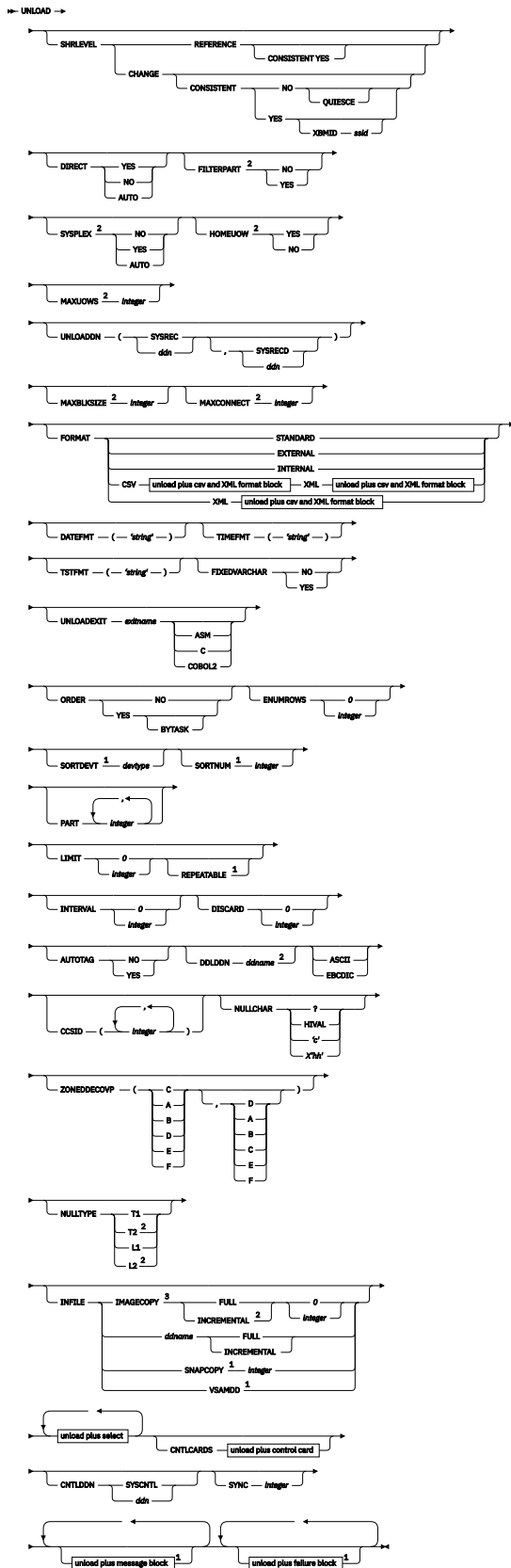
UNLOAD PLUS syntax compatibility

Db2 HPU provides limited support for the JCL that is used with UNLOAD PLUS for Db2, Version 2.1.01; however, some features of UNLOAD PLUS might be ignored or be interpreted differently when issued by Db2 HPU. These restrictions are mentioned by notes at the bottom of the syntax diagram. In most cases, the amount of work that is required to convert UNLOAD PLUS JCL to Db2 HPU JCL is significantly reduced.

For a description of the syntax shown here, refer to the UNLOAD PLUS for Db2 documentation.

Important: Do not use this syntax to create new JCL. UNLOAD PLUS JCL support is provided only to simplify converting from UNLOAD PLUS to Db2 HPU. This syntax is supported to the extent that Db2 HPU can perform processing that is like the processing that is described in the syntax. Many keywords are ignored. Some options are automatically converted to Db2 HPU syntax.

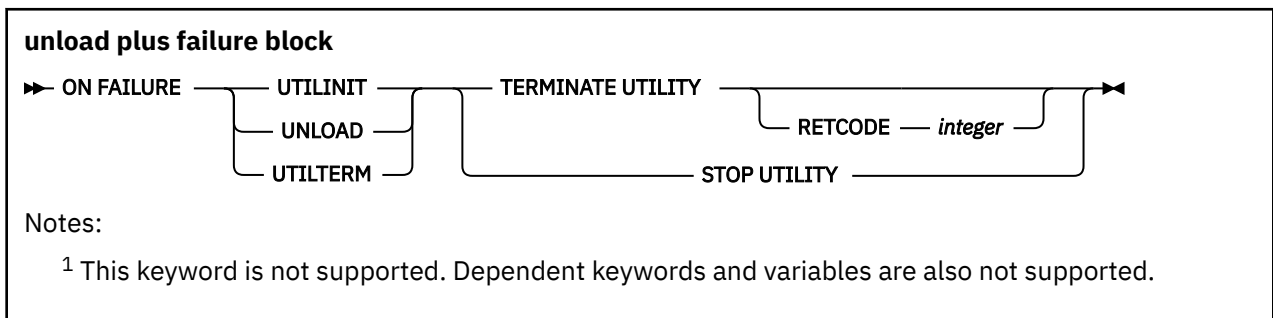
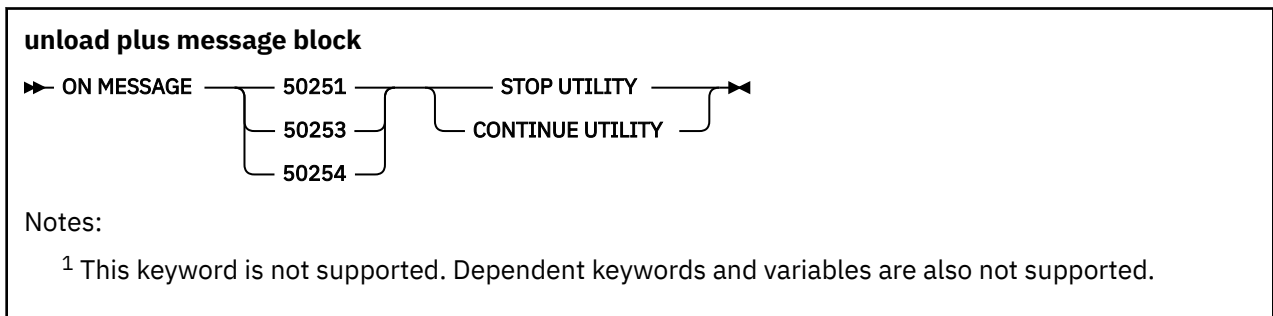
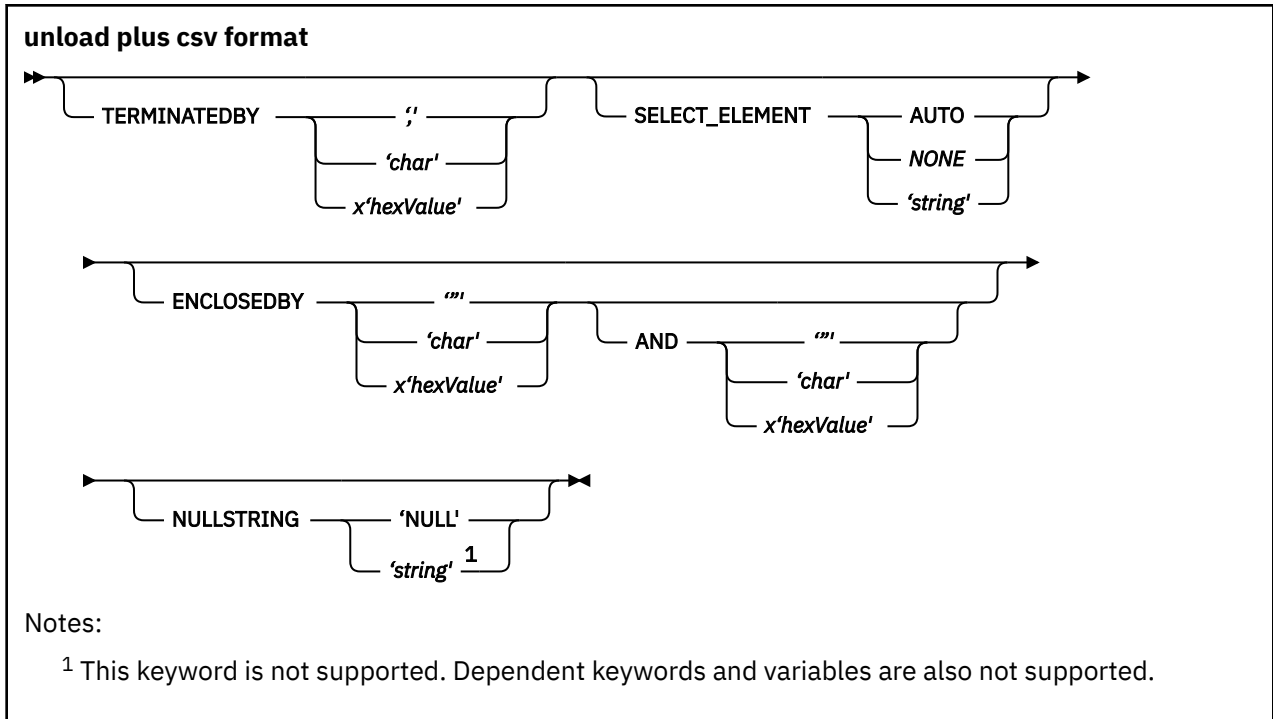
UNLOAD syntax



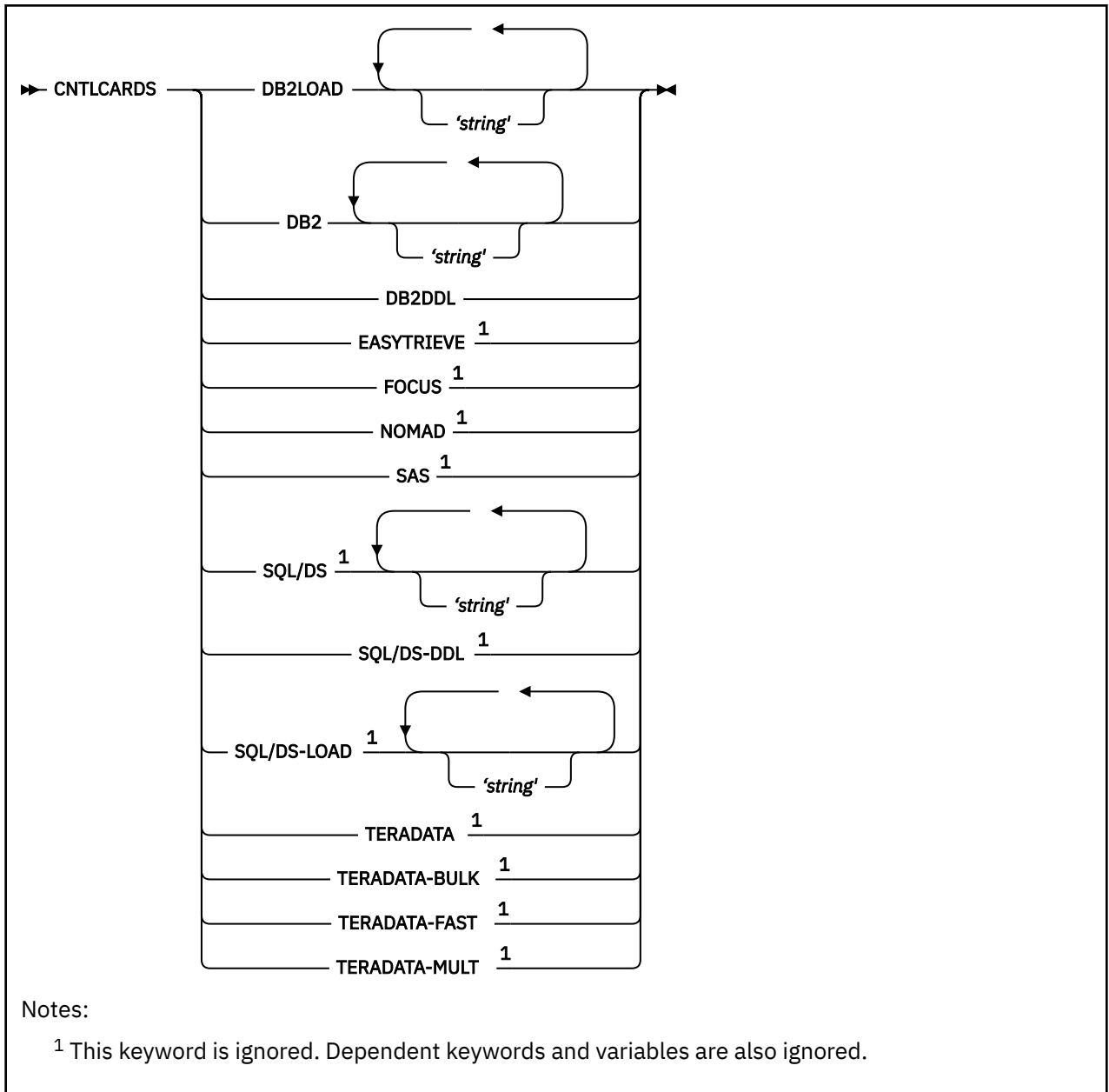
Notes:

- 1 This keyword is ignored. Dependent keywords and variables are also ignored.
- 2 This keyword is not supported. Dependent keywords and variables are also not supported.

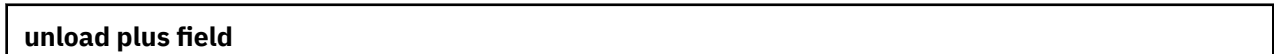
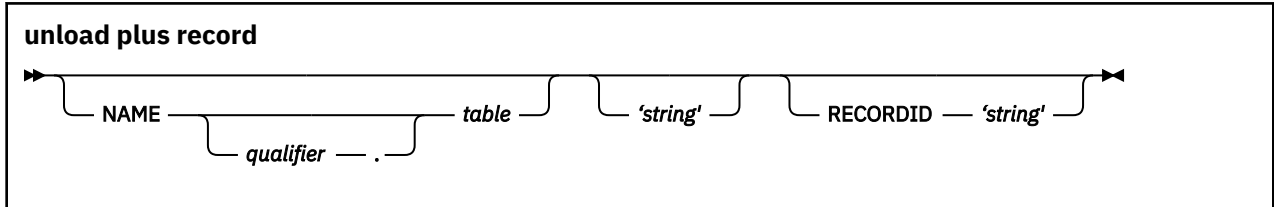
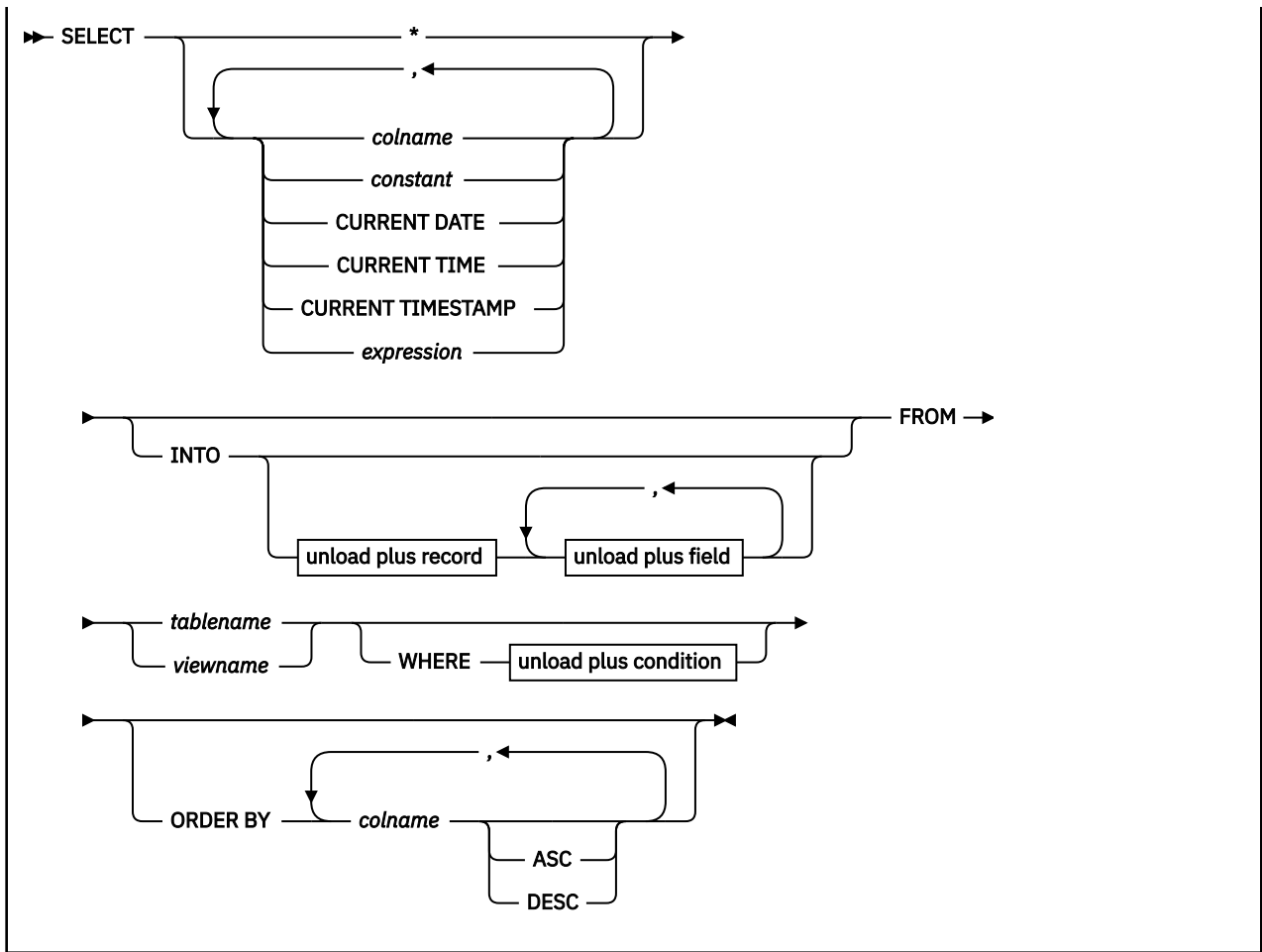
³ Unlike UNLOAD PLUS, only the cataloged image copy datasets are taken into account. The same behavior as with the Db2 HPU syntax COPYDDN LAST_IC or COPYDDN -integer UNLOAD block syntax and description applies.

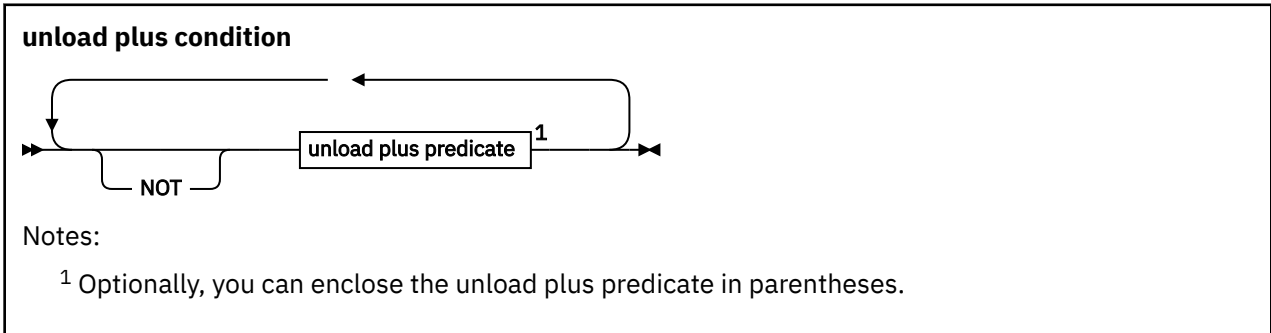
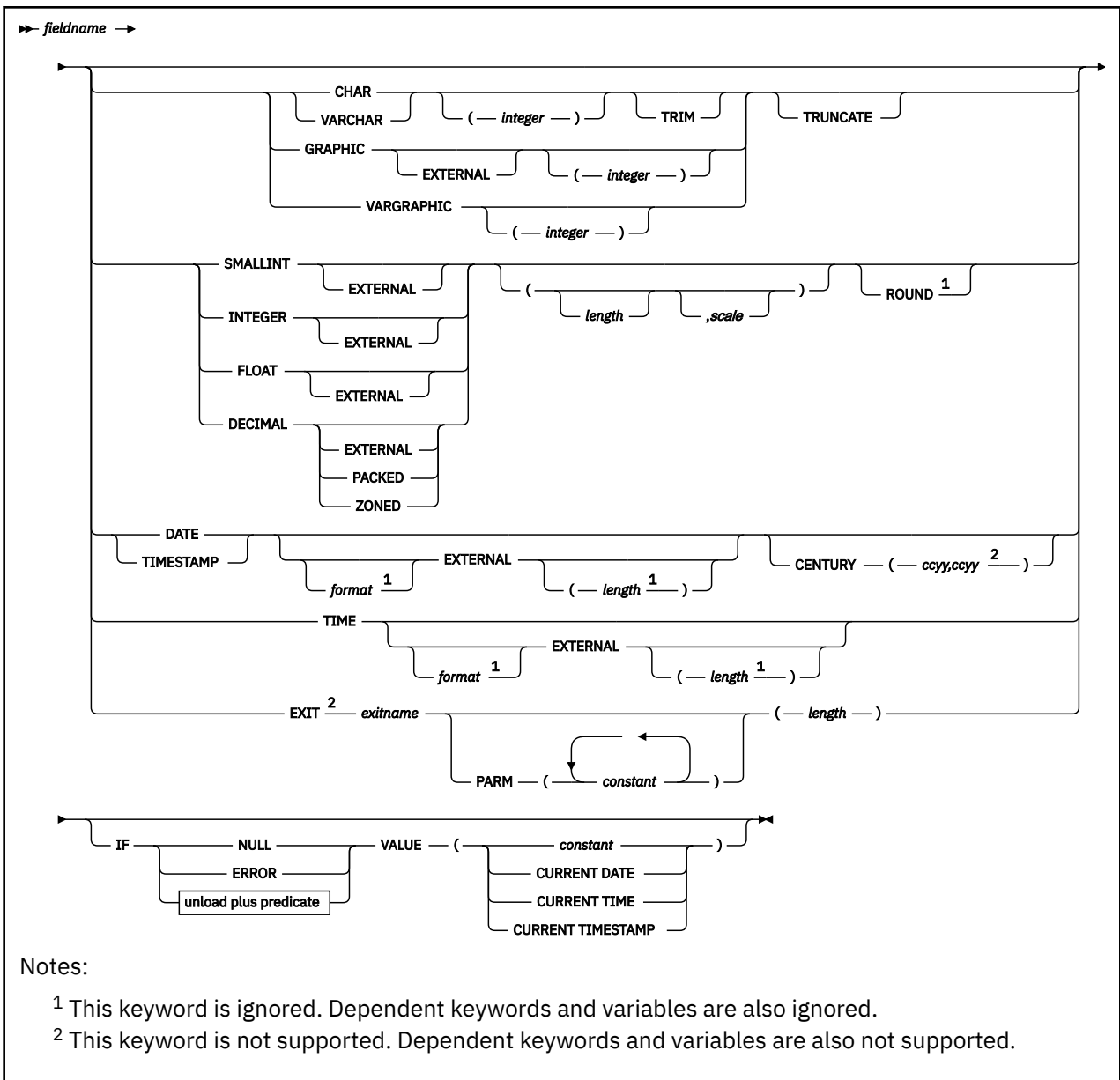


unload plus control card

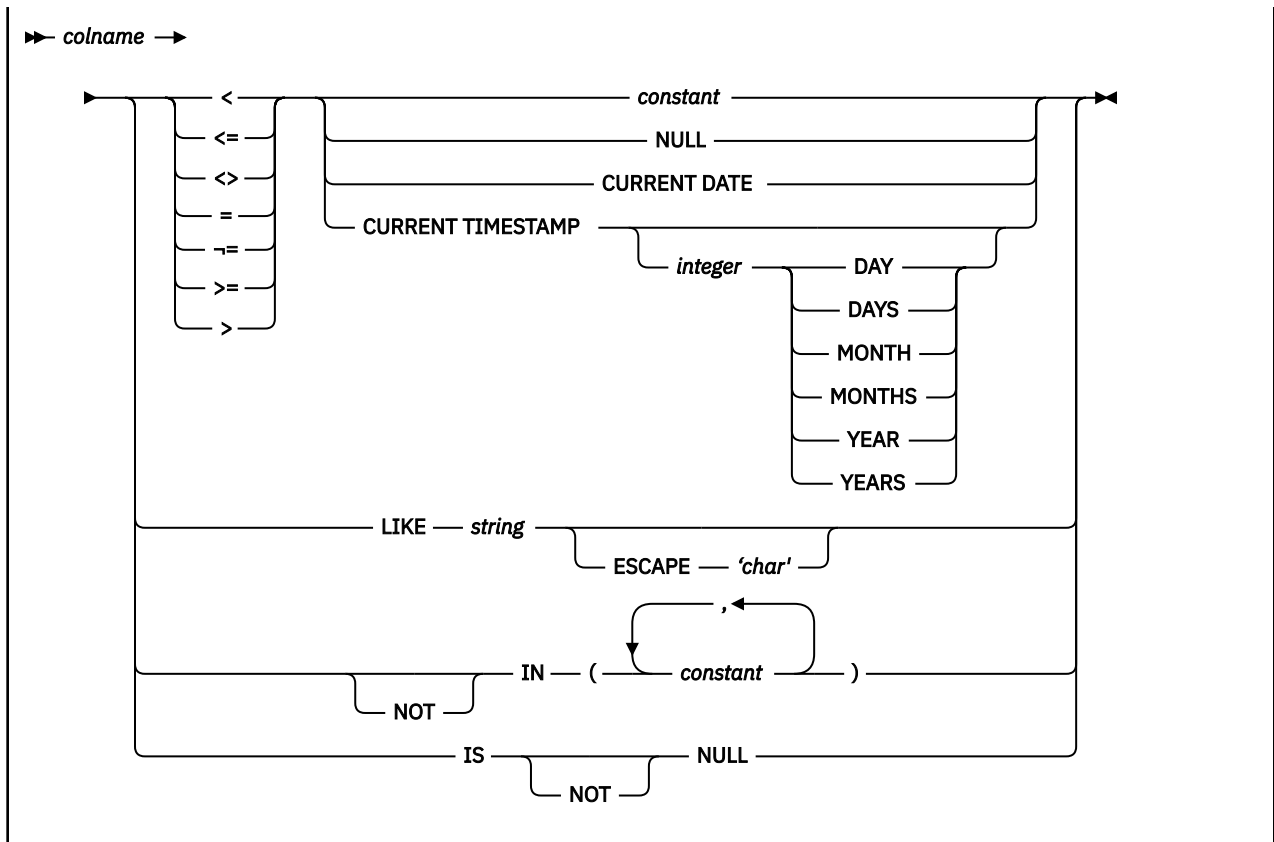


unload plus select





unload plus predicate



Db2 unload syntax compatibility

Db2 HPU supports the control cards compliant with the Db2 UNLOAD utility for Db2 for z/OS, version 11 and can be operated with a prior Db2 version unless it involves a Db2 UNLOAD utility feature that relies on Db2 features that are not available in the prior Db2 version

See the related Db2 publication (Utility Guide and Reference) for more details on the Db2 Unload control statements.

However, some features of the Db2 UNLOAD utility are ignored or implemented differently by Db2 HPU. In most cases, the amount of work that is required to convert a Db2 UNLOAD to Db2 HPU JCL is low.

Restrictions

The Db2 UNLOAD utility features that are ignored or implemented differently by Db2 HPU are listed in this section. The Db2 HPU behavior when such a feature is requested is described.

Options

Ignored features:

- NOSUBS: ignored. The message INZU105I is issued. This feature is dealt through VZM008/SCUNSUB.
- DECFLOAT_ROUNDMODE: ignored. The message INZU105I is issued.
- IMPLICIT_TZ: ignored. The message INZU105I is issued.

Altered features:

- MAXERR: MAXERR 1 is supported. MAXERR n with n > 1 is not supported. The default value is MAXERR 1.

Restrictions:

- SPANNED YES: The SPANNED YES option is only supported for LOB data.

Field specification

Restriction:

- POSITION: only POSITION(*) is supported. End with completion code 8 and a message INZU052E is issued.

Not supported:

- timestamp with time zone-spec: not supported. End with completion code 8 and a message INZU052E is issued.

Important:

Do not use this syntax to create new Db2 HPU JCL. The Db2 UNLOAD support is provided only to simplify converting from Db2 UNLOAD to Db2 HPU. This syntax is supported to the extent that Db2 HPU can perform processing that is like the processing that is described in the syntax. Several keywords are ignored. Some options are automatically converted to Db2 HPU features.

Example: Usage of a Db2 UNLOAD JCL with Db2 HPU

In this example below, the unload from a table is requested by using control cards valid for the Db2 UNLOAD (module DSNUTILB).

Note:

The genuine Db2 UNLOAD JCL has been altered to replace PGM=DSNUTILB by PGM=INZUTILC.

Instead of changing the JCL this way, you may consider defining DSNUTILB as an alias for INZUTILC. Be aware that this change would affect any JCL invoking DSNUTILB and lead to failures if DSNUTILB is not used for the UNLOAD utility but for any other online DSNUTILB allows to run.

```
//UNLOAD EXEC PGM=INZUTILC,PARM='DB81,DB2UNLOAD',
//REGION,=0M,TIME=1440
//STEPLIB DD DSN=DB2UNL.SINZLINK,DISP=SHR
//          DD DSN=DSNA10.SDSNLOAD,DISP=SHR
//          DD DSN=DSNA10.SDSNLOD2,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSREC   DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//SYSPUNCH DD SYSOUT=*
//SYSIN   DD*
UNLOAD TABLESPACE DSN8D10A.DSN8S10E
FROM TABLE DSNA1010.EMP
```

Exploiting the feature compatibility

Converting an unload step involving one of the supported unload tools consists in invoking a set of native features which combination produces the same output as the legacy unload. Elaborating the target Db2 HPU unload consists in:

- writing genuine Db2 HPU controls cards
- writing a Db2 HPU UNLOAD command that invokes Db2 HPU with the relevant options to produce the same output as the legacy unload to convert
- setting the Db2 HPU parmlib parameters to values that match the settings of the alternate unload tool to replace

To determine which Db2 HPU options to use to produce the same output as the output requested through the alternate tool's options, refer to the relevant section from the list below:

- Fast Unload syntax options equivalence
- UNLOAD PLUS syntax options equivalence
- Db2 Unload syntax options equivalence

To determine the appropriate Db2 HPU settings that matches the setting of the alternate unload tool to replace, refer to the following section:

- Default values for Fast Unload compatibility formats
- Default values for UNLOAD PLUS compatibility formats
- Default values for Db2 Unload compatibility formats

Fast Unload syntax options equivalence

The table below display which Db2 HPU option to specify to trigger the same or a very similar feature as the one requested by a FASTUNLOAD option. Use this information to “translate” a FASTUNLOAD command into a Db2 HPU command.

FASTUNLOAD option	Db2 HPU option	Location in the Db2 HPU syntax
AUTOTAG <i>int</i>		OPTIONS block (1)
COMMA <i>separator-character</i>	SEP <i>separator-character</i>	DELIMITED block
CTLDDN <i>ddn</i>	LOADDDN <i>ddn</i>	SELECT block
DATE-FORMAT EUR	DATE DATE_E	OPTIONS block (1)
DATE-FORMAT ISO	DATE DATE_C	OPTIONS block (1)
DATE-FORMAT JIS	DATE DATE_C	OPTIONS block (1)
DATE-FORMAT USA	DATE DATE_A	OPTIONS block (1)
DECIMAL-POINT ,	PIC (x,x,!) – see PIC keyword documentation to define the first two parameters	OPTIONS block (1)
DECIMAL-POINT .	PIC (x,x,!) – see PIC keyword documentation to define the first two parameters	OPTIONS block (1)
DISCARDS <i>int</i>	MAXERR <i>int</i>	Technical Parameter Options block
INPUT-FORMAT CONCURRENTCOPY INDDN <i>ddn</i>	COPYDDN <i>ddn</i> , INLINE	UNLOAD block
INPUT-FORMAT DSN1COPY INDDN <i>ddn</i>	COPYDDN <i>ddn</i> , INLINE	UNLOAD block
INPUT-FORMAT IMAGECOPY INDDN <i>ddn</i>	COPYDDN <i>ddn</i>	UNLOAD block
IO-BUFFERS <i>int</i>	IO-BUFFERS <i>int</i>	UNLOAD block
LAST-COPY YES**	COPYDDN LAST_IC	UNLOAD block
LIMIT <i>int</i>	OUTMAXROWS <i>int</i>	SELECT block
LOAD-CONTROL <i>options</i>	LOADOPT <i>options</i>	SELECT block
NOTRIM	TRIM NO	OPTIONS block (1)
NULLFIELD EMPTY	NULL EMPTY WITH NO DELIM	DELIMITED block
NULLFIELD QUOTE	NULL EMPTY WITH DELIM	DELIMITED block
OUTPUT-FORMAT EXTERNAL	FORMAT FASTU-EXTERNAL	SELECT block
OUTPUT-FORMAT FIXED	FORMAT FASTU-FIXED**	SELECT block
OUTPUT-FORMAT VARIABLE**	FORMAT FASTU-VARIABLE	SELECT block
OUTPUT-FORMAT DELIMITED	FORMAT FASTU-DELIMITED	SELECT block

FASTUNLOAD option	Db2 HPU option	Location in the Db2 HPU syntax
QUOTE <i>delimiter-character</i>	DELIM <i>delimiter-character</i>	DELIMITED block
SAMPLE <i>int</i>	OUTFREQROWS <i>int</i>	SELECT block
SHRLEVEL CHANGE	QUIESCE NO LOCK NO	UNLOAD block
SHRLEVEL IGNORE	QUIESCE NO LOCK NO	UNLOAD block
SHRLEVEL REFERENCE	QUIESCE YES LOCK YES	UNLOAD block
SQL-ACCESS EXTENSION	DB2 YES	UNLOAD block
SQL-ACCESS NONE	DB2 NO	UNLOAD block
SQL-ACCESS ONLY	DB2 FORCE	UNLOAD block
TIME_FORMAT EUR	TIME TIME_A	OPTIONS block (1)
TIME_FORMAT ISO	TIME TIME_A	OPTIONS block (1)
TIME_FORMAT JIS**	TIME TIME_A	OPTIONS block (1)
TIME_FORMAT USA	TIME TIME_C	OPTIONS block (1)
TRANSLATE <i>from-ccsid, to-ccsid</i> (2)	CCSID <i>to-ccsid</i> (2)	SELECT block
TRIM	TRIM YES	OPTIONS block (1)
UNLDDN <i>ddn</i>	OUTDDN <i>ddn</i>	SELECT block
VSAM-BUFFERS <i>int</i>	VSAM-BUFFERS <i>int</i>	UNLOAD block

- (1) The OPTIONS block can be specified at any of the GLOBAL, UNLOAD and SELECT level.
- (2) from-ccsid is ignored. Db2 HPU always considers the tablespace ccsid as from-ccsid, even when the Fastunload syntax compatibility feature is used,

UNLOAD PLUS syntax options equivalence

The table below display which Db2 HPU option to specify to trigger the same or a very similar feature as the one requested by an Unload Plus option. Use this information to “translate” an Unload Plus command into a Db2 HPU command.

UNLOAD PLUS option	HPU option	Location in the syntax
AUTOTAG YES	AUTOTAG 4	OPTIONS block (1)
CCSID (<i>sbcs, mixed, dbcs</i>)	CCSID (<i>sbcs, mixed, dbcs</i>)	SELECT block
CNTLCARDS <i>options</i>	LOADOPT <i>options</i>	SELECT block
CNTLDDN <i>ddn</i>	LOADDDN <i>ddn</i>	SELECT block
DATEFMT <i>datefmt</i>	DATE <i>datefmt</i> - see Syntax rules for the user-defined date, time or timestamp formats	OPTIONS block (1)
DIRECT AUTO	DB2 YES	UNLOAD block
DIRECT NO	DB2 FORCE	UNLOAD block
DIRECT YES	DB2 NO	UNLOAD block
DISCARDS <i>int</i>	MAXERR <i>int</i>	Technical parameters
ENCLOSEDBY 'c'	DELIM 'c'	DELIMITED block

UNLOAD PLUS option	HPU option	Location in the syntax
FILTERPART YES	OPTIMIZE_PART_RANGE YES	GLOBAL block
FIXEDVARCHAR NO	LENGTH REAL	OPTIONS block (1)
FIXEDVARCHAR YES	LENGTH MAX	OPTIONS block (1)
FORMAT CSV	FORMAT UPLUS-CSV	SELECT block
FORMAT EXTERNAL	FORMAT UPLUS-EXTERNAL	SELECT block
FORMAT INTERNAL	FORMAT UPLUS-INTERNAL	SELECT block
FORMAT STANDARD	FORMAT UPLUS-STANDARD	SELECT block
FORMAT XML	FORMAT UPLUS-XML	SELECT block
INFILE <i>ddn</i> FULL INLINE	COPYDDN <i>ddn</i> , INLINE	UNLOAD block
INFILE <i>ddn</i> /INCREMENTAL	COPYDDN <i>ddn</i>	UNLOAD block
INFILE IMAGECOPY	COPYDDN LAST_IC	UNLOAD block
INFILE IMAGECOPY FULL	COPYDDN LAST_IC	UNLOAD block
INTERVAL <i>int</i>	OUTFREQROWS <i>int</i>	SELECT block
LIMIT <i>int</i>	OUTMAXROWS <i>int</i>	SELECT block
NULLCHAR ?	NULL '?'	OPTIONS block (1)
NULLCHAR 'c'	NULL 'c'	OPTIONS block (1)
NULLCHAR HIVAL	NULL X'FF'	OPTIONS block (1)
NULLCHAR X'xx'	NULL X'xx'	OPTIONS block (1)
NULLSTRING <i>string</i>	NULLVAL <i>string</i>	OPTIONS block (1)
NULLTYPE L1 NULLCHAR 'c'	NULLPOS BEFORE NULL 'c'	
NULLTYPE L2 NULLCHAR 'c'	NULLPOS BEFORE NULL 'cc'	OPTIONS block (1)
NULLTYPE T1 NULLCHAR 'c'	NULLPOS AFTER NULL 'c'	OPTIONS block (1)
NULLTYPE T2 NULLCHAR 'c'	NULLPOS AFTER NULL 'cc'	OPTIONS block (1)
RTRIM YES	TRIM YES	OPTIONS block (1)
SELECT_ELEMENT AUTO	XMLSET (COLUMN = <&DBNAME.>, RECORD=<&TBNAME.>)	OPTIONS block (1)
SELECT_ELEMENT NONE	XMLSET (COLUMN = <&COLNAME.>, RECORD=OFF)	OPTIONS block (1)
SELECT_ELEMENT ' <i>string</i> '	XMLSET (COLUMN = <&COLNAME.>, RECORD='string')	OPTIONS block (1)
SHRLEVEL CHANGE	LOCK NO QUIESCE NO	UNLOAD block
SHRLEVEL CHANGE CONSISTENT NO QUIESCE YES	LOCK NO QUIESCE YES	UNLOAD block
SHRLEVEL CHANGE CONSISTENT YES	LOCK NO QUIESCE YES	UNLOAD block
SHRLEVEL REFERENCE	LOCK YES QUIESCE YES	UNLOAD block

UNLOAD PLUS option	HPU option	Location in the syntax
TERMINATEDBY 'c'	SEP 'c'	DELIMITED block
TIMEFMT <i>timefmt</i>	TIME <i>timefmt</i> - see Syntax rules for the user-defined date, time or timestamp formats	OPTIONS block (1)
TSFMT <i>tsfmt</i>	TIMESTAMP <i>tsfmt</i> - see Syntax rules for the user-defined date, time or timestamp formats	OPTIONS block (1)
UNLOADDN <i>ddn</i>	OUTDDN <i>ddn</i>	SELECT block
UNLOADEXIT <i>exitname</i> ASM	OUTEXIT <i>exitname</i> ASM	SELECT block
UNLOADEXIT <i>exitname</i> C	OUTEXIT <i>exitname</i> C	SELECT block
UNLOADEXIT <i>exitname</i> COBOL2		SELECT block
UNLOADEXIT <i>exitname</i> LE_C		SELECT block
UNLOADEXIT <i>exitname</i> LE_COBOL	OUTEXIT <i>exitname</i> COBOL2	SELECT block
ZONEDDECOVP (<i>x,y</i>)	ZONED_DEC_SIGNED (<i>x,y</i>)	OPTIONS block (1)

- (1) The OPTIONS block can be specified at any of the GLOBAL, UNLOAD and SELECT level.

Db2 Unload syntax options equivalence

The table below display which Db2 HPU option to specify to trigger the same or a very similar feature as the one requested by an UNLOAD PLUS option. Use this information to “translate” an UNLOAD PLUS command into a Db2 HPU command.

Db2 Unload option	HPU option	Location in the Db2 HPU syntax
ASCII	ASCII	SELECT block
CCSID (<i>sbc, mixed, dbc</i>)	CCSID (<i>sbc, mixed, dbc</i>)	SELECT block
CHARDEL 'c'	DELIM 'c'	DELIMITED block
CLONE	CLONE	UNLOAD block
COLDEL 'c'	SEP 'c'	DELIMITED block
DECPT '!	PIC (<i>x,x,!</i>) – see PIC keyword documentation to define the first two parameters	OPTIONS block (1)
EBCDIC	EBCDIC	SELECT block
FLOAT IEEE	FLOAT IEEE	OPTIONS block (1)
FLOAT S390	FLOAT S390	OPTIONS block (1)
(no FORMAT specified)	FORMAT DB2U-DEFAULT	SELECT block
FORMAT DELIMITED	FORMAT DB2U-DELIMITED	SELECT block
FORMAT INTERNAL	FORMAT INTERNAL	SELECT block
FROMCOPY <i>dsn</i>	TEMPLATE ... COPYDDN template-	UNLOAD block
FROMCOPYDDN <i>ddn</i>	COPYDDN <i>ddn</i>	UNLOAD block

Db2 Unload option	HPU option	Location in the Db2 HPU syntax
FROMVOLUME CATALOG		UNLOAD block
FROMVOLUME <i>volser</i>		UNLOAD block
HEADER CONST		OPTIONS block (1)
HEADER OBID	AUTOTAG OBID	OPTIONS block (1)
LIMIT <i>int</i>	OUTMAXROWS <i>int</i>	SELECT block
MAXERR <i>int</i>	MAXERR <i>int</i>	GLOBAL options block
NOPAD	LENGTH REAL	OPTIONS block (1)
PARALLEL <i>int</i>	PARALLELISM <i>int</i>	UNLOAD block
PUNCHDDN <i>ddn</i>	LOADDDN <i>ddn</i>	SELECT block
SAMPLE <i>int</i>	OUTFREQROWS <i>int</i>	SELECT block
SHRLEVEL CHANGE	LOCK NO QUIESCE NO	UNLOAD block
SHRLEVEL REFERENCE	LOCK YES QUIESCE YES	UNLOAD block
SPANNED NO	SPANNED NO	OPTIONS block (1)
SPANNED YES	SPANNED YES	OPTIONS block (1)
UNICODE	UNICODE	SELECT block
UNLDDN <i>ddn</i>	OUTDDN <i>ddn</i>	SELECT block

Notices

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