

IBM IMS High Performance Prefix Resolution
for z/OS
3.1

User's Guide



Note:

Before using this information and the product it supports, read the information in [“Notices” on page 99.](#)

Seventh Edition (June 2021)

This edition applies to Version 3.1 of IBM IMS High Performance Prefix Resolution for z/OS (program number 5655-M27) and to all subsequent releases and modifications until otherwise indicated in new editions.

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About this information

IBM® IMS High Performance Prefix Resolution for z/OS® (also referred to as IMS HP Prefix Resolution) enables you to resolve and update prefixes of IMS databases that are involved in logical relationships as a single job step.

IMS HP Prefix Resolution is a component of the IBM IMS Database Solution Pack for z/OS. IMS HP Prefix Resolution is also available as a separately orderable product.

These topics provide instructions for using IMS HP Prefix Resolution.

These topics are designed for system programmers, system analysts, and database administrators perform these tasks:

- Understand the functions of IMS HP Prefix Resolution
- Run and use IMS HP Prefix Resolution after it is installed
- Use DD statements to control how you use IMS HP Prefix Resolution
- Run and use IMS HP Prefix Resolution reports
- Tune IMS HP Prefix Resolution
- Understand and recover from IMS HP Prefix Resolution problems

To use these topics, you should have a working knowledge of:

- The z/OS operating system
- ISPF
- SMP/E

Always refer to the IMS Tools Product Documentation web page for complete product documentation resources:

<https://www.ibm.com/support/pages/node/712955>

The IMS Tools Product Documentation web page includes:

- Links to [IBM Documentation](#) for the user guides ("HTML")
- PDF versions of the user guides ("PDF")
- Program Directories for IMS Tools products
- Recent updates to the user guides, referred to as "Tech docs" ("See updates to this information!")
- Technical notes from IBM Software Support, referred to as "Tech notes"
- White papers that describe product business scenarios and solutions

Chapter 1. IMS HP Prefix Resolution overview

IBM IMS High Performance Prefix Resolution for z/OS (also referred to as IMS HP Prefix Resolution) is an IMS tool that enables you to resolve and update prefixes of IMS databases that are involved in logical relationships as a single job step.

IMS HP Prefix Resolution has two functions. The Prefix Resolution function creates a data set for resolving the logical relationship pointers that are defined for the databases. The Prefix Update function updates the prefix of each segment whose prefix information was affected by a database load, reorganization, or both.

Prefix Resolution function

The Prefix Resolution function can be used in place of the IMS Database Prefix Resolution utility (DFSURG10).

The Prefix Resolution function processes the DFSURWF1 data set, which is generated by the work data set generator (DFSDSEH0) and Index Maintenance (DFSDXMT0) IMS modules. The Prefix Resolution function creates a data set that contains information that is needed to resolve the logical relationship pointers defined for the databases. The function is also used to create a data set that contains information that is needed to create secondary index databases. The Prefix Resolution function gives you the option of producing either one or both of these two data sets.

Prefix Update function

The Prefix Update function can be used in place of the IMS Database Prefix Update utility (DFSURGP0). The function can be run as a stand-alone job or concurrently during the Prefix Resolution function. With the use of HPPR buffer handler, the Prefix Update function improves the performance considerably over the IMS Database Prefix Update utility. If DBRC is active, the Prefix Update function issues a NOTIFY.REORG command for each database that has been updated.

IMS HP Prefix Resolution provides the following services:

- A data transfer service called HPPRPIPE is used to eliminate the intermediate Work File 2 (WF2) and Work File 3 (WF3) data sets. By eliminating these data sets, much of the I/O and handling of the tape and DASDs, as well as the allocation of the DASDs that are associated with prefix resolution and update, are eliminated.
- The Prefix Resolution function or the Prefix Update function can be used as a replacement for the Database Prefix Resolution utility (DFSURG10) or the Database Prefix Update utility (DFSURGP0) of IMS. With the use of HPPRPIPE and HPPR buffer handler, each function improves the performance considerably over the Database Prefix Resolution utility or the Database Prefix Update utility of IMS.

Topics:

- [“What's new in IMS HP Prefix Resolution” on page 1](#)
- [“Product highlights” on page 3](#)
- [“Restrictions” on page 3](#)
- [“Service updates and support information” on page 4](#)
- [“Product documentation and updates” on page 4](#)
- [“Accessibility features” on page 6](#)

What's new in IMS HP Prefix Resolution

This topic summarizes the technical changes for this edition.

New and changed information is indicated by a vertical bar (|) to the left of a change. Editorial changes that have no technical significance are not noted.

SC18-9230-06 (June 2021)

- IMS HP Prefix Resolution supports IMS 15.
- IMS HP Prefix Resolution is enhanced by APAR PI98020 to support IMS-managed ACBs for the concurrent prefix update function and the stand-alone prefix update function. To support this APAR, two new DD statements, DFSACBPD and PROCLIB, and two new control statements, DFSDF and IMSCATHLQ, are added. For more information, see the following topics:
 - [“DD statements for Concurrent Prefix Update” on page 26](#)
 - [“Control statements for Concurrent Prefix Update” on page 31](#)
 - [“DD statements for Stand-Alone Prefix Update” on page 45](#)
 - [“Control statements for Stand-Alone Prefix Update” on page 48](#)

SC18-9230-05 (March 2016)

To support APAR PI51724, topics that explain the Diagnostic Aid program are added to the Troubleshooting section. See [“Diagnostics Aid” on page 90](#) when you use the Diagnostic Aid program to report IMS HP Prefix Resolution problems to IBM.

SC18-9230-04 (February 2015)

- To support APAR PM84654, the following keywords are added. You can use these keywords to control the pipes that the HPPRPIPE service uses:

- PIPEBLKSZ
- PIPEDEPTH
- PIPEWAIT

For more information, see the following topics:

- [“Control statements for Stand-Alone Prefix Resolution” on page 15](#)
- [“Control statements for Concurrent Prefix Update” on page 31](#)
- [“Control statements for Stand-Alone Prefix Update” on page 48](#)
- To support APAR PI06831, several DD statements and keywords are added. Also, a new report is introduced. For more information, see the following topics:
 - [“DD statements for Stand-Alone Prefix Resolution” on page 11](#)
 - [“Control statements for Stand-Alone Prefix Resolution” on page 15](#)
 - [“Output from Stand-Alone Prefix Resolution” on page 23](#)
 - [“DD statements for Concurrent Prefix Update” on page 26](#)
 - [“Control statements for Concurrent Prefix Update” on page 31](#)
 - [“Split WF3 Data Set Statistics report” on page 59](#)
- To support APAR PI12942, new DFCTL DD statement is added. For more information, see the following topics:
 - [“DD statements for Concurrent Prefix Update” on page 26](#)
 - [“DD statements for Stand-Alone Prefix Update” on page 45](#)
- To support APAR PI17770, new DEBUG control statement is added. For more information, see the following topics:
 - [“Control statements for Stand-Alone Prefix Resolution” on page 15](#)
 - [“Control statements for Concurrent Prefix Update” on page 31](#)
- IMS HP Prefix Resolution is enhanced to support IMS 14.1 by APAR PI27640.

SC18-9230-03

IMS HP Prefix Resolution supports IMS Tools Base IMS Tools Knowledge Base. You can store the reports that are generated by IMS HP Prefix Resolution in the Output repository of IMS Tools Knowledge Base. For more information, see [“Configuring the IMS Tools Knowledge Base server” on page 7.](#)

SC18-9230-02

IMS HP Prefix Resolution supports IMS 11 and IMS 12.

SC18-9230-01

- IMS HP Prefix Resolution supports IMS 10.
- A new control statement, HPPRBH, is added for the Stand-Alone Prefix Update and the Concurrent Prefix Update functions. For details, see [“Control statements for Stand-Alone Prefix Update” on page 48](#) and [“Control statements for Concurrent Prefix Update” on page 31.](#)
- Two new DD statements, DFSRESLB and DFSVSAMP, are added for the Stand-Alone Prefix Update and the Concurrent Prefix Update functions. For details, see [“DD statements for Stand-Alone Prefix Update” on page 45](#) and [“DD statements for Concurrent Prefix Update” on page 26.](#)
- New topics that explain the site default options are added. For details, see [Chapter 6, “Site default options,” on page 69.](#)

Product highlights

IMS HP Prefix Resolution enables you to run the Prefix Resolution function and the Prefix Update function in a single job step. It also reduces elapsed time as compared to running Prefix Resolution and Prefix Update separately. Users of IMS HP Prefix Resolution benefit from the utility's faster execution time.

IMS HP Prefix Resolution also has the following highlights:

Reduces tape handling

Where tape units are used for intermediate work data sets, tape handling is reduced because IMS HP Prefix Resolution has eliminated the intermediate work data sets DFSURWF2 and DFSURWF3.

Reduces DASD allocation

Where intermediate work data sets are on DASD devices, DASD allocation is reduced because IMS HP Prefix Resolution has eliminated the intermediate work data sets DFSURWF2 and DFSURWF3.

Simplifies report management

Integrates with IMS Tools Base IMS Tools Knowledge Base for storing and retrieving reports that are generated by the Concurrent Prefix Update and the Stand-Alone Prefix Update functions.

Restrictions

IMS HP Prefix Resolution resolves and updates prefixes of IMS databases that are involved in logical relationships as a single job step, with certain rules and restrictions.

The following restrictions apply to IMS HP Prefix Resolution:

- IMS HP Prefix Resolution cannot run under IMS region controller (DFSRR00).
- IMS HP Prefix Resolution cannot run under IMS Utility Control Facility (UCF).
- The Prefix Update function does not support IMS logging.
- The Prefix Update function does not support HISAM databases that have either an internal or an external logical relationship. If there is a logical relationship in your HISAM database, specify the FBYWF30 DD statement on Concurrent Prefix Update JCL or the Stand-Alone Prefix Update JCL. The Prefix Update function writes the WF3 records for HISAM databases into the FBYWF30 data set so that you can update the HISAM database by using the IMS Database Prefix Update utility with the FBYWF30 data set.

The IMS Database Prereorganization utility (DFSURPRO) performs a limit check for logical parent/logical child combinations affected by an intended database initial load or reload. The limit check is a worst-case check. If the limit check fails for a logical parent/logical child combination, message DFS885I is issued by the IMS Database Prereorganization utility. Refer to *IMS Messages and Codes, Volume 1* for an explanation of the message.

The limit check is the same as the one described in *IMS Database Utilities* for the IMS Database Prefix Resolution utility, and is as follows:

- For any given logical parent/logical child pair, the sum of items 1 and 2 below must not exceed 200 characters (the balance of 56 characters is used by IMS for control purposes):
 1. The length of the logical parent's concatenated key
 2. The length of the sequence field of the logical child as seen by its logical parent
- The sum must be computed once for the logical parent and once for the logical child. These summations are treated separately.
- One or more of the above quantities can be omitted from the summations as described:
 - The logical parent's concatenated key length must be included in both summation limit checks if the logical parent is being initially loaded, or if the logical child does not point to the logical parent with a logical parent pointer.
 - The logical child's sequence field length, as seen by its logical parent, must be included in the logical child's limit check if the logical child is being initially loaded and if it has a logical twin chain. Otherwise, it can be omitted.

If the listed limit check is not satisfied for either a logical parent or a logical child, the user can omit loading of the logical parent or logical child at initial database load time. The logical parent or logical child can then be inserted into the database at a later time by an application program operating in an update mode. Once a database is loaded, one or more of the components of the limit check can be omitted.

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:

[IBM Support: IMS High Performance Prefix Resolution for z/OS](#)

Product documentation and updates

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

Information on the web

Always refer to the IMS Tools Product Documentation web page for complete product documentation resources:

<https://www.ibm.com/support/pages/node/712955>

The IMS Tools Product Documentation web page includes:

- Links to [IBM Documentation](#) for the user guides ("HTML")
- PDF versions of the user guides ("PDF")
- Program Directories for IMS Tools products
- Recent updates to the user guides, referred to as "Tech docs" ("See updates to this information!")
- Technical notes from IBM Software Support, referred to as "Tech notes"

- White papers that describe product business scenarios and solutions

IBM Redbooks® publications that cover IMS 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 IMS databases while staying ahead of today's top data management challenges:

<https://www.ibm.com/software/data/ims/>

Receiving documentation updates automatically

To automatically receive emails that notify 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 Notifications service. You can customize the service so that you receive information about only those IBM products that you specify.

To register with the My Notifications 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 Notifications page is displayed, click **Subscribe** to select those products that you want to receive information updates about. The IMS 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 helps IBM to provide quality information. Send any comments that you have about this book or other IMS Tools documentation to comments@us.ibm.com. Include the name and version number of the product and the title and number of the book. If you are commenting on specific text, list the location of the text (for example, a chapter, topic, or section title).

Prerequisite knowledge

Before reading this information, you should understand basic IMS concepts, the IMS environment, and the IMS system used in your installation.

Related publications

The following IMS and DFSORT publications are recommended to users of IMS HP Prefix Resolution.

IMS publications

Refer to the set of publications that corresponds to the level of IMS that you are using.

- *IMS Database Administration*
- *IMS Database Utilities*
- *IMS Messages and Codes, Volume 1*
- *IMS Messages and Codes, Volume 2*

DFSORT publications

- *DFSORT Tuning Guide*
- *DFSORT Messages, Codes and Diagnosis Guide*
- *DFSORT Application Programming Guide*

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 IMS HP Prefix Resolution 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 ISPF User's Guide, Volume 1*
 - *z/OS TSO/E Primer*
 - *z/OS TSO/E User's Guide*

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. Installing and configuring IMS HP Prefix Resolution

Use the following topics to install and configure IMS HP Prefix Resolution.

Topics:

- “Software and hardware requirements” on page 7
- “Configuring the IMS Tools Knowledge Base server” on page 7

Software and hardware requirements

To use IMS HP Prefix Resolution, you must prepare an environment that meets the software and hardware requirements of IMS HP Prefix Resolution.

Complete information about installation requirements, prerequisites, and procedures for IMS HP Prefix Resolution is located in the *Program Directory for IBM IMS High Performance Prefix Resolution for z/OS* (GI10-8592).

Software requirements

IMS HP Prefix Resolution operates in z/OS. The operating system requirements are the same as those for IMS. All supported releases of IMS are supported by IMS HP Prefix Resolution.

In addition, the IMS HP Prefix Resolution utility requires DFSORT (Data Facility Sort) or a functionally equivalent sort/merge program.

To store IMS HP Prefix Resolution reports in the IMS Tools Knowledge Base repository by using the `ITKBSRVR=server_name` option, IMS Tools Base for z/OS 1.6 IMS Tools Knowledge Base or later must be installed.

Hardware requirements

The hardware requirements are the same as those for IMS.

Configuring the IMS Tools Knowledge Base server

IBM IMS Tools Base for z/OS IMS Tools Knowledge Base (IMS Tools Knowledge Base) provides common services for storing and viewing reports that are generated by other participating IMS Tools products. Configure the IMS Tools Knowledge Base server if you want to store IMS HP Prefix Resolution reports in the IMS Tools Knowledge Base Output repository.

About this task

To fully participate in the IMS Tools Knowledge Base information management environment, each IMS tool must be enabled to communicate with the IMS Tools Knowledge Base server. An enabled IMS tool can automatically send its generated reports to the IMS Tools Knowledge Base repository. This version of IMS HP Prefix Resolution is enabled to participate in the IMS Tools Knowledge Base environment.

Procedure

To store IMS HP Prefix Resolution reports in the IMS Tools Knowledge Base Output repository by using the `ITKBSRVR=server_name` control statement, you must set up the environment by completing the following steps:

Note: For detailed procedures about the tasks that are related to IMS Tools Knowledge Base, see the *Tools Base Configuration Guide for IMS*.

1. Ensure that APAR PM43488 is applied to IMS HP Prefix Resolution.
2. Ensure that IMS Tools Base IMS Tools Knowledge Base is installed.
3. Set up an IMS Tools Knowledge Base server.
4. If needed, register the RECON.
5. Register IMS HP Prefix Resolution with IMS Tools Knowledge Base.

The registration process defines IMS HP Prefix Resolution reports to IMS Tools Knowledge Base so that IMS HP Prefix Resolution reports can be stored in the IMS Tools Knowledge Base repository.

Use the IMS Tools Knowledge Base product administration utility (HKTAPRA0) to register IMS HP Prefix Resolution with IMS Tools Knowledge Base. The product definition table for registering IMS HP Prefix Resolution is FABYTITK. For more information, see the topic "Registering products" in the *Tools Base Configuration Guide for IMS*.

After you register IMS HP Prefix Resolution with IMS Tools Knowledge Base, follow the instructions in the topic "Listing registered products and reports" in the *Tools Base Configuration Guide for IMS* to list the registered products and reports, and ensure that IMS HP Prefix Resolution (product ID is DH) has been added.

6. Verify communication with the IMS Tools Knowledge Base server.

Verify that the systems that you will run IMS HP Prefix Resolution on will have XCF communications with the IMS Tools Knowledge Base server and that the FPQ subsystem is started on each of these systems. In the *Tools Base Configuration Guide for IMS*, refer to the topic "Defining IMS Tools KB to the operating system".

7. Request that IMS HP Prefix Resolution write reports to the IMS Tools Knowledge Base repository.

Specify the name of the IMS Tools Knowledge Base server in the ITKBLOAD and ITKBSRVR control statements of the IMS HP Prefix Resolution FABYIN data set. These control statements direct IMS HP Prefix Resolution to communicate to the IMS Tools Knowledge Base server so that IMS HP Prefix Resolution reports can be stored in the IMS Tools Knowledge Base repository.

For more information about the control statements to specify in the FABYIN data set and the reports that can be stored in the repository, see ["Control statements for Concurrent Prefix Update" on page 31](#) and ["Control statements for Stand-Alone Prefix Update" on page 48](#).

What to do next

After you complete these steps, IMS HP Prefix Resolution can store its reports in the IMS Tools Knowledge Base Output repository. Before you run IMS HP Prefix Resolution jobs, always confirm that the IMS Tools Knowledge Base server is initialized.

When the reports are stored in the repository, you can use the ISPF user interface to view, print, and manage reports.

Chapter 3. Running IMS HP Prefix Resolution

You can run IMS HP Prefix Resolution in three ways: Stand-Alone Prefix Resolution, Concurrent Prefix Update, and Stand-Alone Prefix Update.

The following topics explain the features and benefits of each method, and explain how to code the JCL statements for each method.

Topics:

- [“Stand-Alone Prefix Resolution” on page 9](#)
- [“Concurrent Prefix Update” on page 24](#)
- [“Stand-Alone Prefix Update” on page 43](#)

Stand-Alone Prefix Resolution

Use Stand-Alone Prefix Resolution to run the Prefix Resolution function for preprocessing the information that has accumulated on work data sets during the database initial load or reorganization of logically related databases and/or databases with secondary indexes.

The Stand-Alone Prefix Resolution function optionally produces an output data set that contains the prefix information that is needed to complete the logical relationships defined for the databases. Stand-Alone Prefix Resolution also optionally produces a data set that contains information that is required to create or update secondary index databases.

Stand-Alone Prefix Resolution provides the following three functions:

- Creating work data set for logically related databases
- Creating work data set for secondary index databases
- Creating reports

The database administrator determines whether one or both of the two work data sets are created.

The following figure shows the general data flow for Stand-Alone Prefix Resolution.

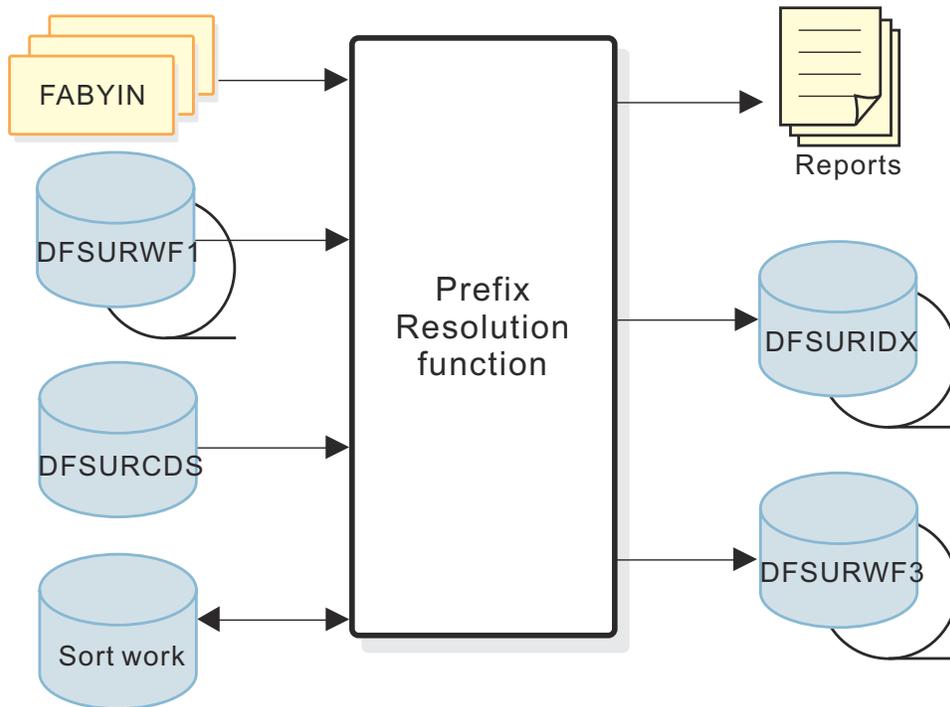


Figure 1. Overview of Stand-Alone Prefix Resolution

HPPRPIPE service

Stand-Alone Prefix Resolution uses a data transfer service called HPPRPIPE. HPPRPIPE provides high performance data transfer between tasks running in the address space of IMS HP Prefix Resolution. By using HPPRPIPE, the intermediate Work File 2 (WF2) data set is eliminated.

Running Stand-Alone Prefix Resolution

Stand-Alone Prefix Resolution is run as a standard z/OS job. It consists of a single job step. To run Stand-Alone Prefix Resolution, you must supply an EXEC statement that invokes the program FABYMAIN, and DD statements that define inputs and outputs.

Before you begin

Before running Stand-Alone Prefix Resolution, consider tuning your environment to improve performance. See [Chapter 5, “Performance and tuning,”](#) on page 61 for integral information about performance and tuning.

Procedure

1. Specify the EXEC statement in the following form:

```
//HPPR EXEC PGM=FABYMAIN,REGION=nnn
```

where *nnn* is the region size. The minimum region size requirement depends on the internal sort/merge requests and on the number of I/O buffers specified on the DFSURWF1, DFSURWF3, and DFSURIDX DD statements. The minimum requirement is approximately 4 MB. Performance improves as the region size is increased. The recommended value for the region size is 8 MB or higher.

2. Provide DD statements.

For a list of DD statements for Stand-Alone Prefix Resolution, see [“DD statements for Stand-Alone Prefix Resolution”](#) on page 11.

3. Provide control statements.

For a list of control statements for Stand-Alone Prefix Resolution, see [“Control statements for Stand-Alone Prefix Resolution”](#) on page 15.

- Specify the following FABYIN control statement:

```
UPDATE=NO
```

This control statement is optional because UPDATE=NO is used when UPDATE control statement is not specified.

Related reference

[JCL example for Stand-Alone Prefix Resolution](#)

To run Stand-Alone Prefix Resolution, you must edit and submit a JCL stream. This example will give you an idea how to specify parameters in the JCL stream.

DD statements for Stand-Alone Prefix Resolution

DD statements define inputs and outputs for Stand-Alone Prefix Resolution jobs. You must supply the DD statements before you run a Stand-Alone Prefix Resolution job.

The following DD statements can be specified for Stand-Alone Prefix Resolution jobs.

Table 1. DD statements for Stand-Alone Prefix Resolution

DDNAME	Use	Format	Need	Description
JOBLIB/ STEPLIB	Input		Required	Points to the IMS.SDFSRESL, which contains the IMS nucleus and required action modules, and to the IMS HP Prefix Resolution load library, which contains the FABYMAIN main load module. One of these DD statements is required.
DFSURCDS	Input		Required	Defines the control data set. It refers to the control data set that is generated by the IMS Database Preorganization utility.
DFSURWF1	Input	LRECL=900	Required	Defines the input data set. The data sets referred to by this DD statement are the output work data sets produced during a database initial load, reload, or scan process; those work data sets must be concatenated. DCB parameters specified within this program are RECFM=VB, and LRECL=900. Do not specify BLKSIZE. This DD statement affects the performance of IMS HP Prefix Resolution. For more information, see Chapter 5, “Performance and tuning,” on page 61.

Table 1. DD statements for Stand-Alone Prefix Resolution (continued)

DDNAME	Use	Format	Need	Description
DFSURWF3	Output	LRECL=300	Optional	<p>Defines the output work data set that Stand-Alone Prefix Resolution creates. It is supplied as input to Stand-Alone Prefix Update or the IMS Database Prefix Update utility. Its size is approximately the same as that of the input data set defined by the DFSURWF1 DD statement minus the size of DFSURIDX.</p> <p>DCB parameters specified within this program are RECFM=VB and LRECL=300. Blocking is strongly recommended. If you omit to specify a BLKSIZE, the system will automatically calculate optimum block size for you.</p> <p>This DD statement is required if you specify TYPE=LO, TYPE=IM, or TYPE=LM for the FABYIN control statement.</p>
DFSURIDX	Output	LRECL=900	Optional	<p>Defines the output work data set that is used if secondary indexes are defined in the databases that are being reorganized or loaded. This data set is used as input to the IMS HISAM Reorganization Unload utility (DFSURULO) for creating, replacing, merging, or extracting secondary indexes (shared or unshared).</p> <p>DCB parameters specified within this program are RECFM=VB and LRECL=900. Blocking is strongly recommended. If you omit to specify a BLKSIZE, the system will automatically calculate optimum block size for you.</p> <p>This DD statement is required if you specify TYPE=LM, TYPE=IO, or TYPE=IM for the FABYIN control statement.</p> <p>This DD statement affects the performance of IMS HP Prefix Resolution. For more information, see Chapter 5, "Performance and tuning," on page 61.</p>
FABYIN	Input	LRECL=80	Required	<p>Defines the data set for control statements that specify options for IMS HP Prefix Resolution.</p>
FABYPRNT	Output	LRECL=133	Required	<p>Defines the data set for reports.</p> <p>DCB parameters that are specified within this program are RECFM=FBA and LRECL=133.</p>
FABYMSG	Output	LRECL=133	Required	<p>Defines the data set for messages.</p> <p>DCB parameters that are specified within this program are RECFM=FBA and LRECL=133.</p>

Table 1. DD statements for Stand-Alone Prefix Resolution (continued)

DDNAME	Use	Format	Need	Description
FABYWF2	Input Output	LRECL=900	Optional	<p>Defines the intermediate data set that is used when you specify WF2OUT=YES in the FABYIN control statement data set. Its size is approximately the same as that of the input data set defined by the DFSURWF1 DD statement minus the size of DFSURIDX.</p> <p>DCB parameters are RECV=VB and LRECL=900. Blocking is strongly recommended. If you omit the BLKSIZE parameter, the system automatically calculates the optimum block size.</p> <p>This DD statement is required if you specify WF2OUT=YES in the FABYIN control statement data set.</p>
FABYW2R3	Output	LRECL=900	Optional	<p>Defines the output data set for the SKIPLCR3 process routine. This data set is used only for the purpose of debugging to dump the first 10000 skipped records when you specify SKIPLCR3=YES in the FABYIN control statement data set. Because this DD statement might degrade performance, specify this DD statement only when you are requested by IBM Software Support.</p> <p>DCB parameters are RECV=VB and LRECL=900. Blocking is strongly recommended. If you omit the BLKSIZE parameter, the system automatically calculates the optimum block size.</p>
FABYW3nn	Output	LRECL=300	Optional	<p>Define the output work data sets that Stand-Alone Prefix Resolution creates when you specify SPLITWF3=YES and TYPE=LO, TYPE=IM, or TYPE=LM in the FABYIN control statement data set. These output data sets are used as input to Stand-Alone Prefix Update or the IMS Database Prefix Update utility.</p> <p>nn corresponds to the order of the databases processed. For example, FABYW301 is for the first database to be updated, FABYW302 is for the second database to be updated, and so on. You can specify up to 99 FABYW3nn DD statements.</p> <p>If the number of FABYW3nn DD statements is less than the number of the databases to be updated, the DFSURWF3 DD statement is used for the rest of the databases.</p> <p>The data set sizes are approximately the same as that of the input data set defined by the DFSURWF1 DD statement minus the size of DFSURIDX.</p> <p>DCB parameters are RECV=VB and LRECL=300. Blocking is strongly recommended. If you omit the BLKSIZE parameter, the system automatically calculates the optimum block size.</p>

Table 1. DD statements for Stand-Alone Prefix Resolution (continued)

DDNAME	Use	Format	Need	Description
INDXWKnn	Input Output		Optional	<p>Define intermediate storage data sets for the operating system sort/merge program.</p> <p>If these DD statements are not provided, the sort program tries to dynamically allocate the needed work space.</p> <p>For more information about specifying the number and size of intermediate storage data sets, see Chapter 5, "Performance and tuning," on page 61.</p>
LPLCWKnn TWINWKnn	Input Output		Optional	<p>Define intermediate storage data sets for the operating system sort/merge program. These data sets are used when WF2OUT=YES is not specified in the FABYIN control statement data set.</p> <p>If these DD statements are not provided, the sort program tries to dynamically allocate the needed work space.</p> <p>For more information about specifying the number and size of intermediate storage data sets, see Chapter 5, "Performance and tuning," on page 61.</p>
INDXMSG LPLCMSG TWINMSG	Output		Optional	<p>Define the message data sets from the internally attached sort/merge programs.</p> <p>If these DD statements are omitted, the messages from the sort/merge programs are written into the data set that is specified by the FABYMSG DD statement.</p>
SORTLIB	Input		Optional	<p>Defines the library that contains the load modules for your operating system sort/merge modules.</p>
SORTWKnn	Input Output		Optional	<p>Define intermediate storage data sets for the operating system sort/merge program when you specify WF2OUT=YES in the FABYIN control statement data set.</p> <p>When WF2OUT=YES is specified, SORTWKnn data sets are used instead of LPLCWKnn data sets and TWINWKnn data sets. The required number and the size of the SORTWKnn data sets are approximately the same as those of LPLCWKnn data sets. Generally, the required number and the size of TWINWKnn data sets are smaller than those of LPLCWKnn data sets, so using LPLCWKnn number and size for SORTWKnn is sufficient.</p> <p>If SORTWKnn DD statements are not provided, the sort program tries to dynamically allocate the needed work space.</p>
SYSUDUMP	Output	LRECL=133	Optional	<p>Defines the dump data set.</p> <p>This DD statement can be specified as DUMMY.</p>

Control statements for Stand-Alone Prefix Resolution

The FABYIN data set contains your description of the processing to be done by IMS HP Prefix Resolution while running a Stand-Alone Prefix Resolution job.

This control data set usually resides in the input stream. However, it can also be defined as a member of a sequentially partitioned data set.

Syntax rules

The length of the FABYIN data set must be fixed at 80 bytes. BLKSIZE, if specified, must be a multiple of 80.

The control statements must conform to the following syntax rules:

- A control statement is a keyword followed by an equal sign (=) and a value.
- A keyword and its value or values must be on a single line and must be specified between columns 1 - 80, both inclusive.
- For each control statement, any number of leading blanks can be specified for the purpose of indentation.
- A statement keyword must be separated from its associated value by an equal sign (=). The equal sign must not be preceded or followed by blanks.
- A line that starts with an asterisk (*) in column 1 is treated as a comment line.
- You can specify Y for YES and N for NO.

Description of control statements

The following control statements can be used for Stand-Alone Prefix Resolution.

ALLOWLC

ALLOWLC specifies whether to allow the existence of logical children that do not have logical parents. This control statement is optional. If you do not specify this control statement, ALLOWLC=NO is used.



NO

Specifies to end the Prefix Resolution function with message FABY879A when logical children that do not have logical parents exist.

YES

Specifies to allow the existence of logical children that do not have logical parents. Message FABY879W is issued.

Tip: The default value of this control statement can be changed with site default options.

ALLOWLP

ALLOWLP specifies whether to allow logical parents that do not have logical children.

This control statement is optional. If you do not specify this control statement, ALLOWLP=YES is used.



YES

Specifies to allow the existence of logical parents that do not have logical children.

NO

Specifies to end the Prefix Resolution function with message FABY878A when logical parents that do not have logical children exist.

Tip: The default value of this control statement can be changed with site default options.

AVGRLLEN

AVGRLLEN specifies the estimated average length of logical pointer records in the DFSURWF1 input data set.

This control statement is optional. If the AVGRLLEN control statement is provided, space utilization of the LPLCWKnn, the TWINWKnn, or the SORTWKnn data sets and performance can be improved.

►► AVGRLLEN= *nnn* ◄◄

nnn

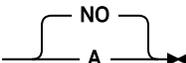
Specify a value in the range of 1 - 999. Leading zeros are optional for value *nnn*.

Note: The value you can specify for this control statement is a performance sensitive parameter. You can determine the value for this control statement by using DFSORT statistics.

DEBUG

DEBUG specifies whether to turn on the debug function.

This control statement is optional. If you do not specify this control statement, DEBUG=NO is used.

►► DEBUG=  ◄◄

NO

Specifies not to turn on the debug function.

A

Specifies to turn on the debug function. Additional FABY011I messages are issued to show the progress of sort with sort exits E15 and E35.

FILSZ

FILSZ specifies the estimated number of logical pointer records in the DFSURWF1 input data set.

This control statement is optional. If the FILSZ control statement is provided, space utilization of the LPLCWKnn, the TWINWKnn, or the SORTWKnn data sets and performance can be improved.

►► FILSZ= *nnnnnnnnn* ◄◄

nnnnnnnnn

Specify a value in the range of 1 - 999999999. Leading zeros are optional for value *nnnnnnnnn*.

When estimating the value of the FILSZ control statement, remember that there are one or more logical pointer records for each occurrence of the source database segments that have a logical relationship to other segments in the same or other databases (as specified in the DBD).

For such logical relationships, there is one record for:

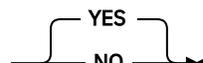
- Each logical parent
- Each of its logical children
- The last logical child (if used)
- Each logical twin forward and backward pointer

Note: The value you can specify for this control statement is a performance sensitive parameter. You can determine the value for this control statement by using DFSORT statistics.

OPRTLC

OPRTLC specifies whether logical children with no logical parents are printed in the Orphan Records report.

This control statement is optional. If you do not specify this control statement, OPRTLC=YES is used.

►► OPRTLC=  ◄◄

YES

Specifies to print logical children that do not have logical parents.

NO

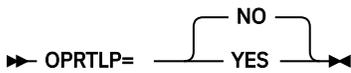
Specifies not to print logical children that do not have logical parents.

Tip: The default value of this control statement can be changed with site default options.

OPRTLPL

OPRTLPL specifies whether logical parents with no logical children are printed in the Orphan Records report.

This control statement is optional. If you do not specify this control statement, OPRTLPL=NO is used.



NO

Specifies not to print logical parents that do not have logical children.

YES

Specifies to print logical parents that do not have logical children.

Tip: The default value of this control statement can be changed with site default options.

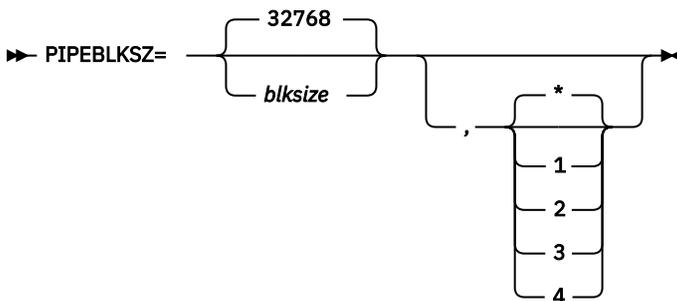
PIPEBLKSZ

PIPEBLKSZ specifies how many records can be moved to and from a pipe used by the HPPRPIPE service per transmission.

Recommendation: Consider specifying this control statement only when you finish tuning other parameters because the performance of HPPRPIPE depends on various factors and this control statement can degrade performance.

The block size you specify for PIPEBLKSZ must include the data length (up to 32,756 bytes) plus 4 bytes for the internal block descriptor word (BDW).

If you change the PIPEBLKSZ specification, you might need to change the value of the REGION parameter to avoid running out of virtual storage.



The first parameter *blksize* specifies the block size for the pipe identified by the second parameter, which specifies a pipe ID.

The default block size is 32768 for each pipe. If the *blksize* value is not specified, the default value is used for the specified pipe ID. If only the *blksize* value is specified, or the *blksize* value is specified with pipe ID *, it overrides the default block size. The maximum *blksize* value is 262144, and the minimum value is 1024. The minimum value must be larger than or equal to the maximum length of the records you are to transfer through the pipe, plus four.

Pipe IDs: Pipe ID is a number that identifies a pipe allocated between tasks running in an IMS HP Prefix Resolution job. You can specify one of the following pipe IDs:

1

The pipe between secondary index processing (INDX sort task) and logical parent/logical child processing (LPLC sort task) in the Prefix Resolution function. This pipe is allocated only when both

INDX sort and LPLC sort are used in Stand-Alone Prefix Resolution or Concurrent Prefix Update jobs.

2

The pipe to eliminate the intermediate Work File 2 (WF2) data set that is used in the Prefix Resolution function. This pipe is not allocated when WF2 type data is not required. For example, the pipe is not allocated in Stand-Alone Prefix Update jobs.

3

The pipe to eliminate the intermediate Work File 3 (WF3) data set that is used between the Prefix Resolution process and the Prefix Update process. This pipe is not allocated when WF3 type data is not required. For example, the pipe is not allocated in Stand-Alone Prefix Resolution or Stand-Alone Prefix Update jobs.

4

The pipe that is used internally in Prefix Update jobs. For example, the IMS DL/I buffer handler task, which updates OSAM data sets, allocates this pipe.

*

All four pipes. The value of all pipes are changed if you omit the pipe ID or specify an asterisk (*) for the pipe ID.

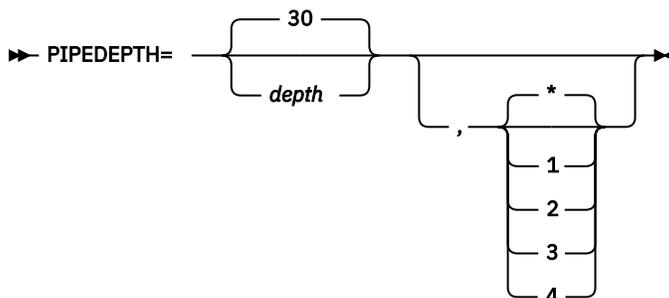
PIPEDEPTH

PIPEDEPTH specifies the number of blocks that can be in a pipe used by the HPPRPIPE service at any given time before the pipe becomes full.

Recommendation: Consider specifying this control statement only when you finish tuning other parameters because the performance of HPPRPIPE depends on various factors and this control statement can degrade performance.

The use of large values for PIPEDEPTH enables the HPPRPIPE service to accumulate more information in virtual storage. This can be helpful in smoothing out periodic wait periods during which the writing task is forced to wait because the pipe temporarily becomes full. The pipe becomes full because the reading task is temporarily delayed in reading data from the pipe.

If you change the PIPEDEPTH specification, you might need to change the value of the REGION parameter to avoid running out of virtual storage.



The first parameter *depth* specifies the number of blocks that can be held in the pipe, which is identified by the second parameter, at any given time before the pipe becomes full. The second parameter specifies a pipe ID.

The default number of blocks is 30 for each pipe. If the *depth* value is not specified, the default value is used for the specified pipe ID. If only the *depth* value is specified, or the *depth* value is specified with pipe ID *, it overrides the default number of blocks. The maximum value is 1792, and the minimum value is 2.

Pipe IDs: Pipe ID is a number that identifies a pipe allocated between tasks running in an IMS HP Prefix Resolution job. You can specify one of the following pipe IDs:

1

The pipe between secondary index processing (INDX sort task) and logical parent/logical child processing (LPLC sort task) in the Prefix Resolution function. This pipe is allocated only when both

INDX sort and LPLC sort are used in Stand-Alone Prefix Resolution or Concurrent Prefix Update jobs.

2

The pipe to eliminate the intermediate Work File 2 (WF2) data set that is used in the Prefix Resolution function. This pipe is not allocated when WF2 type data is not required. For example, the pipe is not allocated in Stand-Alone Prefix Update jobs.

3

The pipe to eliminate the intermediate Work File 3 (WF3) data set that is used between the Prefix Resolution process and the Prefix Update process. This pipe is not allocated when WF3 type data is not required. For example, the pipe is not allocated in Stand-Alone Prefix Resolution or Stand-Alone Prefix Update jobs.

4

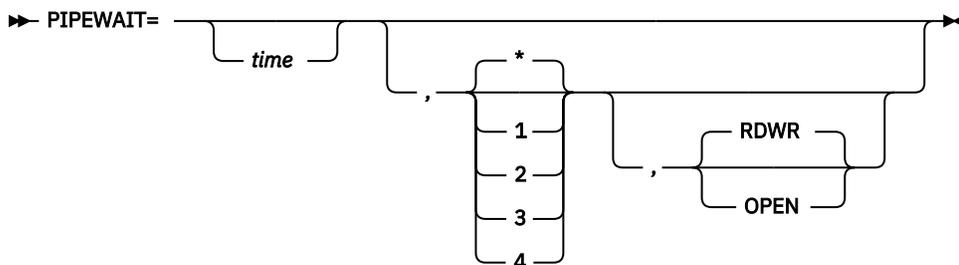
The pipe that is used internally in Prefix Update jobs. For example, the IMS DL/I buffer handler task, which updates OSAM data sets, allocates this pipe.

*

All four pipes. The value of all pipes are changed if you omit the pipe ID or specify an asterisk (*) for the pipe ID.

PIPEWAIT

PIPEWAIT specifies the amount of time a writer or a reader of a pipe can remain in a wait state before the HPPRPIPE service issues a message and ends abnormally.



The first parameter time specifies the amount of time that a reader or a writer that connects to the pipe, which is identified by the second parameter, can remain in a wait state. The second parameter specifies a pipe ID. The third parameter specifies the target to apply the wait state. The default value RDWR is used when the third parameter is not specified.

Pipe IDs: Pipe ID is a number that identifies a pipe allocated between tasks running in an IMS HP Prefix Resolution job. You can specify one of the following pipe IDs:

1

The pipe between secondary index processing (INDX sort task) and logical parent/logical child processing (LPLC sort task) in the Prefix Resolution function. This pipe is allocated only when both INDX sort and LPLC sort are used in Stand-Alone Prefix Resolution or the Concurrent Prefix Update jobs.

2

The pipe to eliminate the intermediate Work File 2 (WF2) data set that is used in the Prefix Resolution function. This pipe is not allocated when WF2 type data is not required. For example, the pipe is not allocated in Stand-Alone Prefix Update jobs.

3

The pipe to eliminate the intermediate Work File 3 (WF3) data set that is used between the Prefix Resolution process and the Prefix Update process. This pipe is not allocated when WF3 type data is not required. For example, the pipe is not allocated in Stand-Alone Prefix Resolution or the Stand-Alone Prefix Update jobs.

4

The pipe that is used internally in Prefix Update jobs. For example, the IMS DL/I buffer handler task, which updates OSAM data sets, allocates this pipe.

*

All four pipes. The value of all pipes are changed if you omit the pipe ID or specify an asterisk (*) for the pipe ID.

RDWR

Specifies to apply the wait state to the read and write wait state of the pipe.

When you specify RDWR, the first parameter time specifies, in minutes, how long a writer or a reader for the pipe can remain in a wait state. The value can be in the range of 1 - 1440.

The default is 1440 minutes for pipe ID 1, and 15 minutes for pipe ID 2, 3, and 4. If the time value is specified with no pipe ID, or the time value is specified with pipe ID *, it overrides the default time value for all pipes.

OPEN

Specifies to apply the wait state to the open wait state of the pipe.

When you specify OPEN, the first parameter time specifies, in seconds, how long a writer or a reader for the pipe can remain in a wait state. The value can be in the range of 1 - 1440.

The default is 30 seconds for each pipe. If the time value is specified with no pipe ID, or the time value is specified with pipe ID *, it overrides the default time value for all pipes.

SKIPLCR3

SKIPLCR3 specifies whether to suppress generating the intermediate Work File 3 (WF3) records for logical child segments when the logical child segments have no direct pointers, such as direct LP and direct LT pointers.

This control statement is optional. The default is SKIPLCR3=NO, which means that WF3 records are generated for all logical child segments.



NO

Generates WF3 records for all logical child segments.

During the prefix update processing, the Prefix Update function skips the WF3 records for logical child segments that have no direct pointers. Reason code 03 is printed in the Update Processing Summary report to indicate that such segments were skipped.

YES

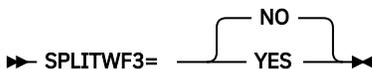
Does not generate WF3 records for logical child segments that have no direct pointers.

SKIPLCR3=YES can improve the performance of the job.

SPLITWF3

SPLITWF3 specifies whether to use multiple output data sets for the intermediate Work File 3 (WF3) records.

This control statement is optional. The default is SPLITWF3=NO, which means that a single data set is used.



NO

Specifies to use only one output data set. If you specify SPLITWF3=NO, you must also specify the DFSURWF3 DD statement.

YES

Specifies to use multiple output data sets.

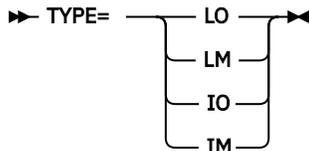
If you specify SPLITWF3=YES and TYPE=LO, TYPE=IM, or TYPE=LM in the FABYIN control statement data set, also specify FABYW3nn DD statements to define the output data sets. nn

corresponds to the order of the databases processed. For example, FABYW301 is for the first database to be updated, FABYW302 is for the second database to be updated, and so on. You can specify up to 99 FABYW3nn DD statements. If the number of FABYW3nn DD statements is less than the number of the databases to be updated, the DFSURWF3 DD statement is used for the rest of the databases.

TYPE

TYPE specifies the type of processing for the Prefix Resolution function.

This control statement is required.



LO

Stands for *Logical pointers Only*, and specifies that only the logical pointer resolution is run. Secondary index processing is not run, and the DFSURIDX data set is not created.

LM

Stands for *Logical pointers Mainly*, and specifies that most records in the DFSURWF1 input data set are records for logical pointer resolution. Both logical pointer resolution and secondary index processing are run.

IO

Stands for *Index pointers Only*, and specifies that only secondary index processing is run. Logical pointer resolution is not run, and the DFSURWF3 data set is not created.

IM

Stands for *Index pointers Mainly*, and specifies that most records in the DFSURWF1 data set are records for secondary index processing. Both logical pointer resolution and secondary index processing are run.

When both logical pointer resolution and secondary index processing are to be run, you can improve performance by correctly specifying **LM** or **IM**. If you are running the function for the first time and you are not sure whether your database contains more logically related records or more secondary index records, make an educated guess.

Choosing the TYPE option determines the DD specifications that are required:

- If you specify TYPE=LO, TYPE=IM, or TYPE=LM, the DFSURWF3 DD statement is required.
- If you specify TYPE=IO, TYPE=IM, or TYPE=LM, the DFSURIDX DD statement is required.

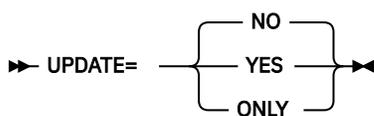
Note: The value you can specify for this control statement is a performance sensitive parameter. You can determine the value for this control statement by using DFSORT statistics.

UPDATE

UPDATE specifies the function of IMS HP Prefix Resolution.

This control statement is optional. If you do not specify this control statement, UPDATE=NO is used.

To use Stand-Alone Prefix Resolution, you must specify UPDATE=NO or omit this control statement.



NO

Specifies to run only the Prefix Resolution function.

YES

Specifies to run the Prefix Resolution and the Prefix Update function in a single job step.

ONLY

Specifies to run only the Prefix Update function.

Tip: The default value of this control statement can be changed with site default options.

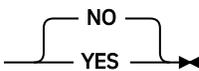
WF2OUT

WF2OUT specifies whether to use the intermediate Work File 2 (WF2) data set instead of the HPPRPIPE service.

Tip: The value you can specify for this control statement is a performance sensitive parameter. If high CPU time consumption or large sort work space to run two DFSORT tasks concurrently is the problem, WF2OUT=YES can resolve it. Otherwise, the performance of the Prefix Resolution function declines if you specify this parameter.

This control statement is optional. The default is WF2OUT=NO, which means that the WF2 data set is not used.

Recommendation: Because this control statement can degrade performance, specify this control statement after you finish tuning other parameters.

►► WF2OUT=  NO
YES

NO

Does not use the WF2 data set. HPPRPIPE is used instead.

Specifying WF2OUT=NO can eliminate much of the I/O and handling of the tape and DASDs, as well as the allocation of the DASDs that are associated with the WF2 data set.

YES

Uses the WF2 data set.

If you specify WF2OUT=YES, you must also specify the FABYWF2 DD statement.

If you specify WF2OUT=YES, the SORTWK*nn* DD statements are used instead of the LPLCWK*nn* DD statements. Also, TWINWK*nn* DD statements are not used because the TWIN sort reuses the SORTWK*nn* data sets.

Specifying WF2OUT=YES can eliminate CPU time associated with the HPPRPIPE service, and reduce the space required for the sort work data sets.

XAVGLEN

XAVGLEN specifies the estimated average length of secondary index records in the DFSURWF1 input data set.

This control statement is optional. If the XAVGLEN control statement is provided, both space utilization of the INDXWK*nn* data sets and performance can be improved.

►► XAVGLEN= *nnn* ►►

nnn

Specify a value in the range of 1 - 999. Leading zeros are optional for value *nnn*.

Note: The value you can specify for this control statement is a performance sensitive parameter. You can determine the value for this control statement by using DFSORT statistics.

XFILSZ

XFILSZ specifies the estimated number of secondary index records in the DFSURWF1 input data set.

This control statement is optional. If the XFILSZ control statement is provided, both space utilization of the INDXWK*nn* data sets and performance can be improved.

►► XFILSZ= *nnnnnnnnn* ►►

nnnnnnnnn

Specify a value in the range of 1 - 999999999. Leading zeros are optional for value *nnnnnnnnn*.

The value that you specify for XFILSZ should indicate that one secondary index record exists for each occurrence of the source database segments that were identified in the DBD as having a secondary index.

Note: The value you can specify for this control statement is a performance sensitive parameter. You can determine the value for this control statement by using DFSORT statistics.

Related tasks

[Setting default values](#)

Create a site default table (FABYGBT0) to change the default values of some FABYIN control statements.

[Specifying performance-sensitive JCL parameters](#)

By specifying certain options and parameters in your JCL, you can reduce the elapsed time to run IMS HP Prefix Resolution.

JCL example for Stand-Alone Prefix Resolution

To run Stand-Alone Prefix Resolution, you must edit and submit a JCL stream. This example will give you an idea how to specify parameters in the JCL stream.

The JCL example shown in the following figure invokes Stand-Alone Prefix Resolution to resolve logical relationships and preprocess secondary indexes.

In this example, the TYPE=LM control statement is specified.

The preallocated DFSURWF3 data set is used as input to Stand-Alone Prefix Update or the IMS Database Prefix Update utility.

The preallocated DFSURIDX is an output data set needed by the IMS HISAM Reorganization Unload and Reload utilities to build secondary indexes.

For your own needs, change the values marked in bold.

```
//HPPR      JOB (.....),...
//*
//JOBLIB    DD DISP=SHR,DSN=IMS.SDFSRESL
//          DD DISP=SHR,DSN=HPS.SHPSLMD0
//HPPR      EXEC PGM=FABYMAIN
//*-----*
//*          STAND-ALONE PREFIX RESOLUTION          *
//*-----*
//DFSURWF1 DD DISP=SHR,DSN=FABY.WF1.A, BUFNO=88
//          DD DISP=SHR,DSN=FABY.WF1.B
//DFSURWF3 DD DISP=SHR,DSN=FABY.WF3, BUFNO=44
//DFSURCDS DD DISP=SHR,DSN=FABY.CDS
//DFSURIDX DD DISP=SHR,DSN=FABY.IDX, BUFNO=44
//SYSUDUMP DD SYSOUT=*
//INDXWK01 DD UNIT=3390,SPACE=(CYL,(22,1)),VOLUME=ABC001
//INDXWK02 DD UNIT=3390,SPACE=(CYL,(22,1)),VOLUME=ABC002
//LPLCWK01 DD UNIT=3390,SPACE=(CYL,(22,1)),VOLUME=ABC003
//LPLCWK02 DD UNIT=3390,SPACE=(CYL,(22,1)),VOLUME=ABC004
//TWINWK01 DD UNIT=3390,SPACE=(CYL,(22,1)),VOLUME=ABC005
//TWINWK02 DD UNIT=3390,SPACE=(CYL,(22,1)),VOLUME=ABC006
//FABYPRNT DD SYSOUT=*
//FABYMSG  DD SYSOUT=*
//FABYIN   DD *
//          TYPE=LM
//          UPDATE=NO
/*
```

Figure 2. Stand-Alone Prefix Resolution JCL

Output from Stand-Alone Prefix Resolution

After running a Stand-Alone Prefix Resolution job, some work data sets and reports are created. These data sets will be used as inputs for other utilities or functions, and the reports can be used to check the job.

The outputs created are:

Work data sets for logically related databases

Stand-Alone Prefix Resolution optionally produces data sets that contain the information that is required to resolve the pointers between logically related databases. The data sets are DFSURWF3 and FBYW3nn, and they are used as input to the Stand-Alone Prefix Update or the IMS Database Prefix Update utility (DFSURGP0).

Unless you specify SPLITWF3=YES in the FBYIN control statement data set, DFSURWF3 is the only work data set. If you specify SPLITWF3=YES, both FBYW3nn and DFSURWF3 can be used as work data sets. When SPLITWF3=YES is specified, you can identify the data sets that were used by reviewing the Split WF3 Data Set Statistics report.

Work data set for secondary index databases

Stand-Alone Prefix Resolution optionally produces a data set that contains information that is required to create or re-create secondary index databases. This data set, DFSURIDX, is used as input to the IMS HISAM Reorganization Unload utility (DFSURULO).

Reports

Stand-Alone Prefix Resolution produces five reports. Reports contain the following information:

- Echo back of FBYIN control statements
- Diagnostics and summary of logical parents without logical children
- Statistics and distribution of logical parents based on the number of their logical children
- Image of DFSURWF1 records of logical parents without logical children or logical children without logical parents
- Statistics about split intermediate WF3 output data sets

Related reference

[IMS HP Prefix Resolution reports](#)

IMS HP Prefix Resolution generates reports. These reports can be used to check your IMS HP Prefix Resolution jobs.

Concurrent Prefix Update

Use Concurrent Prefix Update to run the Prefix Update function concurrently during the Prefix Resolution function. Concurrent Prefix Update resolves and updates the prefix of each segment whose information was affected by database load, database reorganization, or both, in a single job step.

The following figure shows the general data flow for Concurrent Prefix Update.

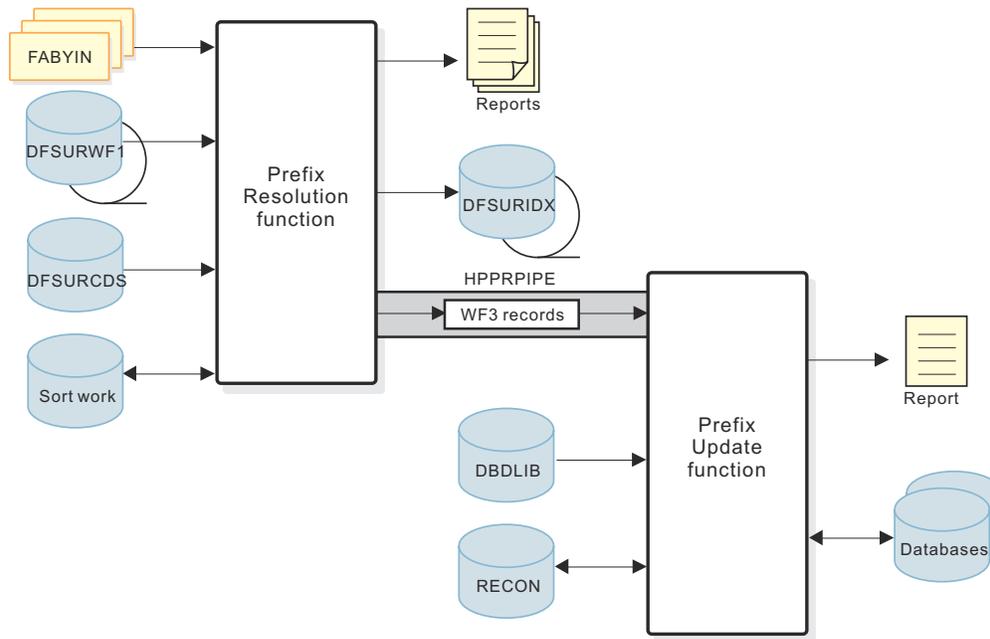


Figure 3. Overview of Concurrent Prefix Update

Concurrent Prefix Update uses a data transfer service called HPPRPIPE. HPPRPIPE provides high performance data transfer between tasks running in the address space of IMS HP Prefix Resolution. By using HPPRPIPE, the intermediate Work File 2 (WF2) data set and the intermediate Work File 3 (WF3) data sets are eliminated, which results in eliminating much of the I/O for a tape or a direct-access device. If DBRC is active, Concurrent Prefix Update issues a NOTIFY.REORG command for each database that has been updated.

Running Concurrent Prefix Update

Concurrent Prefix Update is run as a standard z/OS job. It consists of a single job step. To run Concurrent Prefix Update, you must supply an EXEC statement that invokes the program FABYMAIN, and DD statements that define inputs and outputs.

Before you begin

Before running Concurrent Prefix Update, consider tuning your environment to improve performance. See Chapter 5, “Performance and tuning,” on page 61 for integral information about performance and tuning.

Procedure

1. Specify the EXEC statement in the following form:

```
//HPPR EXEC PGM=FABYMAIN,REGION=nnn
//      PARM='IMSPLEX=ccccc,DBRCGRP=ddd'
```

where *nnn* is the region size. The minimum region size requirement depends on the internal sort/merge requests and on the number of I/O buffers specified on the DFSURWF1, DFSURWF3, and DFSURIDX DD statements. The minimum requirement is approximately 4 MB. Performance improves as the region size is increased. The recommended value for the region size is 8 MB or higher.

Optionally, you can specify the PARM= parameter. It can include the following parameters:

IMSPLEX=ccccc

Specifies the IMSplex name to be used for a RECON. This parameter is 1- to 5-characters.

DBRCGRP=ddd

Specifies the 1- to 3-character identifier (ID) assigned to a group of DBRC instances that access the same RECON data set in an IMSplex.

2. Provide DD statements.

For a list of DD statements for Concurrent Prefix Update, see [“DD statements for Concurrent Prefix Update”](#) on page 26.

3. Provide control statements.

For a list of control statements for Concurrent Prefix Update, see [“Control statements for Concurrent Prefix Update”](#) on page 31.

4. Specify the following FABYIN control statement:

```
UPDATE=YES
```

Related reference

[JCL example for Concurrent Prefix Update](#)

To run Concurrent Prefix Update, you must edit and submit a JCL stream. This example will give you an idea how to specify parameters in the JCL stream.

DD statements for Concurrent Prefix Update

DD statements define inputs and outputs for Concurrent Prefix Update jobs. You must supply the DD statements before you run a Concurrent Prefix Update job.

The following DD statements can be specified for Concurrent Prefix Update jobs.

Table 2. DD statements for Concurrent Prefix Update

DDNAME	Use	Format	Need	Description
JOBLIB/ STEPLIB	Input		Required	<p>Points to the IMS.SDFSRESL, which contains the IMS nucleus and required action modules, and to the IMS HP Prefix Resolution load library, which contains the FABYMAIN main load module.</p> <p>One of these DD statements is required.</p> <p>When you specify HPPRBH=NO:</p> <ul style="list-style-type: none">• IMS.SDFSRESL must be concatenated behind the DD statement that contains the IMS HP Prefix Resolution load library.• If JOBLIB or STEPLIB is not authorized by having unauthorized libraries that are concatenated to IMS.SDFSRESL, the DFSRESLB DD statement must be included. <p>To run a Prefix Update job in an IMS-managed ACBs environment, the name of the SGLXLOAD library of IMS Tools Base must also be specified on the STEPLIB DD statement.</p>
<i>database</i>	Input Output		Optional	<p>References the databases that were initially loaded, reorganized, or scanned. One or more DD statements must be present for each data set group of a database that has logical relationships. The ddname must match the ddname that is specified in the DBD. If you are using dynamic allocation, do not use the DD statement for the database data sets.</p>

Table 2. DD statements for Concurrent Prefix Update (continued)

DDNAME	Use	Format	Need	Description
DFSCTL	Input	LRECL=80	Optional	<p>Describes the data set that contains the OSAM sequential buffering (SB) control statements. By using OSAM SB, the IMS DL/I buffer handler can process OSAM data sets faster. For more information about control statement format and the OSAM sequential buffering, see <i>IMS Database Administration</i> and <i>IMS System Definition</i>.</p> <p>If HPPRBH=NO is specified but DFSCTL DD is not provided, a DFSCTL data set is dynamically allocated to activate OSAM SB.</p> <p>The allocated DFSCTL data set contains the following statement:</p> <pre>SBPARM ACTIV=COND</pre> <p>Recommendation: If you do not use the HPPR buffer handler (HPPRBH=NO), consider using OSAM SB.</p>
DFSRESLB	Input		Optional	Points to an authorized library that contains the IMS SVC modules.
DFSURCDS	Input		Required	Defines the control data set. It refers to the control data set that is generated by the IMS Database Preorganization utility.
DFSURWF1	Input	LRECL=900	Required	<p>Defines the input data set. The data sets referred to by this DD statement are the output work data sets produced during a database initial load, reload, or scan process; those work data sets must be concatenated.</p> <p>DCB parameters specified within this program are RECFM=VB, and LRECL=900. Do not specify BLKSIZE.</p> <p>This DD statement affects the performance of IMS HP Prefix Resolution. For more information, see Chapter 5, "Performance and tuning," on page 61.</p>
DFSURIDX	Output	LRECL=900	Optional	<p>Defines the output work data set that is used if secondary indexes are defined in the databases that are being reorganized or loaded. This data set is used as input to the IMS HISAM Reorganization Unload utility (DFSURULO) for creating, replacing, merging, or extracting secondary indexes (shared or unshared).</p> <p>DCB parameters specified within this program are RECFM=VB and LRECL=900. Blocking is strongly recommended. If you omit to specify a BLKSIZE, the system will automatically calculate optimum block size for you.</p> <p>This DD statement is required if you specify TYPE=LM or TYPE=IM for the FABYIN control statement.</p> <p>This DD statement affects the performance of IMS HP Prefix Resolution. For more information, see Chapter 5, "Performance and tuning," on page 61.</p>

Table 2. DD statements for Concurrent Prefix Update (continued)

DDNAME	Use	Format	Need	Description
DFSVSAMP	Input	LRECL=80	Optional	<p>Describes the data set that contains the buffer information required by the DL/I buffer handler. For more information about control statement format and the buffer pool structure, see <i>IMS System Definition</i>.</p> <p>This DD statement is required when HPPRBH=NO is specified.</p> <p>If HPPRBH=NO is specified but DFSVSAMP DD is not provided, a DFSVSAMP data set is dynamically allocated. The allocated DFSVSAMP data set contains the following statement: IOBF=(32K,10)</p>
DFSACBPD	Input	LRECL=80	Optional	<p>Defines the control statement data set to be used in an IMS-managed ACBs environment. This DD statement is optional. STAGING is the only valid keyword.</p> <p>When the IMS management of ACBs is enabled, IMS retrieves DBDs from the IMS catalog. If you unload a database and make offline changes to the database definition, you can reload either the active changes from the IMS catalog directory data sets or the pending changes from the catalog staging data sets. By default, IMS HP Prefix Resolution obtains active database definitions from the IMS catalog directory. To override the default behavior and obtain pending ACBs from the staging data sets in the IMS catalog, specify the keyword STAGING on the DFSACBPD DD statement.</p> <p>When the IMS management of ACBs is not enabled, the DFSACBPD DD statement is ignored.</p>
FABYIN	Input	LRECL=80	Required	<p>Defines the data set for control statements that specify options for IMS HP Prefix Resolution.</p>
FABYPRNT	Output	LRECL=133	Required	<p>Defines the data set for reports.</p> <p>DCB parameters that are specified within this program are RECFM=FBA and LRECL=133.</p>
FABYMSG	Output	LRECL=133	Required	<p>Defines the data set for messages.</p> <p>DCB parameters that are specified within this program are RECFM=FBA and LRECL=133.</p>

Table 2. DD statements for Concurrent Prefix Update (continued)

DDNAME	Use	Format	Need	Description
FABYWF2	Input Output	LRECL=900	Optional	<p>Defines the intermediate data set that is used when you specify WF2OUT=YES in the FABYIN control statement data set. Its size is approximately the same as that of the input data set defined by the DFSURWF1 DD statement minus the size of DFSURIDX.</p> <p>DCB parameters are RECVL=VB and LRECL=900. Blocking is strongly recommended. If you omit the BLKSIZE parameter, the system automatically calculates the optimum block size.</p> <p>This DD statement is required if you specify WF2OUT=YES in the FABYIN control statement data set.</p>
FABYWF30	Output		Optional	<p>Defines the output work data set for WF3 records of HISAM databases.</p> <p>The Prefix Update function writes WF3 records of HISAM databases into the data set so that you can update the HISAM database by using the IMS Prefix Update utility.</p> <p>DCB parameters that are specified within this program are RECVL=VB and LRECL=300. Blocking is strongly recommended. If you do not specify a BLKSIZE, the system will automatically calculate the optimum block size for you.</p> <p>If the DFSURWF1 data set for Concurrent Prefix Update contains WF1 records for HISAM databases, this DD statement is required.</p>
FABYW2R3	Output	LRECL=900	Optional	<p>Defines the output data set for the SKIPLCR3 process routine. This data set is used only for the purpose of debugging to dump the first 10000 skipped records when you specify SKIPLCR3=YES in the FABYIN control statement data set. Because this DD statement might degrade performance, specify this DD statement only when you are requested by IBM Software Support.</p> <p>DCB parameters are RECVL=VB and LRECL=900. Blocking is strongly recommended. If you omit the BLKSIZE parameter, the system automatically calculates the optimum block size.</p>
IMS	Input		Optional	<p>Defines the library that contains the DBDs that describe the database that was loaded, reorganized, or both. The data set must reside on a direct-access device.</p> <p>If the IMS management of ACBs is enabled and the high-level qualifier of the bootstrap data set of the IMS directory can be obtained from DBRC or the IMSCATHLQ statement in the FABYIN DD statement, the IMS DD statement is ignored.</p>

Table 2. DD statements for Concurrent Prefix Update (continued)

DDNAME	Use	Format	Need	Description
IMSDALIB	Input		Optional	<p>Specifies the data sets that contain the dynamic allocation members for the databases and the RECON data sets.</p> <p>Allocation of the databases and the RECON data sets will be attempted in the following order:</p> <ol style="list-style-type: none"> 1. The DD statements coded in the JCL stream 2. Dynamic allocation members in the IMSDALIB concatenation 3. Dynamic allocation members in the JOBLIB or the STEPLIB concatenation
INDXWKnn	Input Output		Optional	<p>Define intermediate storage data sets for the operating system sort/merge program.</p> <p>If these DD statements are not provided, the sort program tries to dynamically allocate the needed work space.</p> <p>For more information about specifying the number and size of intermediate storage data sets, see Chapter 5, "Performance and tuning," on page 61.</p>
LPLCWKnn TWINWKnn	Input Output		Optional	<p>Define intermediate storage data sets for the operating system sort/merge program. These data sets are used when WF2OUT=YES is not specified in the FABYIN control statement data set.</p> <p>If these DD statements are not provided, the sort program tries to dynamically allocate the needed work space.</p> <p>For more information about specifying the number and size of intermediate storage data sets, see Chapter 5, "Performance and tuning," on page 61.</p>
INDXMSG LPLCMSG TWINMSG	Output		Optional	<p>Define the message data sets from the internally attached sort/merge programs.</p> <p>If these DD statements are omitted, the messages from the sort/merge programs are written into the data set that is specified by the FABYMSG DD statement.</p>
PROCLIB	Input		Optional	<p>Points to the IMS.PROCLIB data set. If you specify DFSDF=xxx in the FABYIN DD statement, you must also specify this DD statement and the DFSDFxxx member must exist in the IMS.PROCLIB data set.</p>
RECONx	Input Output		Optional	<p>Defines the DBRC RECON data sets.</p> <p>If you are using dynamic allocation, do not use these DD names.</p>
SORTLIB	Input		Optional	<p>Defines the library that contains the load modules for your operating system sort/merge modules.</p>

Table 2. DD statements for Concurrent Prefix Update (continued)

DDNAME	Use	Format	Need	Description
SORTWKnn	Input Output		Optional	<p>Define intermediate storage data sets for the operating system sort/merge program when you specify WF2OUT=YES in the FABYIN control statement data set.</p> <p>When WF2OUT=YES is specified, SORTWKnn data sets are used instead of LPLCWKnn data sets and TWINWKnn data sets. The required number and the size of the SORTWKnn data sets are approximately the same as those of LPLCWKnn data sets. Generally, the required number and the size of TWINWKnn data sets are smaller than those of LPLCWKnn data sets, so using LPLCWKnn number and size for SORTWKnn is sufficient.</p> <p>If SORTWKnn DD statements are not provided, the sort program tries to dynamically allocate the needed work space.</p>
SYSUDUMP	Output	LRECL=133	Optional	<p>Defines the dump data set.</p> <p>This DD statement can be specified as DUMMY.</p>

Control statements for Concurrent Prefix Update

The FABYIN data set contains your description of the processing to be done by IMS HP Prefix Resolution while running a Concurrent Prefix Update job.

This control data set usually resides in the input stream. However, it can also be defined as a member of a sequentially partitioned data set.

Syntax rules

The length of the FABYIN data set must be fixed at 80 bytes. BLKSIZE, if specified, must be a multiple of 80.

The control statements must conform to the following syntax rules:

- A control statement is a keyword followed by an equal sign (=) and a value.
- A keyword and its value or values must be on a single line and must be specified between columns 1 - 80, both inclusive.
- For each control statement, any number of leading blanks can be specified for the purpose of indentation.
- A statement keyword must be separated from its associated value by an equal sign (=). The equal sign must not be preceded or followed by blanks.
- A line that starts with an asterisk (*) in column 1 is treated as a comment line.
- You can specify Y for YES and N for NO, except for ITKBSRVR and ITKBLOAD control statements.

Description of control statements

The following control statements can be used for Concurrent Prefix Update.

ALLOWLC

ALLOWLC specifies whether to allow the existence of logical children that do not have logical parents.

This control statement is optional. If you do not specify this control statement, ALLOWLC=NO is used.



NO

Specifies to end the Prefix Resolution function with message FABY879A when logical children that do not have logical parents exist.

YES

Specifies to allow the existence of logical children that do not have logical parents. Message FABY879W is issued.

Tip: The default value of this control statement can be changed with site default options.

ALLOWLP

ALLOWLP specifies whether to allow logical parents that do not have logical children.

This control statement is optional. If you do not specify this control statement, ALLOWLP=YES is used.



YES

Specifies to allow the existence of logical parents that do not have logical children.

NO

Specifies to end the Prefix Resolution function with message FABY878A when logical parents that do not have logical children exist.

Tip: The default value of this control statement can be changed with site default options.

AVGRLLEN

AVGRLLEN specifies the estimated average length of logical pointer records in the DFSURWF1 input data set.

This control statement is optional. If the AVGRLLEN control statement is provided, space utilization of the LPLCWKnn, the TWINWKnn, or the SORTWKnn data sets and performance can be improved.



nnn

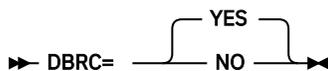
Specify a value in the range of 1 - 999. Leading zeros are optional for value nnn.

Note: The value you can specify for this control statement is a performance sensitive parameter. You can determine the value for this control statement by using DFSORT statistics.

DBRC

DBRC specifies whether the Prefix Update function uses DBRC.

This control statement is optional. If you do not specify this control statement, DBRC=YES is used.



YES

Specifies to use DBRC.

NO

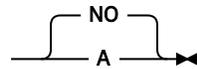
Specifies not to use DBRC unless the DBRC=FORCE option is specified during the IMS system generation or in the DFSIDEF0 module.

Tip: The default value of this control statement can be changed with site default options.

DEBUG

DEBUG specifies whether to turn on the debug function.

This control statement is optional. If you do not specify this control statement, DEBUG=NO is used.

►► DEBUG= 

NO

Specifies not to turn on the debug function.

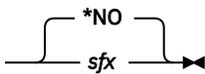
A

Specifies to turn on the debug function. Additional FABY011I messages are issued to show the progress of sort with sort exits E15 and E35.

DFSDF

DFSDF specifies the suffix of the DFSDFxxx member in the IMS.PROCLIB data set. The member with this suffix must exist in a data set specified in the PROCLIB DD statement. If the member contains the ACBMGMT=CATALOG parameter in the CATALOG section, IMS-managed ACBs is enabled.

This control statement is required only when IMS HP Prefix Resolution uses IMS-managed ACBs through the DFSDFxxx member. This DD statement is not required if IMS HP Prefix Resolution refers to the DBD libraries or if you enable the IMS management of ACBs with the IMS Catalog Definition exit routine (DFS3CDX0).

►► DFSDF= 

***NO**

Specifies IMS HP Prefix Resolution does not refer to the DFSDFxxx member in the PROCLIB data set.

sfx

Specifies the 3-character suffix of the DFSDFxxx member in the PROCLIB data set.

FILSZ

FILSZ specifies the estimated number of logical pointer records in the DFSURWF1 input data set.

This control statement is optional. If the FILSZ control statement is provided, space utilization of the LPLCWKnn, the TWINWKnn, or the SORTWKnn data sets and performance can be improved.

►► FILSZ= *nnnnnnnn* ◀◀

nnnnnnnnnn

Specify a value in the range of 1 - 999999999. Leading zeros are optional for value *nnnnnnnnnn*.

When estimating the value of the FILSZ control statement, remember that there are one or more logical pointer records for each occurrence of the source database segments that have a logical relationship to other segments in the same or other databases (as specified in the DBD).

For such logical relationships, there is one record for:

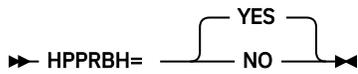
- Each logical parent
- Each of its logical children
- The last logical child (if used)
- Each logical twin forward and backward pointer

Note: The value you can specify for this control statement is a performance sensitive parameter. You can determine the value for this control statement by using DFSORT statistics.

HPPRBH

HPPRBH specifies whether the Prefix Update function uses the HPPR buffer handler to update OSAM data sets.

This control statement is optional. If you do not specify this control statement, HPPRBH=YES is used.



YES

Specifies to use HPPR buffer handler to update OSAM data sets.

NO

Specifies to use the IMS DL/I buffer handler to update OSAM data sets. If OSAM data sets to be updated are large format data sets, you must specify HPPRBH=NO.

If the DFSCTL DD statement is not specified in the JCL, the data set is allocated dynamically to activate IMS OSAM sequential buffering.

Requirements:

- IMS.SDFSRESL must be concatenated behind the DD statement that contains the IMS HP Prefix Resolution load library.
- If JOBLIB or STEPLIB is not authorized by having unauthorized libraries that are concatenated to IMS.SDFSRESL, the DFSRESLB DD statement must be included.

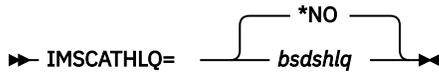
Tip: The default value of this control statement can be changed with site default options.

IMSCATHLQ

IMSCATHLQ specifies the high-level qualifier of the bootstrap data set of the IMS directory, which is an extension of the IMS catalog.

This control statement is required only when you run a Prefix Update job in an IMS-managed ACBs environment and IMS catalog database is not registered to DBRC.

If you do not specify this control statement, IMSCATHLQ=*NO is used.



***NO**

Specifies to obtain the high-level qualifier of the bootstrap data set of the IMS directory from DBRC.

bsdshlq

Specifies the high-level qualifier of the bootstrap data set of the IMS directory.

ITKBLOAD

ITKBLOAD specifies the name of the load module library for IMS Tools Knowledge Base.

This control statement is optional and used only when ITKBSRVR=*server_name* is specified. If you do not specify this control statement, ITKBLOAD=*NO is used and IMS HP Prefix Resolution attempts to load an IMS Tools Knowledge Base module from the STEPLIB libraries.



***NO**

Specifies that the IMS Tools Knowledge Base modules are loaded from the private library or the system library of the job.

library_name

Specifies the name of the IMS Tools Knowledge Base load module data set that is to be used by IMS HP Prefix Resolution.

Tip: The default value of this control statement can be changed with site default options.

ITKBSRVR

ITKBSRVR specifies the name of the IMS Tools Knowledge Base server XCF group.

This control statement is optional. If you do not specify this control statement, ITKBSRVR=*NO is used.



***NO**

Specifies that IMS HP Prefix Resolution does not store reports in the IMS Tool Knowledge Base Output repository.

server_name

Specifies that IMS HP Prefix Resolution stores reports in the IMS Tools Knowledge Base Output repository of the specified server.

If ITKBSRVR=server_name is specified, IMS HP Prefix Resolution attempts to connect to the server and then to store the following reports in the IMS Tools Knowledge Base Output repository:

- FABYIN Control Statements report
- Statistics report
- Update Processing Summary report

ITKBSRVR=server_name requires that an appropriate version of IMS Tools Knowledge Base is installed and the server is started. For more information, see [“Software and hardware requirements”](#) on page 7 and [“Configuring the IMS Tools Knowledge Base server”](#) on page 7.

Tip: The default value of this control statement can be changed with site default options.

OPRTLC

OPRTLC specifies whether logical children with no logical parents are printed in the Orphan Records report.

This control statement is optional. If you do not specify this control statement, OPRTLC=YES is used.



YES

Specifies to print logical children that do not have logical parents.

NO

Specifies not to print logical children that do not have logical parents.

Tip: The default value of this control statement can be changed with site default options.

OPRTL P

OPRTL P specifies whether logical parents with no logical children are printed in the Orphan Records report.

This control statement is optional. If you do not specify this control statement, OPRTL P=NO is used.



NO

Specifies not to print logical parents that do not have logical children.

YES

Specifies to print logical parents that do not have logical children.

Tip: The default value of this control statement can be changed with site default options.

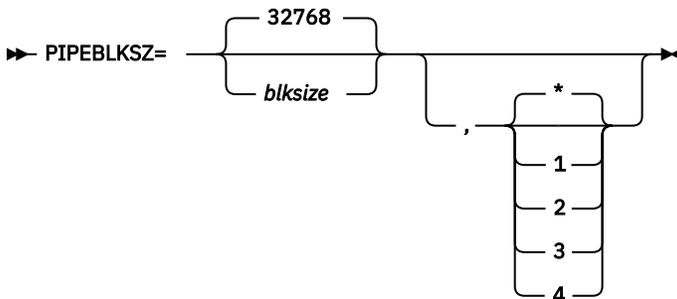
PIPEBLKSZ

PIPEBLKSZ specifies how many records can be moved to and from a pipe used by the HPPRPIPE service per transmission.

Recommendation: Consider specifying this control statement only when you finish tuning other parameters because the performance of HPPRPIPE depends on various factors and this control statement can degrade performance.

The block size you specify for PIPEBLKSZ must include the data length (up to 32,756 bytes) plus 4 bytes for the internal block descriptor word (BDW).

If you change the PIPEBLKSZ specification, you might need to change the value of the REGION parameter to avoid running out of virtual storage.



The first parameter *blksize* specifies the block size for the pipe identified by the second parameter, which specifies a pipe ID.

The default block size is 32768 for each pipe. If the *blksize* value is not specified, the default value is used for the specified pipe ID. If only the *blksize* value is specified, or the *blksize* value is specified with pipe ID *, it overrides the default block size. The maximum *blksize* value is 262144, and the minimum value is 1024. The minimum value must be larger than or equal to the maximum length of the records you are to transfer through the pipe, plus four.

Pipe IDs: Pipe ID is a number that identifies a pipe allocated between tasks running in an IMS HP Prefix Resolution job. You can specify one of the following pipe IDs:

- 1** The pipe between secondary index processing (INDX sort task) and logical parent/logical child processing (LPLC sort task) in the Prefix Resolution function. This pipe is allocated only when both INDX sort and LPLC sort are used in Stand-Alone Prefix Resolution or Concurrent Prefix Update jobs.
- 2** The pipe to eliminate the intermediate Work File 2 (WF2) data set that is used in the Prefix Resolution function. This pipe is not allocated when WF2 type data is not required. For example, the pipe is not allocated in Stand-Alone Prefix Update jobs.
- 3** The pipe to eliminate the intermediate Work File 3 (WF3) data set that is used between the Prefix Resolution process and the Prefix Update process. This pipe is not allocated when WF3 type data is not required. For example, the pipe is not allocated in Stand-Alone Prefix Resolution or Stand-Alone Prefix Update jobs.
- 4** The pipe that is used internally in Prefix Update jobs. For example, the IMS DL/I buffer handler task, which updates OSAM data sets, allocates this pipe.
- *** All four pipes. The value of all pipes are changed if you omit the pipe ID or specify an asterisk (*) for the pipe ID.

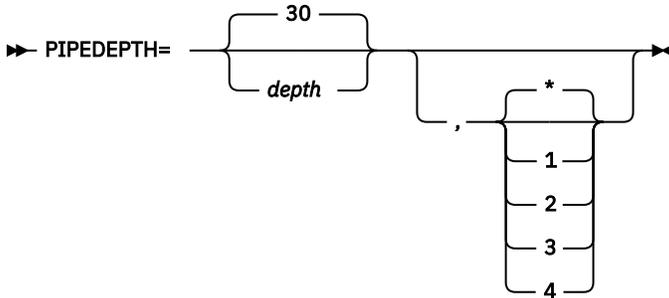
PIPEDEPTH

PIPEDEPTH specifies the number of blocks that can be in a pipe used by the HPPRPIPE service at any given time before the pipe becomes full.

Recommendation: Consider specifying this control statement only when you finish tuning other parameters because the performance of HPPRPIPE depends on various factors and this control statement can degrade performance.

The use of large values for PIPEDEPTH enables the HPPRPIPE service to accumulate more information in virtual storage. This can be helpful in smoothing out periodic wait periods during which the writing task is forced to wait because the pipe temporarily becomes full. The pipe becomes full because the reading task is temporarily delayed in reading data from the pipe.

If you change the PIPEDEPTH specification, you might need to change the value of the REGION parameter to avoid running out of virtual storage.



The first parameter *depth* specifies the number of blocks that can be held in the pipe, which is identified by the second parameter, at any given time before the pipe becomes full. The second parameter specifies a pipe ID.

The default number of blocks is 30 for each pipe. If the *depth* value is not specified, the default value is used for the specified pipe ID. If only the *depth* value is specified, or the *depth* value is specified with pipe ID *, it overrides the default number of blocks. The maximum value is 1792, and the minimum value is 2.

Pipe IDs: Pipe ID is a number that identifies a pipe allocated between tasks running in an IMS HP Prefix Resolution job. You can specify one of the following pipe IDs:

1

The pipe between secondary index processing (INDX sort task) and logical parent/logical child processing (LPLC sort task) in the Prefix Resolution function. This pipe is allocated only when both INDX sort and LPLC sort are used in Stand-Alone Prefix Resolution or Concurrent Prefix Update jobs.

2

The pipe to eliminate the intermediate Work File 2 (WF2) data set that is used in the Prefix Resolution function. This pipe is not allocated when WF2 type data is not required. For example, the pipe is not allocated in Stand-Alone Prefix Update jobs.

3

The pipe to eliminate the intermediate Work File 3 (WF3) data set that is used between the Prefix Resolution process and the Prefix Update process. This pipe is not allocated when WF3 type data is not required. For example, the pipe is not allocated in Stand-Alone Prefix Resolution or Stand-Alone Prefix Update jobs.

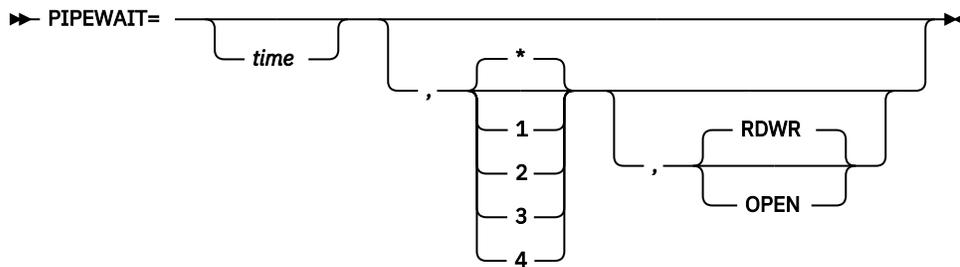
4

The pipe that is used internally in Prefix Update jobs. For example, the IMS DL/I buffer handler task, which updates OSAM data sets, allocates this pipe.

All four pipes. The value of all pipes are changed if you omit the pipe ID or specify an asterisk (*) for the pipe ID.

PIPEWAIT

PIPEWAIT specifies the amount of time a writer or a reader of a pipe can remain in a wait state before the HPPRPIPE service issues a message and ends abnormally.



The first parameter *time* specifies the amount of time that a reader or a writer that connects to the pipe, which is identified by the second parameter, can remain in a wait state. The second parameter specifies a pipe ID. The third parameter specifies the target to apply the wait state. The default value RDWR is used when the third parameter is not specified.

Pipe IDs: Pipe ID is a number that identifies a pipe allocated between tasks running in an IMS HP Prefix Resolution job. You can specify one of the following pipe IDs:

1

The pipe between secondary index processing (INDX sort task) and logical parent/logical child processing (LPLC sort task) in the Prefix Resolution function. This pipe is allocated only when both INDX sort and LPLC sort are used in Stand-Alone Prefix Resolution or Concurrent Prefix Update jobs.

2

The pipe to eliminate the intermediate Work File 2 (WF2) data set that is used in the Prefix Resolution function. This pipe is not allocated when WF2 type data is not required. For example, the pipe is not allocated in Stand-Alone Prefix Update jobs.

3

The pipe to eliminate the intermediate Work File 3 (WF3) data set that is used between the Prefix Resolution process and the Prefix Update process. This pipe is not allocated when WF3 type data is not required. For example, the pipe is not allocated in Stand-Alone Prefix Resolution or Stand-Alone Prefix Update jobs.

4

The pipe that is used internally in Prefix Update jobs. For example, the IMS DL/I buffer handler task, which updates OSAM data sets, allocates this pipe.

All four pipes. The value of all pipes are changed if you omit the pipe ID or specify an asterisk (*) for the pipe ID.

RDWR

Specifies to apply the wait state to the read and write wait state of the pipe.

When you specify RDWR, the first parameter *time* specifies, in minutes, how long a writer or a reader for the pipe can remain in a wait state. The value can be in the range of 1 - 1440.

The default is 1440 minutes for pipe ID 1 and 4, and 15 minutes for pipe ID 2 and 3. If the *time* value is specified with no pipe ID, or the time value is specified with pipe ID *, it overrides the default *time* value for all pipes.

OPEN

Specifies to apply the wait state to the open wait state of the pipe.

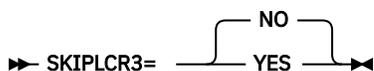
When you specify OPEN, the first parameter *time* specifies, in seconds, how long a writer or a reader for the pipe can remain in a wait state. The value can be in the range of 1 - 1440.

The default is 30 seconds for each pipe. If the *time* value is specified with no pipe ID, or the *time* value is specified with pipe ID *, it overrides the default *time* value for all pipes.

SKIPLCR3

SKIPLCR3 specifies whether to suppress generating the intermediate Work File 3 (WF3) records for logical child segments when the logical child segments have no direct pointers, such as direct LP and direct LT pointers.

This control statement is optional. The default is SKIPLCR3=NO, which means that WF3 records are generated for all logical child segments.



NO

Generates WF3 records for all logical child segments.

During the prefix update processing, the Prefix Update function skips the WF3 records for logical child segments that have no direct pointers. Reason code 03 is printed in the Update Processing Summary report to indicate that such segments were skipped.

YES

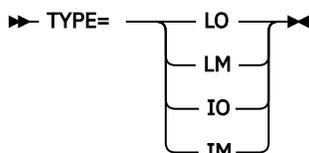
Does not generate WF3 records for logical child segments that have no direct pointers.

SKIPLCR3=YES can improve the performance of the job.

TYPE

TYPE specifies the type of processing for the Prefix Resolution function.

This control statement is required.



LO

Stands for *Logical pointers Only*, and specifies that only the logical pointer resolution is run. Secondary index processing is not run, and the DFSURIDX data set is not created.

LM

Stands for *Logical pointers Mainly*, and specifies that most records in the DFSURWF1 input data set are records for logical pointer resolution. Both logical pointer resolution and secondary index processing are run.

IO

Stands for *Index pointers Only*, and specifies that only secondary index processing is run. Logical pointer resolution is not run, and the DFSURWF3 data set is not created.

IM

Stands for *Index pointers Mainly*, and specifies that most records in the DFSURWF1 data set are records for secondary index processing. Both logical pointer resolution and secondary index processing are run.

When both logical pointer resolution and secondary index processing are to be run, you can improve performance by correctly specifying **LM** or **IM**. If you are running the function for the first time and you are not sure whether your database contains more logically related records or more secondary index records, make an educated guess.

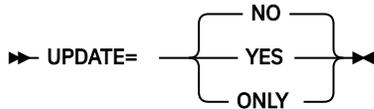
Choosing the TYPE option determines the DD specifications that are required. If you specify TYPE=IM or TYPE=LM, the DFSURIDX DD statement is required.

Note: The value you can specify for this control statement is a performance sensitive parameter. You can determine the value for this control statement by using DFSORT statistics.

UPDATE

UPDATE specifies the function of IMS HP Prefix Resolution.

This control statement is required. If you do not specify this control statement, UPDATE=NO is used. To use Concurrent Prefix Update, you must specify UPDATE=YES.



NO

Specifies to run only the Prefix Resolution function.

YES

Specifies to run the Prefix Resolution and the Prefix Update function in a single job step.

ONLY

Specifies to run only the Prefix Update function.

Tip: The default value of this control statement can be changed with site default options.

UPDLPC

UPDLPC specifies whether the Prefix Update function updates counter fields of the logical parents. The UPDLPC control statement is valid only if DBIL control statement of the IMS Database Prereorganization utility is specified for the database.

This control statement is optional. If you do not specify this control statement, UPDLPC=YES is used.



YES

Specifies to update counter fields of the logical parents even when they have no logical children. When you delete all of the logical children of a logical parent during the DBIL-type reorganization process, you must specify this parameter.

Note: The performance of the Prefix Update function will decline if you specify this parameter.

NO

Specifies not to update counter fields of the logical parents that have no logical children.

Tip: The default value of this control statement can be changed with site default options.

WF2OUT

WF2OUT specifies whether to use the intermediate Work File 2 (WF2) data set instead of the HPPRPIPE service.

Tip: The value you can specify for this control statement is a performance sensitive parameter. If high CPU time consumption or large sort work space to run two DFSORT tasks concurrently is the problem, WF2OUT=YES can resolve it. Otherwise, the performance of the Prefix Resolution function declines if you specify this parameter.

This control statement is optional. The default is WF2OUT=NO, which means that the WF2 data set is not used.

Recommendation: Because this control statement can degrade performance, specify this control statement after you finish tuning other parameters.



NO

Does not use the WF2 data set. HPPRPIPE is used instead.

Specifying WF2OUT=NO can eliminate much of the I/O and handling of the tape and DASDs, as well as the allocation of the DASDs that are associated with the WF2 data set.

YES

Uses the WF2 data set.

If you specify WF2OUT=YES, you must also specify the FABYWF2 DD statement.

If you specify WF2OUT=YES, the SORTWK*nn* DD statements are used instead of the LPLCWK*nn* DD statements. Also, TWINWK*nn* DD statements are not used because the TWIN sort reuses the SORTWK*nn* data sets.

Specifying WF2OUT=YES can eliminate CPU time associated with the HPPRPIPE service, and reduce the space required for the sort work data sets.

XAVGLEN

XAVGLEN specifies the estimated average length of secondary index records in the DFSURWF1 input data set.

This control statement is optional. If the XAVGLEN control statement is provided, both space utilization of the INDXWK*nn* data sets and performance can be improved.

► XAVGLEN= *nnn* ◄

nnn

Specify a value in the range of 1 - 999. Leading zeros are optional for value *nnn*.

Note: The value you can specify for this control statement is a performance sensitive parameter. You can determine the value for this control statement by using DFSORT statistics.

XFILSZ

XFILSZ specifies the estimated number of secondary index records in the DFSURWF1 input data set.

This control statement is optional. If the XFILSZ control statement is provided, both space utilization of the INDXWK*nn* data sets and performance can be improved.

► XFILSZ= *nnnnnnnn* ◄

nnnnnnnn

Specify a value in the range of 1 - 999999999. Leading zeros are optional for value *nnnnnnnn*.

The value that you specify for XFILSZ should indicate that one secondary index record exists for each occurrence of the source database segments that were identified in the DBD as having a secondary index.

Note: The value you can specify for this control statement is a performance sensitive parameter. You can determine the value for this control statement by using DFSORT statistics.

Related tasks

Setting default values

Create a site default table (FABYGBT0) to change the default values of some FABYIN control statements.

Specifying performance-sensitive JCL parameters

By specifying certain options and parameters in your JCL, you can reduce the elapsed time to run IMS HP Prefix Resolution.

JCL example for Concurrent Prefix Update

To run Concurrent Prefix Update, you must edit and submit a JCL stream. This example will give you an idea how to specify parameters in the JCL stream.

The JCL example shown in the following figure invokes Concurrent Prefix Update to resolve logical relationships and update the prefix of each logical segment in the two databases that are defined by HDAM01 and HDAM02 DD statements.

In this example, the following control statements are specified:

- TYPE=LO
- UPDATE=YES

- DBRC=YES

Change the bold values to meet your site requirements.

```
//HPPR      JOB (.....),...
//*
//JOBLIB    DD DISP=SHR,DSN=IMS.SDFSRESL
//          DD DISP=SHR,DSN=HPS.SHPSLMD0
//HPPR      EXEC PGM=FABYMAIN
//-----*
//*          CONCURRENT PREFIX UPDATE                               *
//-----*
//DFSURWF1 DD DISP=SHR,DSN=FABY.WF1.A,BUFNO=88
//          DD DISP=SHR,DSN=FABY.WF1.B
//DFSURCDS DD DISP=SHR,DSN=FABY.CDS
//IMS       DD DISP=SHR,DSN=IMS.DBDLIB
//SYSUDUMP DD SYSOUT=*
//LPLCWK01 DD UNIT=3390,SPACE=(CYL,(22,1)),VOLUME=ABC003
//LPLCWK02 DD UNIT=3390,SPACE=(CYL,(22,1)),VOLUME=ABC004
//TWINWK01 DD UNIT=3390,SPACE=(CYL,(22,1)),VOLUME=ABC005
//TWINWK02 DD UNIT=3390,SPACE=(CYL,(22,1)),VOLUME=ABC006
//FABYPRNT DD SYSOUT=*
//FABYMSG DD SYSOUT=*
//FABYIN    DD *
//          TYPE=LO
//          UPDATE=YES
//          DBRC=YES
//*
//HDAM01    DD DISP=SHR,DSN=HDAM01
//HDAM02    DD DISP=SHR,DSN=HDAM02
//RECON1    DD DISP=SHR,DSN=RECON1
//RECON2    DD DISP=SHR,DSN=RECON2
//RECON3    DD DISP=SHR,DSN=RECON3
```

Figure 4. Concurrent Prefix Update JCL

The following JCL example invokes Concurrent Prefix Update in an IMS-managed ACBs environment.

In this example:

- The name of the SGLXLOAD library of IMS Tools Base is specified on the STEPLIB DD statement.
- The name of the IMS.PROCLIB data set in which the DFSDFCAT member exists is specified on the PROCLIB DD statement.
- DFSDF=CAT parameter is specified on the FABYIN DD statement. This parameter specifies the DFSDFCAT member that enables IMS-managed ACBs.
- The keyword STAGING is specified on the DFSACBPD DD statement. This keyword specifies to use pending changes in the staging data sets in the IMS catalog.
- IMS DD is not specified because the database definition will be obtained from the IMS catalog staging data sets.

Change the bold values to meet your site requirements.

```

//HPPR      JOB (.....),...
//*
//HPPR      EXEC PGM=FABYMAIN
//*-----*
//*      CONCURRENT PREFIX UPDATE                                *
//*-----*
//STEPLIB  DD DISP=SHR,DSN=HPS.SHPSLMD0
//          DD DISP=SHR,DSN=ITKBHLQ.SGLXLOAD
//          DD DISP=SHR,DSN=IMS.SDFSRESL
//DFSURWF1 DD DISP=SHR,DSN=FABY.WF1.A, BUFNO=88
//          DD DISP=SHR,DSN=FABY.WF1.B
//DFSURCDS DD DISP=SHR,DSN=FABY.CDS
//PROCLIB  DD DISP=SHR,DSN=IMS.PROCLIB
//SYSUDUMP DD SYSOUT=*
//LPLCWK01 DD UNIT=3390,SPACE=(CYL,(22,1)),VOLUME=ABC003
//LPLCWK02 DD UNIT=3390,SPACE=(CYL,(22,1)),VOLUME=ABC004
//TWINWK01 DD UNIT=3390,SPACE=(CYL,(22,1)),VOLUME=ABC005
//TWINWK02 DD UNIT=3390,SPACE=(CYL,(22,1)),VOLUME=ABC006
//FABYPRNT DD SYSOUT=*
//FABYMSG  DD SYSOUT=*
//FABYIN   DD *
           TYPE=LO
           UPDATE=YES
           DBRC=YES
           DFSDF=CAT
/*
//DFSACBPD DD *
STAGING
//HDAM01   DD DISP=SHR,DSN=HDAM01
//HDAM02   DD DISP=SHR,DSN=HDAM02
//RECON1   DD DISP=SHR,DSN=RECON1
//RECON2   DD DISP=SHR,DSN=RECON2
//RECON3   DD DISP=SHR,DSN=RECON3

```

Figure 5. Concurrent Prefix Update JCL for an IMS-managed ACBs environment

Output from Concurrent Prefix Update

After running a Concurrent Prefix Update job, five reports will be generated. These reports can be used to check the job.

Reports contain the following information:

- Echo back of FABYIN control statements
- Diagnostics and summary of logical parents without logical children
- Statistics and distribution of logical parents based on the number of their logical children
- Image of DFSURWF1 records of logical parents without logical children or logical children without logical parents
- The number of DFSURWF3 records that were processed for each logical segment

Related reference

[IMS HP Prefix Resolution reports](#)

IMS HP Prefix Resolution generates reports. These reports can be used to check your IMS HP Prefix Resolution jobs.

Stand-Alone Prefix Update

Use Stand-Alone Prefix Update to run the Prefix Update function as a stand-alone utility. Stand-Alone Prefix Update reads DFSURWF3 records from the Prefix Resolution function or the IMS Database Prefix Resolution utility, and updates the prefix of each segment whose prefix information was affected by a database load or reorganization.

If DBRC is active, Stand-Alone Prefix Update issues a NOTIFY.REORG command for each database that has been updated.

The following figure shows the general data flow for Stand-Alone Prefix Update.

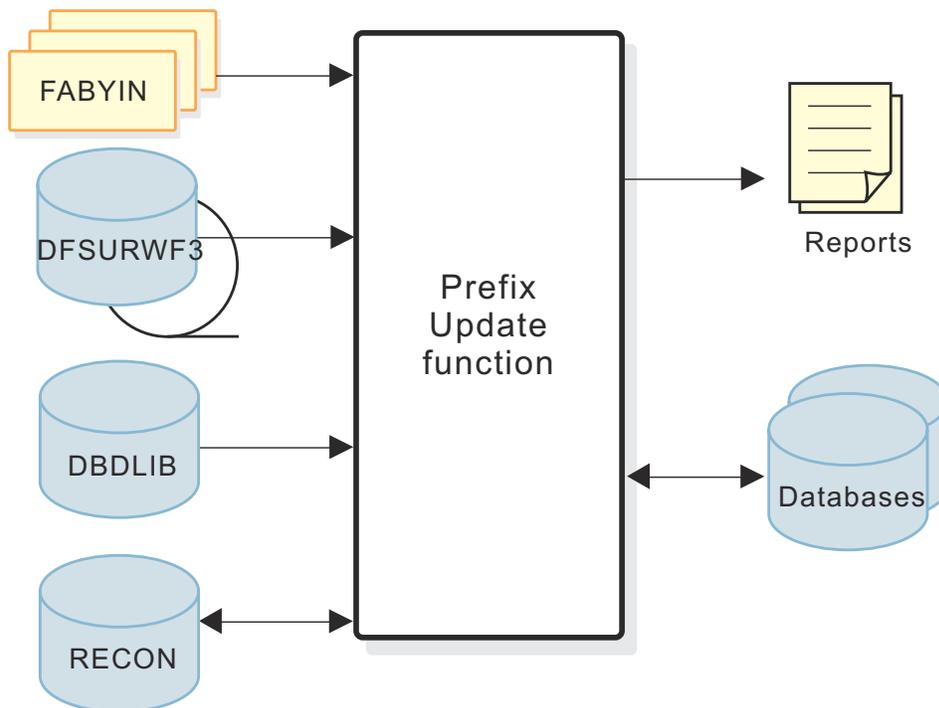


Figure 6. Overview of Stand-Alone Prefix Update

Running Stand-Alone Prefix Update

Stand-Alone Prefix Update is run as a standard z/OS job. It consists of a single job step. To run Stand-Alone Prefix Update, you must supply an EXEC statement that invokes program FABYMAIN, and DD statements that define inputs and outputs.

Before you begin

Before running Stand-Alone Prefix Update, consider tuning your environment to improve performance. See [Chapter 5, “Performance and tuning,”](#) on page 61 for integral information about performance and tuning.

Procedure

1. Specify the EXEC statement in the following form:

```
//HPPR EXEC PGM=FABYMAIN,REGION=nnn
// PARM='IMSPLEX=cccc, DBRCGRP=ddd'
```

where *nnn* is the region size. The minimum region size requirement depends on the internal sort/merge requests and on the number of I/O buffers specified on the DFSURWF3 DD statement. The minimum region size requirement is approximately 512 KB. Performance improves as the region size is increased. The recommended value for the region size is 8 MB or higher.

Optionally, you can specify the PARM= parameter. It can include the following parameters:

IMSPLEX=cccc

Specifies the IMSplex name to be used for a RECON. This parameter is 1- to 5-characters.

DBRCGRP=ddd

Specifies the 1- to 3-character identifier (ID) assigned to a group of DBRC instances that access the same RECON data set in an IMSplex.

2. Provide DD statements.

For a list of DD statements for Stand-Alone Prefix Update, see [“DD statements for Stand-Alone Prefix Update”](#) on page 45.

3. Provide control statements.

For a list of control statements for Stand-Alone Prefix Update, see [“Control statements for Stand-Alone Prefix Update”](#) on page 48.

4. Specify the following FABYIN control statement:

```
UPDATE=ONLY
```

Related reference

[JCL example for Stand-Alone Prefix Update](#)

To run Stand-Alone Prefix Update, you must edit and submit a JCL stream. This example will give you an idea how to specify parameters in the JCL stream.

DD statements for Stand-Alone Prefix Update

DD statements define inputs and outputs for Stand-Alone Prefix Update jobs. You must supply the DD statements before you run a Stand-Alone Prefix Update job.

The following DD statements can be specified for Stand-Alone Prefix Update jobs.

Table 3. DD statements for Stand-Alone Prefix Update

DDNAME	Use	Format	Need	Description
JOBLIB/ STEPLIB	Input		Required	<p>Points to the IMS.SDFSRESL, which contains the IMS nucleus and required action modules, and to the IMS HP Prefix Resolution load library, which contains the FABYMAIN main load module.</p> <p>One of these DD statements is required.</p> <p>When you specify HPPRBH=NO:</p> <ul style="list-style-type: none"> IMS.SDFSRESL must be concatenated behind the DD statement that contains the IMS HP Prefix Resolution load library. If JOBLIB or STEPLIB is not authorized by having unauthorized libraries that are concatenated to IMS.SDFSRESL, the DFSRESLB DD statement must be included. <p>To run a Prefix Update job in an IMS-managed ACBs environment, the name of the SGLXLOAD library of IMS Tools Base must also be specified on the STEPLIB DD statement.</p>
<i>database</i>	Input Output		Optional	<p>References the databases that were initially loaded, reorganized, or scanned. One or more DD statements must be present for each data set group of a database that has logical relationships. The ddname must match the ddname that is specified in the DBD. If you are using dynamic allocation, do not use the DD statement for the database data sets.</p>

Table 3. DD statements for Stand-Alone Prefix Update (continued)

DDNAME	Use	Format	Need	Description
DFSCTL	Input	LRECL=80	Optional	<p>Describes the data set that contains the OSAM sequential buffering (SB) control statements. By using OSAM SB, the IMS DL/I buffer handler can process OSAM data sets faster. For more information about control statement format and the OSAM sequential buffering, see <i>IMS Database Administration</i> and <i>IMS System Definition</i>.</p> <p>If HPPRBH=NO is specified but DFSCTL DD is not provided, a DFSCTL data set is dynamically allocated to activate OSAM SB.</p> <p>The allocated DFSCTL data set contains the following statement:</p> <pre>SBPARM ACTIV=COND</pre> <p>Recommendation: If you do not use the HPPR buffer handler (HPPRBH=NO), consider using OSAM SB.</p>
DFSRESLB	Input		Optional	<p>Points to an authorized library that contains the IMS SVC modules.</p>
DFSURWF3	Input	LRECL=300	Required	<p>Defines the output work data set that Stand-Alone Prefix Resolution creates. It is supplied as input to Stand-Alone Prefix Update or the IMS Database Prefix Update utility. Its size is approximately the same as that of the input data set defined by the DFSURWF1 DD statement minus the size of DFSURIDX.</p> <p>DCB parameters specified within this program are RECVL=VB and LRECL=300. Blocking is strongly recommended. If you omit to specify a BLKSIZE, the system will automatically calculate optimum block size for you.</p> <p>This DD statement is required if you specify TYPE=LO, TYPE=IM, or TYPE=LM for the FABYIN control statement.</p>
DFSVSAMP	Input	LRECL=80	Optional	<p>Describes the data set that contains the buffer information required by the DL/I buffer handler. For more information about control statement format and the buffer pool structure, see <i>IMS System Definition</i>.</p> <p>This DD statement is required when HPPRBH=NO is specified.</p> <p>If HPPRBH=NO is specified but DFSVSAMP DD is not provided, a DFSVSAMP data set is dynamically allocated. The allocated DFSVSAMP data set contains the following statement: IOBF=(32K,10)</p>

Table 3. DD statements for Stand-Alone Prefix Update (continued)

DDNAME	Use	Format	Need	Description
DFSACBPD	Input	LRECL=80	Optional	<p>Defines the control statement data set to be used in an IMS-managed ACBs environment. This DD statement is optional. STAGING is the only valid keyword.</p> <p>When the IMS management of ACBs is enabled, IMS retrieves DBDs from the IMS catalog. If you unload a database and make offline changes to the database definition, you can reload either the active changes from the IMS catalog directory data sets or the pending changes from the catalog staging data sets. By default, IMS HP Prefix Resolution obtains active database definitions from the IMS catalog directory. To override the default behavior and obtain pending ACBs from the staging data sets in the IMS catalog, specify the keyword STAGING on the DFSACBPD DD statement.</p> <p>When the IMS management of ACBs is not enabled, the DFSACBPD DD statement is ignored.</p>
FABYIN	Input	LRECL=80	Required	<p>Defines the data set for control statements that specify options for IMS HP Prefix Resolution.</p>
FABYPRNT	Output	LRECL=133	Required	<p>Defines the data set for reports.</p> <p>DCB parameters that are specified within this program are RECFM=FBA and LRECL=133.</p>
FABYMSG	Output	LRECL=133	Required	<p>Defines the data set for messages.</p> <p>DCB parameters that are specified within this program are RECFM=FBA and LRECL=133.</p>
FABYWF30	Output		Optional	<p>Defines the output work data set for WF3 records of HISAM databases.</p> <p>The Prefix Update function writes WF3 records of HISAM databases into the data set so that you can update the HISAM database by using the IMS Prefix Update utility.</p> <p>DCB parameters that are specified within this program are RECFM=VB and LRECL=300. Blocking is strongly recommended. If you do not specify a BLKSIZE, the system will automatically calculate the optimum block size for you.</p> <p>If the DFSURWF3 data set for Stand-Alone Prefix Update contains WF3 records for HISAM databases, this DD statement is required.</p>

Table 3. DD statements for Stand-Alone Prefix Update (continued)

DDNAME	Use	Format	Need	Description
IMS	Input		Optional	<p>Defines the library that contains the DBDs that describe the database that was loaded, reorganized, or both. The data set must reside on a direct-access device.</p> <p>If the IMS management of ACBs is enabled and the high-level qualifier of the bootstrap data set of the IMS directory can be obtained from DBRC or the IMSCATHLQ statement in the FABYIN DD statement, the IMS DD statement is ignored.</p>
IMSDALIB	Input		Optional	<p>Specifies the data sets that contain the dynamic allocation members for the databases and the RECON data sets.</p> <p>Allocation of the databases and the RECON data sets will be attempted in the following order:</p> <ol style="list-style-type: none"> 1. The DD statements coded in the JCL stream 2. Dynamic allocation members in the IMSDALIB concatenation 3. Dynamic allocation members in the JOBLIB or the STEPLIB concatenation
PROCLIB	Input		Optional	<p>Points to the IMS.PROCLIB data set. If you specify DFSDF=xxx in the FABYIN DD statement, you must also specify this DD statement and the DFSDFxxx member must exist in the IMS.PROCLIB data set.</p>
RECONx	Input Output		Optional	<p>Defines the DBRC RECON data sets.</p> <p>If you are using dynamic allocation, do not use these DD names.</p>
SYSUDUMP	Output	LRECL=133	Optional	<p>Defines the dump data set.</p> <p>This DD statement can be specified as DUMMY.</p>

Control statements for Stand-Alone Prefix Update

The FABYIN data set contains your description of the processing to be done by IMS HP Prefix Resolution while running a Stand-Alone Prefix Update job.

This control data set usually resides in the input stream. However, it can also be defined as a member of a sequentially partitioned data set.

Syntax rules

The length of the FABYIN data set must be fixed at 80 bytes. BLKSIZE, if specified, must be a multiple of 80.

The control statements must conform to the following syntax rules:

- A control statement is a keyword followed by an equal sign (=) and a value.
- A keyword and its value or values must be on a single line and must be specified between columns 1 - 80, both inclusive.
- For each control statement, any number of leading blanks can be specified for the purpose of indentation.

- A statement keyword must be separated from its associated value by an equal sign (=). The equal sign must not be preceded or followed by blanks.
- A line that starts with an asterisk (*) in column 1 is treated as a comment line.
- You can specify Y for YES and N for NO, except for ITKBSRVR and ITKBLOAD control statements.

Description of control statements

The following control statements can be used for Stand-Alone Prefix Update.

DBRC

DBRC specifies whether the Prefix Update function uses DBRC.

This control statement is optional. If you do not specify this control statement, DBRC=YES is used.



YES

Specifies to use DBRC.

NO

Specifies not to use DBRC unless the DBRC=FORCE option is specified during the IMS system generation or in the DFSIDEF0 module.

Tip: The default value of this control statement can be changed with site default options.

DFSDF

DFSDF specifies the suffix of the DFSDFxxx member in the IMS.PROCLIB data set. The member with this suffix must exist in a data set specified in the PROCLIB DD statement. If the member contains the ACBMGMT=CATALOG parameter in the CATALOG section, IMS-managed ACBs is enabled.

This control statement is required only when IMS HP Prefix Resolution uses IMS-managed ACBs through the DFSDFxxx member. This DD statement is not required if IMS HP Prefix Resolution refers to the DBD libraries or if you enable the IMS management of ACBs with the IMS Catalog Definition exit routine (DFS3CDX0).



*NO

Specifies IMS HP Prefix Resolution does not refer to the DFSDFxxx member in the PROCLIB data set.

sfx

Specifies the 3-character suffix of the DFSDFxxx member in the PROCLIB data set.

HPPRBH

HPPRBH specifies whether the Prefix Update function uses the HPPR buffer handler to update OSAM data sets.

This control statement is optional. If you do not specify this control statement, HPPRBH=YES is used.



YES

Specifies to use HPPR buffer handler to update OSAM data sets.

NO

Specifies to use the IMS DL/I buffer handler to update OSAM data sets. If OSAM data sets to be updated are large format data sets, you must specify HPPRBH=NO.

If the DFSCTL DD statement is not specified in the JCL, the data set is allocated dynamically to activate IMS OSAM sequential buffering.

Requirements:

- IMS.SDFSRESL must be concatenated behind the DD statement that contains the IMS HP Prefix Resolution load library.
- If JOBLIB or STEPLIB is not authorized by having unauthorized libraries that are concatenated to IMS.SDFSRESL, the DFSRESLB DD statement must be included.

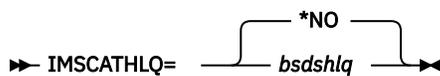
Tip: The default value of this control statement can be changed with site default options.

IMSCATHLQ

IMSCATHLQ specifies the high-level qualifier of the bootstrap data set of the IMS directory, which is an extension of the IMS catalog.

This control statement is required only when you run a Prefix Update job in an IMS-managed ACBs environment and IMS catalog database is not registered to DBRC.

If you do not specify this control statement, IMSCATHLQ=*NO is used.



***NO**

Specifies to obtain the high-level qualifier of the bootstrap data set of the IMS directory from DBRC.

bsdshlq

Specifies the high-level qualifier of the bootstrap data set of the IMS directory.

ITKBLOAD

ITKBLOAD specifies the name of the load module library for IMS Tools Knowledge Base.

This control statement is optional and used only when ITKBSRVR=*server_name* is specified. If you do not specify this control statement, ITKBLOAD=*NO is used and IMS HP Prefix Resolution attempts to load an IMS Tools Knowledge Base module from the STEPLIB libraries.



***NO**

Specifies that the IMS Tools Knowledge Base modules are loaded from the private library or the system library of the job.

library_name

Specifies the name of the IMS Tools Knowledge Base load module data set that is to be used by IMS HP Prefix Resolution.

Tip: The default value of this control statement can be changed with site default options.

ITKBSRVR

ITKBSRVR specifies the name of the IMS Tools Knowledge Base server XCF group.

This control statement is optional. If you do not specify this control statement, ITKBSRVR=*NO is used.



***NO**

Specifies that IMS HP Prefix Resolution does not store reports in the IMS Tool Knowledge Base Output repository.

server_name

Specifies that IMS HP Prefix Resolution stores reports in the IMS Tools Knowledge Base Output repository of the specified server.

If `ITKBSRVR=server_name` is specified, IMS HP Prefix Resolution attempts to connect to the server and then to store the following reports in the IMS Tools Knowledge Base Output repository:

- FABYIN Control Statements report
- Update Processing Summary report

`ITKBSRVR=server_name` requires that an appropriate version of IMS Tools Knowledge Base is installed and the server is started. For more information, see “Software and hardware requirements” on page 7 and “Configuring the IMS Tools Knowledge Base server” on page 7.

Tip: The default value of this control statement can be changed with site default options.

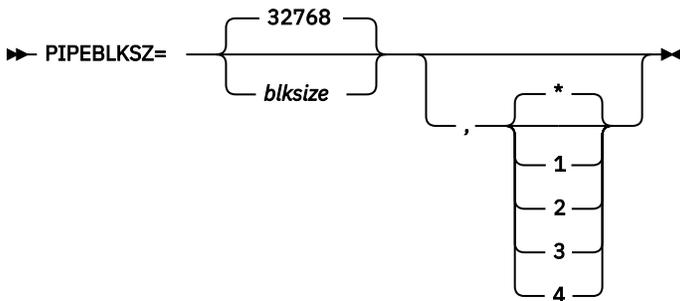
PIPEBLKSZ

PIPEBLKSZ specifies how many records can be moved to and from a pipe used by the HPPRPIPE service per transmission.

Recommendation: Consider specifying this control statement only when you finish tuning other parameters because the performance of HPPRPIPE depends on various factors and this control statement can degrade performance.

The block size you specify for PIPEBLKSZ must include the data length (up to 32,756 bytes) plus 4 bytes for the internal block descriptor word (BDW).

If you change the PIPEBLKSZ specification, you might need to change the value of the REGION parameter to avoid running out of virtual storage.



The first parameter *blksize* specifies the block size for the pipe identified by the second parameter, which specifies a pipe ID.

The default block size is 32768 for each pipe. If the *blksize* value is not specified, the default value is used for the specified pipe ID. If only the *blksize* value is specified, or the *blksize* value is specified with pipe ID *, it overrides the default block size. The maximum *blksize* value is 262144, and the minimum value is 1024. The minimum value must be larger than or equal to the maximum length of the records you are to transfer through the pipe, plus four.

Pipe IDs: Pipe ID is a number that identifies a pipe allocated between tasks running in an IMS HP Prefix Resolution job. You can specify one of the following pipe IDs:

- 1** The pipe between secondary index processing (INDX sort task) and logical parent/logical child processing (LPLC sort task) in the Prefix Resolution function. This pipe is allocated only when both INDX sort and LPLC sort are used in Stand-Alone Prefix Resolution or Concurrent Prefix Update jobs.
- 2** The pipe to eliminate the intermediate Work File 2 (WF2) data set that is used in the Prefix Resolution function. This pipe is not allocated when WF2 type data is not required. For example, the pipe is not allocated in Stand-Alone Prefix Update jobs.

3

The pipe to eliminate the intermediate Work File 3 (WF3) data set that is used between the Prefix Resolution process and the Prefix Update process. This pipe is not allocated when WF3 type data is not required. For example, the pipe is not allocated in Stand-Alone Prefix Resolution or Stand-Alone Prefix Update jobs.

4

The pipe that is used internally in Prefix Update jobs. For example, the IMS DL/I buffer handler task, which updates OSAM data sets, allocates this pipe.

*

All four pipes. The value of all pipes are changed if you omit the pipe ID or specify an asterisk (*) for the pipe ID.

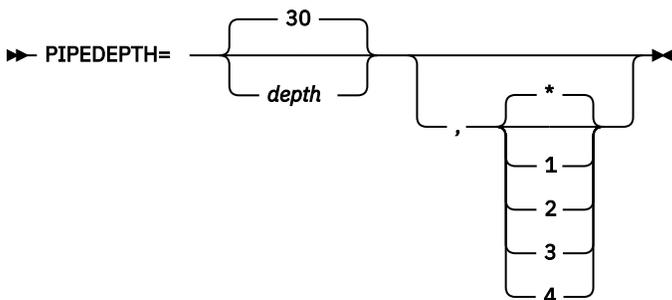
PIPEDEPTH

PIPEDEPTH specifies the number of blocks that can be in a pipe used by the HPPRPIPE service at any given time before the pipe becomes full.

Recommendation: Consider specifying this control statement only when you finish tuning other parameters because the performance of HPPRPIPE depends on various factors and this control statement can degrade performance.

The use of large values for PIPEDEPTH enables the HPPRPIPE service to accumulate more information in virtual storage. This can be helpful in smoothing out periodic wait periods during which the writing task is forced to wait because the pipe temporarily becomes full. The pipe becomes full because the reading task is temporarily delayed in reading data from the pipe.

If you change the PIPEDEPTH specification, you might need to change the value of the REGION parameter to avoid running out of virtual storage.



The first parameter *depth* specifies the number of blocks that can be held in the pipe, which is identified by the second parameter, at any given time before the pipe becomes full. The second parameter specifies a pipe ID.

The default number of blocks is 30 for each pipe. If the *depth* value is not specified, the default value is used for the specified pipe ID. If only the *depth* value is specified, or the *depth* value is specified with pipe ID *, it overrides the default number of blocks. The maximum value is 1792, and the minimum value is 2.

Pipe IDs: Pipe ID is a number that identifies a pipe allocated between tasks running in an IMS HP Prefix Resolution job. You can specify one of the following pipe IDs:

1

The pipe between secondary index processing (INDX sort task) and logical parent/logical child processing (LPLC sort task) in the Prefix Resolution function. This pipe is allocated only when both INDX sort and LPLC sort are used in Stand-Alone Prefix Resolution or Concurrent Prefix Update jobs.

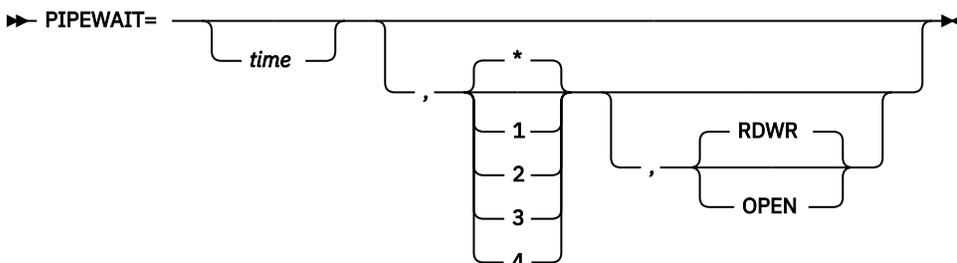
2

The pipe to eliminate the intermediate Work File 2 (WF2) data set that is used in the Prefix Resolution function. This pipe is not allocated when WF2 type data is not required. For example, the pipe is not allocated in Stand-Alone Prefix Update jobs.

- 3 The pipe to eliminate the intermediate Work File 3 (WF3) data set that is used between the Prefix Resolution process and the Prefix Update process. This pipe is not allocated when WF3 type data is not required. For example, the pipe is not allocated in Stand-Alone Prefix Resolution or Stand-Alone Prefix Update jobs.
- 4 The pipe that is used internally in Prefix Update jobs. For example, the IMS DL/I buffer handler task, which updates OSAM data sets, allocates this pipe.
- * All four pipes. The value of all pipes are changed if you omit the pipe ID or specify an asterisk (*) for the pipe ID.

PIPEWAIT

PIPEWAIT specifies the amount of time a writer or a reader of a pipe can remain in a wait state before the HPPRPIPE service issues a message and ends abnormally.



The first parameter *time* specifies the amount of time that a reader or a writer that connects to the pipe, which is identified by the second parameter, can remain in a wait state. The second parameter specifies a pipe ID. The third parameter specifies the target to apply the wait state. The default value RDWR is used when the third parameter is not specified.

Pipe IDs: Pipe ID is a number that identifies a pipe allocated between tasks running in an IMS HP Prefix Resolution job. You can specify one of the following pipe IDs:

- 1 The pipe between secondary index processing (INDX sort task) and logical parent/logical child processing (LPLC sort task) in the Prefix Resolution function. This pipe is allocated only when both INDX sort and LPLC sort are used in Stand-Alone Prefix Resolution or Concurrent Prefix Update jobs.
- 2 The pipe to eliminate the intermediate Work File 2 (WF2) data set that is used in the Prefix Resolution function. This pipe is not allocated when WF2 type data is not required. For example, the pipe is not allocated in Stand-Alone Prefix Update jobs.
- 3 The pipe to eliminate the intermediate Work File 3 (WF3) data set that is used between the Prefix Resolution process and the Prefix Update process. This pipe is not allocated when WF3 type data is not required. For example, the pipe is not allocated in Stand-Alone Prefix Resolution or Stand-Alone Prefix Update jobs.
- 4 The pipe that is used internally in Prefix Update jobs. For example, the IMS DL/I buffer handler task, which updates OSAM data sets, allocates this pipe.
- * All four pipes. The value of all pipes are changed if you omit the pipe ID or specify an asterisk (*) for the pipe ID.

RDWR

Specifies to apply the wait state to the read and write wait state of the pipe.

When you specify RDWR, the first parameter *time* specifies, in minutes, how long a writer or a reader for the pipe can remain in a wait state. The value can be in the range of 1 - 1440.

The default is 1440 minutes for pipe ID 1 and 4, and 15 minutes for pipe ID 2 and 3. If the *time* value is specified with no pipe ID, or the time value is specified with pipe ID *, it overrides the default *time* value for all pipes.

OPEN

Specifies to apply the wait state to the open wait state of the pipe.

When you specify OPEN, the first parameter *time* specifies, in seconds, how long a writer or a reader for the pipe can remain in a wait state. The value can be in the range of 1 - 1440.

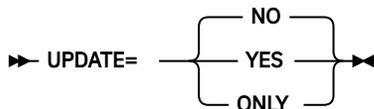
The default is 30 seconds for each pipe. If the *time* value is specified with no pipe ID, or the *time* value is specified with pipe ID *, it overrides the default *time* value for all pipes.

UPDATE

UPDATE specifies the function of IMS HP Prefix Resolution.

This control statement is required. If you do not specify this control statement, UPDATE=NO is used.

To use Stand-Alone Prefix Update, you must specify UPDATE=ONLY.



NO

Specifies to run only the Prefix Resolution function.

YES

Specifies to run the Prefix Resolution and the Prefix Update function in a single job step.

ONLY

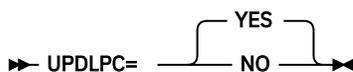
Specifies to run only the Prefix Update function.

Tip: The default value of this control statement can be changed with site default options.

UPDLPC

UPDLPC specifies whether the Prefix Update function updates counter fields of the logical parents. The UPDLPC control statement is valid only if DBIL control statement of the IMS Database Prereorganization utility is specified for the database.

This control statement is optional. If you do not specify this control statement, UPDLPC=YES is used.



YES

Specifies to update counter fields of the logical parents even when they have no logical children. When you delete all of the logical children of a logical parent during the DBIL-type reorganization process, you must specify this parameter.

Note: The performance of the Prefix Update function will decline if you specify this parameter.

NO

Specifies not to update counter fields of the logical parents that have no logical children.

Tip: The default value of this control statement can be changed with site default options.

Related tasks

Setting default values

Create a site default table (FABYGBT0) to change the default values of some FABYIN control statements.

Specifying performance-sensitive JCL parameters

By specifying certain options and parameters in your JCL, you can reduce the elapsed time to run IMS HP Prefix Resolution.

JCL example for Stand-Alone Prefix Update

To run Stand-Alone Prefix Update, you must edit and submit a JCL stream. This example will give you an idea how to specify parameters in the JCL stream.

The JCL example shown in the following figure invokes Stand-Alone Prefix Update and updates the prefix of each logical segment in HDAM01 and HDAM02.

In this example, the following control statements are specified:

- UPDATE=ONLY
- DBRC=NO

Change the bold values to meet your site requirements.

```
//HPPR      JOB (.....),...
//*
//JOBLIB    DD DISP=SHR,DSN=IMS.SDFSRESL
//          DD DISP=SHR,DSN=HPS.SHPSLMD0
//HPPR      EXEC PGM=FABYMAIN
//*-----*
//*          STAND-ALONE PREFIX UPDATE                               *
//*-----*
//DFSURWF3 DD DISP=SHR,DSN=FABY.WF3, BUFNO=44
//IMS       DD DISP=SHR,DSN=IMS.DBDLIB
//SYSUDUMP DD SYSOUT=*
//FABYPRNT DD SYSOUT=*
//FABYMSG  DD SYSOUT=*
//FABYIN   DD *
           UPDATE=ONLY
           DBRC=NO
/*
//HDAM01   DD DISP=SHR,DSN=HDAM01
//HDAM02   DD DISP=SHR,DSN=HDAM02
```

Figure 7. Stand-Alone Prefix Update JCL

Output from Stand-Alone Prefix Update

After running a Stand-Alone Prefix Update job, two reports will be generated. These reports can be used to check the job.

Reports contain the following information:

- Echo back of FABYIN control statements
- The number of DFSURWF3 records that were processed for each logical segment

Related reference

[IMS HP Prefix Resolution reports](#)

IMS HP Prefix Resolution generates reports. These reports can be used to check your IMS HP Prefix Resolution jobs.

Chapter 4. IMS HP Prefix Resolution reports

IMS HP Prefix Resolution generates reports. These reports can be used to check your IMS HP Prefix Resolution jobs.

Topics:

- [“FABYIN Control Statements report” on page 57](#)
- [“Diagnostics and Summary report” on page 58](#)
- [“Statistics report” on page 58](#)
- [“Orphan Records report” on page 58](#)
- [“Update Processing Summary report” on page 59](#)
- [“Split WF3 Data Set Statistics report” on page 59](#)

FABYIN Control Statements report

The FABYIN Control Statements report contains an echo back of the control statements that you specified in the FABYIN data set. From this report, you can check the parameters that are used by IMS HP Prefix Resolution to run the job step.

The following figure shows an example of this report.

```
IMS HIGH PERFORMANCE PREFIX RESOLUTION          "FABYIN CONTROL STATEMENTS"          PAGE: 1
5655-M27                                         DATE: 09/01/2020 TIME: 13:48:43          FABYMAIN - V3.R1

CONTENTS OF "FABYIN" CONTROL STATEMENT:

|.....1.....2.....3.....4.....5.....6.....7.....8

TYPE=IM
UPDATE=YES
ALLOWLP=NO

RUN TIME OPTIONS FOR THIS EXECUTION:
KEYWORD      VALUE
-----
ALLOWLC      NO
ALLOWLP      NO
AVGRLEN
FILSZ
HPPRBH       YES
ITKBLOAD     N/A
ITKBSRVR     *NO
OPRTLK       YES
OPRTLPL      NO
TYPE         IM
UPDATE       YES
UPDLPC       YES
XAVGRLEN
XFILSZ
WF2OUT       NO
SKIPLCR3     NO
SPLITWF3     NO
PIPEBLKSZ    32768,1
PIPEDEPTH    30,1
PIPEWAIT     1440,1,RDWR
PIPEWAIT     30,1,OPEN
PIPEBLKSZ    32768,2
PIPEDEPTH    30,2
PIPEWAIT     15,2,RDWR
PIPEWAIT     30,2,OPEN
PIPEBLKSZ    32768,3
PIPEDEPTH    30,3
PIPEWAIT     15,3,RDWR
PIPEWAIT     30,3,OPEN
PIPEBLKSZ    32768,4
PIPEDEPTH    30,4
PIPEWAIT     15,4,RDWR
PIPEWAIT     30,4,OPEN
DBRC         YES
```

Figure 8. Report: Echo back of FABYIN control statements and runtime options

Diagnostics and Summary report

The Diagnostics and Summary report contains the summary information when logical parents without logical children were found.

If ALLOWLP=YES was specified in the FABYIN control statement, and IMS HP Prefix Resolution detects only the logical parents without logical children, the only output message that is issued is a normal program termination message. However, if the option SUMM was specified by the IMS Database Prereorganization utility control statement, IMS HP Prefix Resolution produces a report and issues the FABY009I message.

The following figure shows an example of this report.

```

IMS HIGH PERFORMANCE PREFIX RESOLUTION          "DIAGNOSTICS & SUMMARY"          PAGE: 1
5655-M27                                         DATE: 09/01/2020  TIME: 13:48:45  FABYMAIN - V3.R1

FABY009I LOGICAL PARENTS WITHOUT LOGICAL CHILDREN - SUMMARY:

LOGICAL PARENT          LOGICAL CHILD          # OF LOGICAL PARENTS
DATABASE SEGMENT       DATABASE SEGMENT       W/O LOGICAL CHILDREN
-----
DB01REN0 SEG0101       DB02DOR0 SEG0201       11099
DB02DOR0 SEG0202       DB01REN0 SEG0102       20772
  
```

Figure 9. Report: Diagnostic and summary of logical parents without logical children

Statistics report

The Statistics report contains the statistics information about segments involved in logical relationships.

This report is generated if the STAT option was specified on the IMS Database Prereorganization utility control statement.

The following figure shows an example of this report.

```

IMS HIGH PERFORMANCE PREFIX RESOLUTION          "STATISTICS"          PAGE: 1
5655-M27                                         DATE: 09/01/2020  TIME: 13:48:46  FABYMAIN - V3.R1

LOGICAL RELATIONSHIP STATISTICS:

LOGICAL PARENT          LOGICAL CHILD          # OF LOGICAL PARENTS          DISTRIBUTION OF LOGICAL PARENTS
DATABASE SEGMENT       DATABASE SEGMENT       WITH LOGICAL CHILDREN        WITHOUT LOGICAL CHILDREN        NUMBER OF LOGICAL CHILDREN        BASED ON # OF LOGICAL CHILDREN
-----
DB01REN0 SEG0101       DB02DOR0 SEG0201       387674          11099          387674          # OF LOGICAL CHILDREN        # OF LOGICAL PARENTS
                                                                0
                                                                1          387674
DB02DOR0 SEG0202       DB01REN0 SEG0102       73433          20772          387674          0-791          94199
                                                                792-1583          5
                                                                7128-7919          1
  
```

Figure 10. Report: Statistics and distribution of logical parents based on the number of their logical children

Orphan Records report

The Orphan Records report contains the image of DFSURWF1 records when a logical parent segment without a logical child segment was detected, or a logical child segment without a logical parent segment was detected.

This report is generated if OPRTL P=YES or OPRTL C=YES is specified in the FABYIN input stream.

The following figure shows an example of this report.

DDNAME	DSNAME	DATABASE	# OF WF3 RECORDS
FABYW301	FABY.WF3.FABYW301	DB01REN0	12210737
FABYW302	FABY.WF3.FABYW302	DB02DOR0	26445049
FABYW303	FABY.WF3.FABYW303	DB03ORD0	24317095
DFSURWF3	FABY.WF3.DFSURWF3	DB04ITE0	10905348
DFSURWF3	FABY.WF3.DFSURWF3	DB05CUS0	151127
TOTAL			74029356

Figure 13. Report: Split WF3 data set statistics

Chapter 5. Performance and tuning

The elapsed time to run IMS HP Prefix Resolution depends on a variety of factors, and you can improve the performance in a number of ways.

The following factors affect performance:

- Certain options and parameters in JCL streams
- Number of DFSURWF1 logical pointer records
- Number of DFSURWF1 secondary index records
- Available REGION size
- Quality of the sort program installed and the sort installation options
- Control statements XFILSZ, XAVGLEN, FILSZ, AVGLEN, and TYPE
- Number of buffers specified for DFSURWF1, DFSURWF3, and DFSURIDX data sets
- Blocking factor used for creation of DFSURWF1 in initial load, reload or scan
- Blocking factor used for creation of DFSURWF3 or DFSURIDX data set
- Availability of your system
- Type of CPU

Topics:

- [“Specifying performance-sensitive JCL parameters” on page 61](#)
- [“Internal sort programs” on page 66](#)
- [“Order of DFSURWF1 data sets” on page 67](#)
- [“Size of external sort work areas” on page 67](#)
- [“Number of sort work data sets” on page 67](#)
- [“JCL allocation of work data sets” on page 67](#)

Specifying performance-sensitive JCL parameters

By specifying certain options and parameters in your JCL, you can reduce the elapsed time to run IMS HP Prefix Resolution.

About this task

Although the suggestions generally are optional and the values for the parameters are just guidelines, you might consider implementing them.

REGION parameter

Specifying a large REGION value, such as 32M, improves performance.

BLKSIZE of the DFSURWF1 data set

The DFSURWF1 data set is created by IMS initial load, the IMS HD Reorganization Reload utility or the IMS Database Scan utility.

Do not specify BLKSIZE on the DFSURWF1 DD statement in the IMS HP Prefix Resolution job.

BLKSIZE of the DFSURWF3 data set

The DFSURWF3 data set optionally created by IMS HP Prefix Resolution should be blocked. Choose a block size appropriate for the storage device being used, for example:

```
BLKSIZE=27998 for DASD 3390
BLKSIZE=23476 for DASD 3380
BLKSIZE=32000 for tapes
```

If you omit the specification of BLKSIZE, the system automatically calculates the optimum block size for you.

BLKSIZE of the DFSURIDX data set

The DFSURIDX data set optionally created by IMS HP Prefix Resolution should be blocked. Choose a block size appropriate for the storage device being used, for example:

```
BLKSIZE=27998 for DASD 3390
BLKSIZE=23476 for DASD 3380
BLKSIZE=32000 for tapes
```

If you omit the specification of BLKSIZE, the system automatically calculates the optimum block size for you.

BUFNO of the DFSURWF1 data set

It is strongly recommended that you use the BUFNO subparameter on the DFSURWF1 DD statement to improve I/O. Although the ideal value depends on your system, it is probably in the range of 44-88.

Note: Specification of a large BUFNO requires a larger REGION on the JOB or EXEC statement, for example REGION=16M.

BUFNO of the DFSURWF3 data set

It is strongly recommended to use the BUFNO subparameter on the DFSURWF3 DD statement in order to improve I/O. Although the ideal value depends on your system, it is probably at least 44.

Note: Specification of a large BUFNO requires a larger REGION on the JOB or EXEC statement, for example REGION=12M.

BUFNO of the DFSURIDX data set

It is strongly recommended to use the BUFNO subparameter on the DFSURIDX DD statement in order to improve I/O. Although the ideal value depends on your system, it is probably at least 44.

Note: Specification of a large BUFNO requires a larger REGION on the JOB or EXEC statement, for example REGION=12M.

XFILSZ, XAVGLEN, FILSZ, AVGLEN, and TYPE control statements

Careful selection of values for these optional control statements can improve performance.

DFSORT provides output statistics that will help you determine the values to specify for these control statements. Look at the DFSORT statistics printouts from the last IMS Database Prefix Resolution utility run against this database complex or from the last IMS HP Prefix Resolution run.

Related reference

Control statements for Stand-Alone Prefix Resolution

The FABYIN data set contains your description of the processing to be done by IMS HP Prefix Resolution while running a Stand-Alone Prefix Resolution job.

Control statements for Concurrent Prefix Update

The FABYIN data set contains your description of the processing to be done by IMS HP Prefix Resolution while running a Concurrent Prefix Update job.

Control statements for Stand-Alone Prefix Update

The FABYIN data set contains your description of the processing to be done by IMS HP Prefix Resolution while running a Stand-Alone Prefix Update job.

Determining parameter values from the previous IMS Database Prefix Resolution run

You can obtain the values of the control statements from the sort statistics produced during the last IMS Database Prefix Resolution run (execution of DFSURG10) to determine the parameter values for reducing elapsed time.

Procedure

See DFSORT messages ICE055I. There are two of them in the format:

```
...  
ICE055I 0 INSERT cccccc, DELETE ...  
...  
ICE055I 0 INSERT ddddddd, DELETE ...
```

XFILSZ

Subtract *ddddddd* from *ccccc*. Use the result as the number of secondary index records for XFILSZ.

XAVGRLEN

Go to the sort statistics and find the first ICE134I message

```
ICE134I 0 NUMBER OF BYTES SORTED: aaaaaaaaa
```

and the second ICE134I message.

```
ICE134I 0 NUMBER OF BYTES SORTED: bbbbbbbbb
```

Next, look for the two ICE055I messages. Find the variable *ccccc* in the first ICE055I message

```
ICE055I 0 INSERT cccccc, ...
```

and the variable *ddddddd* in the second ICE055I message.

```
ICE055I 0 INSERT ddddddd, ...
```

Using these variables, compute the value for the average length of secondary index records, XAVGRLEN, as follows:

```
(( aaaaaaaaa - bbbbbbbbb ) / (ccccc - ddddddd)) - 17
```

FILSZ

Look at the ICE055 messages again. Use the smaller of *ccccc* and *ddddddd* as the number of logical pointer records for FILSZ.

AVGRLEN

Find ICE098I messages in the sort statistics. Subtract 17 from *xxx* in the second occurrence of this message:

```
ICE098I 0 AVERAGE RECORD LENGTH = xxx BYTES
```

and use the result for the parameter AVGRLEN.

TYPE

For the number of logical pointer records and of secondary index records, refer to the preceding discussion of XFILSZ and FILSZ.

- If the number of secondary index records is 0, specify TYPE=LO.
- If the number of logical pointer records is 0, specify TYPE=IO.

- If the number of logical pointer records is bigger than the number of secondary index records, specify TYPE=LM.
- If the number of secondary index records is bigger than the number of logical pointer records, specify TYPE=IM.

Related reference

Example of sort statistics

By referring to the sort statistics of an IMS HP Prefix Resolution run, you can obtain the values you need to specify to reduce the elapsed time.

Determining parameter values from the previous IMS HP Prefix Resolution run

You can obtain the values of control statement from the sort statistics produced during the last IMS HP Prefix Resolution run (execution of Stand-Alone Prefix Resolution or Concurrent Prefix Update) to determine the parameter values for reducing elapsed time.

About this task

Refer to the example of sort statistics (“Example of sort statistics” on page 65) while reading the following explanation. Some of the sort statistics lines are highlighted: these correspond to the messages discussed here.

Procedure

Looking at the sort statistics, you will note that there are three groupings of messages, each preceded by one of the following identifying messages:

```
ICE200I - IDENTIFIER FROM CALLING PROGRAM IS INDX
ICE200I - IDENTIFIER FROM CALLING PROGRAM IS LPLC
ICE200I - IDENTIFIER FROM CALLING PROGRAM IS TWIN
```

The calling program identifiers have the following meaning:

- INDX refers to secondary index processing,
- LPLC refers to logical parent/logical child processing, and
- TWIN refers to processing of multiple child segments for the same parent segment.

One set of DFSORT messages is generated for each of the INDXMSG DD, LPLCMSG DD, and TWINMSG DD statements specified, with two exceptions:

- If TYPE=IO (Index Only) is specified, there is just one set of DFSORT messages produced - INDX.
- If TYPE=LO (Logical pointers Only) is specified, there are just two sets of DFSORT messages produced - LPLC and TWIN.

Each set of sort messages contains messages ICE055I and ICE098I; these messages provide information helpful in specifying the control statements.

```
...
ICE055I 0 INSERT ccccccc, DELETE ccccccc
...
ICE098I 0 AVERAGE RECORD LENGTH = zzz BYTES
...
```

XFILSZ

Use the ccccccc from the INDX message group as the number of estimated index records (XFILSZ subparameter).

XAVGLEN

Use the zzz from the INDX message group as the value for the parameter XAVGLEN.

FILSZ

Use the cccccc from the LPLC message group as the number of estimated logical pointer records (FILSZ subparameter).

AVGLEN

Use the zzz from the LPLC message group as the value for the parameter AVGLEN.

TYPE

Use the values you have just determined for the number of logical pointer records (FILSZ) and the number of secondary index records (XFILSZ).

- If the number of secondary index records is 0, specify TYPE=LO.
- If the number of logical pointer records is 0, specify TYPE=IO.
- If the number of logical pointer records is bigger than the number of secondary index records, specify TYPE=LM.
- If the number of secondary index records is bigger than the number of logical pointer records, specify TYPE=IM.

Related referenceExample of sort statistics

By referring to the sort statistics of an IMS HP Prefix Resolution run, you can obtain the values you need to specify to reduce the elapsed time.

Example of sort statistics

By referring to the sort statistics of an IMS HP Prefix Resolution run, you can obtain the values you need to specify to reduce the elapsed time.

The following figure provides an example of sort statistics from an IMS HP Prefix Resolution run.

```

ICE200I 0 IDENTIFIER FROM CALLING PROGRAM IS INDX
ICE143I 0 BLOCKSET      SORT TECHNIQUE SELECTED
ICE000I 0 --- CONTROL STATEMENTS/MESSAGES ---- 5740-SM1 REL 13.0 ----
          SORT FIELDS=(14,036,BI,A)
          RECORD TYPE=VB,LENGTH=(900,900)
          OPTION HIPRMAX=OPTIMAL,NOCHECK,SORTDD=INDX,VLSHRT,MAINSIZE=MAX,MSGDDN
          RT0MSG,EXCPVR=ALL,AVGLEN=081,FILSZ=E1777777
ICE089I 0 VNDR230P.PRERESOL.      , INPUT LRECL = 900, TYPE = V
ICE093I 0 MAIN STORAGE = (MAX,10784512,10240000)
ICE156I 0 MAIN STORAGE ABOVE 16MB = (9191424,9191424)
ICE091I 0 OUTPUT LRECL = 900, TYPE = V
ICE055I 0 INSERT 1477111, DELETE 1477111          <=====
ICE054I 0 RECORDS - IN: 0, OUT: 0
ICE134I 0 NUMBER OF BYTES SORTED: 120001818
ICE098I 0 AVERAGE RECORD LENGTH = 81 BYTES          <=====
ICE165I 0 TOTAL WORK DATA SET TRACKS ALLOCATED: 17040 , TRACKS USED: 0
ICE180I 0 HIPERSPACE STORAGE USED = 121120K BYTES
ICE188I 0 DATA SPACE STORAGE USED = 0K BYTES
ICE052I 0 END OF DFSORT

ICE200I 0 IDENTIFIER FROM CALLING PROGRAM IS LPLC
ICE143I 0 BLOCKSET      SORT TECHNIQUE SELECTED
ICE000I 0 --- CONTROL STATEMENTS/MESSAGES ---- 5740-SM1 REL 13.0 ----
          SORT FIELDS=(14,024,BI,A)
          RECORD TYPE=VB,LENGTH=(300,300)
          OPTION HIPRMAX=OPTIMAL,NOCHECK,SORTDD=LPLC,VLSHRT,MAINSIZE=MAX,MSGDDN
          RT1MSG,EXCPVR=ALL,AVGLEN=039,FILSZ=E1999999
ICE089I 0 VNDR230P.PRERESOL.      , INPUT LRECL = 300, TYPE = V
ICE093I 0 MAIN STORAGE = (MAX,11438700,10240000)
ICE156I 0 MAIN STORAGE ABOVE 16MB = (9191424,9191424)
ICE091I 0 OUTPUT LRECL = 300, TYPE = V
ICE055I 0 INSERT 1268326, DELETE 1268326          <=====
ICE054I 0 RECORDS - IN: 0, OUT: 0
ICE134I 0 NUMBER OF BYTES SORTED: 50052142
ICE098I 0 AVERAGE RECORD LENGTH = 39 BYTES          <=====
ICE165I 0 TOTAL WORK DATA SET TRACKS ALLOCATED: 15120 , TRACKS USED: 0
ICE180I 0 HIPERSPACE STORAGE USED = 53440K BYTES
ICE188I 0 DATA SPACE STORAGE USED = 0K BYTES
ICE052I 0 END OF DFSORT

ICE200I 0 IDENTIFIER FROM CALLING PROGRAM IS TWIN
.
.
.
ICE052I 0 END OF DFSORT

```

Figure 14. Example of IBM DFSORT statistics from an IMS HP Prefix Resolution run

Related tasks

Determining parameter values from the [previous IMS Database Prefix Resolution run](#)

You can obtain the values of the control statements from the sort statistics produced during the last IMS Database Prefix Resolution run (execution of DFSURG10) to determine the parameter values for reducing elapsed time.

Determining parameter values from the [previous IMS HP Prefix Resolution run](#)

You can obtain the values of control statement from the sort statistics produced during the last IMS HP Prefix Resolution run (execution of Stand-Alone Prefix Resolution or Concurrent Prefix Update) to determine the parameter values for reducing elapsed time.

Internal sort programs

Because IMS HP Prefix Resolution utilizes a sort program in its internal processing, the performance of your sort product, such as DFSORT, affects the performance of the entire IMS HP Prefix Resolution task.

IMS HP Prefix Resolution attaches and runs up to three sorts simultaneously.

Specifying appropriate sort installation defaults improves the performance. Review your sort installation options which specify an upper limit to the total amount of main storage above and below 16-megabyte virtual storage available to the DFSORT program. The *DFSORT Tuning Guide* and the *DFSORT Application Programming Guide* explain in detail how to tune DFSORT.

Order of DFSURWF1 data sets

The order of the DFSURWF1 data sets concatenated to the DFSURWF1 DD statement can affect the IMS HP Prefix Resolution performance.

Size of external sort work areas

The IMS HP Prefix Resolution internal sort processes require work areas (INDXWKnn, LPLCWKnn, TWINWKnn, and SORTWKnn data sets).

If the input data set DFSURWF1 is small (up to 300 MB or so), IMS HP Prefix Resolution should fully utilize the Hypersorting feature of DFSORT, and no auxiliary storage for these sort work data sets should be requested and allocated by IMS HP Prefix Resolution. However, the input DFSURWF1 data set can be so large that the DFSORT Hypersorting capability is never used or is partially disabled. In this case, the sort work areas are allocated on the auxiliary storage.

Use fast DASD devices whenever possible. The use of tape devices causes significant performance degradation and is strongly discouraged.

Number of sort work data sets

Although one work data set of either INDXWKnn, LPLCWKnn, TWINWKnn, or SORTWKnn is sufficient, using two or more work data sets on separate devices usually reduces the elapsed time to run the IMS HP Prefix Resolution job significantly.

In general, using more than three work data sets does not reduce elapsed time any further, and is necessary only if the work data sets are small or the size of the sorted data set is large. Regardless, no more than 32 work data sets can be specified.

JCL allocation of work data sets

The amount of required work space is dependent on many factors such as virtual storage and type of devices used, but is especially sensitive to the file size of the DFSURWF1 input data set.

Because of the number of variables involved, an exact formula for calculating the needed work space cannot be given. However, 1 to 2 times the input file size is a good rule of thumb; IMS HP Prefix Resolution can often run with less than that.

This guideline assumes that a reasonable amount of virtual storage, at least 4 MB, is available to IMS HP Prefix Resolution. Limiting the available amount of storage can increase the amount of needed work space.

To get the best performance with JCL allocation of work data sets:

- Use fast DASD devices
- Allocate space in cylinders
- Specify contiguous space for each work data set, and make sure that there is enough primary space so that secondary space is not needed
- Allocate two or more work data sets
- Use multiple channel paths to the devices
- Use different spindles and separate channel paths for the work data sets and the input/output data sets

To estimate the size of sort work areas, use the DFSORT output statistics from the previous run of IMS HP Prefix Resolution. Find message ICE165I, which informs you how many tracks were used. This message can appear three times, once from each of the called sort processes: INDX, LPLC, and TWIN. Here is an example of the ICE165I message:

```
ICE165I  TOTAL WORK DATA SET TRACKS ALLOCATED: aaaaa, TRACKS USED: bbbbb
```

Convert the TRACKS USED value *bbbbbb* into cylinders, and use it for SPACE specification of work areas

- `INDXWKnn` if the calling program is `INDX`
- `LPLCWKnn` if the calling program is `LPLC`
- `TWINWKnn` if the calling program is `TWIN`

If you specify `WF2OUT=YES` in the `FABYIN` control statement data set, code `SORTWKnn` DD statements instead of `LPLCWKnn` DD statements. In this case, you do not need to code `TWINWNnn` DD statements because the `SORTWKnn` data sets are reused in the `TWIN` sort task after the `LPLC` sort task completes.

Note: If the allocation of secondary space on one of the work data sets fails during sorting, the system issues a B37 informational message. IMS HP Prefix Resolution can recover by allocating space on one of the other work data sets, if available.

`DFSORT` normally allocates secondary extents for work data sets, even if not requested in the `JCL`. This reduces the probability of exceeding work space capacity.

If the `DASD` work space is not sufficient to perform the sorts, `DFSORT` issues an error message and IMS HP Prefix Resolution terminates.

Related reference

Example of sort statistics

By referring to the sort statistics of an IMS HP Prefix Resolution run, you can obtain the values you need to specify to reduce the elapsed time.

Chapter 6. Site default options

You can change the default values of some control statements by creating a site default table (FABYGBT0) for your site. If IMS HP Prefix Resolution finds FABYGBT0 in the execution libraries, the values that are specified in the site default table are applied to the IMS HP Prefix Resolution job.

Tip: You can override the site default values at run time by specifying the values in the FABYIN control statement.

Topics:

- [“Setting default values” on page 69](#)
- [“Available values for a site default table” on page 69](#)

Setting default values

Create a site default table (FABYGBT0) to change the default values of some FABYIN control statements.

About this task

To generate a site default table (FABYGBT0), you can use the JCL stream FABYGDFT as a sample. The JCL stream is provided as a member of the HPS.SHPSSAMP library. It assembles the user-specified FABYTGEN macro statements and link-edits the output of the assembly into the HPS.SHPSLMD0 load module library to build FABYGBT0.

Procedure

To set the table, follow these steps:

1. To generate a site default table, modify the FABYTGEN macro statements in the FABYGDFT JCL stream.
2. Submit the job to assemble and link-edit FABYGBT0.
3. Concatenate the load module library, in which FABYGBT0 exists, to STEPLIB.

Related reference

[Available values for a site default table](#)

In the site default table, you can set the values of options to override the default values.

Available values for a site default table

In the site default table, you can set the values of options to override the default values.

The default values for the options listed in the following table can be changed by creating FABYGBT0.

Table 4. Available values for a site default table

Option	Default value	Available values	Description
ALLOWLC	NO	YES, NO	<p>ALLOWLC specifies whether to allow the existence of logical children that do not have logical parents.</p> <p>NO Specifies to end the Prefix Resolution function with message FABY879A when logical children that do not have logical parents exist.</p> <p>YES Specifies to allow the existence of logical children that do not have logical parents. Message FABY879W is issued.</p>
ALLOWLP	YES	YES, NO	<p>ALLOWLP specifies whether to allow logical parents that do not have logical children.</p> <p>YES Specifies to allow the existence of logical parents that do not have logical children.</p> <p>NO Specifies to end the Prefix Resolution function with message FABY878A when logical parents that do not have logical children exist.</p>
DBRC	YES	YES, NO	<p>DBRC specifies whether the Prefix Update function uses DBRC.</p> <p>YES Specifies to use DBRC.</p> <p>NO Specifies not to use DBRC unless the DBRC=FORCE option is specified during the IMS system generation or in the DFSIDEFO module.</p>
HPPRBH	YES	YES, NO	<p>HPPRBH specifies whether the Prefix Update function uses the HPPR buffer handler to update OSAM data sets.</p> <p>YES Specifies to use HPPR buffer handler to update OSAM data sets.</p> <p>NO Specifies to use the IMS DL/I buffer handler to update OSAM data sets. If OSAM data sets to be updated are large format data sets, you must specify HPPRBH=NO.</p>
ITKBLOAD	*NO	<i>library_name</i> or *NO	<p>ITKBLOAD specifies the name of the load module library for IMS Tools Knowledge Base.</p> <p>*NO Specifies that the IMS Tools Knowledge Base modules are loaded from the private library or the system library of the job.</p> <p><i>library_name</i> Specifies the name of the IMS Tools Knowledge Base load module data set that is to be used by IMS HP Prefix Resolution.</p>

Table 4. Available values for a site default table (continued)

Option	Default value	Available values	Description
ITKBSRVR	*NO	<i>server_name</i> or *NO	<p>ITKBSRVR specifies the name of the IMS Tools Knowledge Base server XCF group.</p> <p>*NO Specifies that IMS HP Prefix Resolution does not store reports in the IMS Tool Knowledge Base Output repository.</p> <p><i>server_name</i> Specifies that IMS HP Prefix Resolution stores reports in the IMS Tools Knowledge Base Output repository of the specified server.</p>
OPRTLC	YES	YES, NO	<p>OPRTLC specifies whether logical children with no logical parents are printed in the Orphan Records report.</p> <p>YES Specifies to print logical children that do not have logical parents.</p> <p>NO Specifies not to print logical children that do not have logical parents.</p>
OPRTLPC	NO	YES, NO	<p>OPRTLPC specifies whether logical parents with no logical children are printed in the Orphan Records report.</p> <p>NO Specifies not to print logical parents that do not have logical children.</p> <p>YES Specifies to print logical parents that do not have logical children.</p>
UPDATE	NO	YES, NO, ONLY	<p>UPDATE specifies the function of IMS HP Prefix Resolution.</p> <p>NO Specifies to run only the Prefix Resolution function.</p> <p>YES Specifies to run the Prefix Resolution and the Prefix Update function in a single job step.</p> <p>ONLY Specifies to run only the Prefix Update function.</p>
UPDLPC	YES	YES, NO	<p>UPDLPC specifies whether the Prefix Update function updates counter fields of the logical parents. The UPDLPC control statement is valid only if DBIL control statement of the IMS Database Prereorganization utility is specified for the database.</p> <p>YES Specifies to update counter fields of the logical parents even when they have no logical children. When you delete all of the logical children of a logical parent during the DBIL-type reorganization process, you must specify this parameter.</p> <p>Note: The performance of the Prefix Update function will decline if you specify this parameter.</p> <p>NO Specifies not to update counter fields of the logical parents that have no logical children.</p>

Related tasksSetting default values

Create a site default table (FABYGBT0) to change the default values of some FABYIN control statements.

Chapter 7. Troubleshooting

This reference section provides detailed information about the messages and codes that are issued by IMS HP Prefix Resolution.

Topics:

- [“Return codes” on page 73](#)
- [“Messages” on page 74](#)
- [“Gathering diagnostic information” on page 90](#)
- [“Diagnostics Aid” on page 90](#)

Return codes

This reference section provides detailed information about IMS HP Prefix Resolution return codes.

The following return codes are returned at IMS HP Prefix Resolution termination:

Code

Meaning

0

No errors were detected.

4

Returned when any of the following messages have been issued during program execution.

- FABY102W
- FABY879W
- FABY961W
- FABY4002W

If return code 4 is returned, a legitimate error may have occurred. Refer to the individual message descriptions for an explanation of the cautionary messages.

8

Returned when any FABYnnnA error message is issued. Refer to the individual message descriptions for an explanation of the error messages.

12

Returned when either one or both of the messages listed under return code 4 *and* one or more messages with return code 8 have been issued.

16 or higher

Returned by the MVS™ Sort/Merge program when a SORT error is detected.

If an 8, 12, or 16 return code is returned by Stand-Alone Prefix Resolution, you must not continue. Do not run Stand-Alone Prefix Update, the IMS Database Prefix Update utility (DFSURGP0), or the IMS HISAM Reorganization Unload utility (DFSURULO) because the input work data sets required by these utilities might be incomplete. Refer to the message descriptions in [“Messages” on page 74](#) for an explanation of the associated error messages and follow the instructions in User Response before you run the IMS HP Prefix Resolution job again.

Messages

Use the information in these messages to help you diagnose and solve IMS HP Prefix Resolution problems.

Message format

IMS HP Prefix Resolution messages adhere to the following format:

```
FABYnnn $\alpha$  text
```

Where:

FABY

Indicates that the message was issued by IMS HP Prefix Resolution

nnn

Indicates the message identification number

x

Indicates the severity of the message:

A

Indicates that operator intervention is required before processing can continue.

E

Indicates that an error occurred, which might or might not require operator intervention.

I

Indicates that the message is informational only.

W

Indicates that the message is a warning to alert you to a possible error condition.

Each message also includes the following information:

Explanation:

The Explanation section explains what the message text means, why it occurred, and what its variables represent.

System action:

The System action section explains what the system will do in response to the event that triggered this message.

User response:

The User response section describes whether a response is necessary, what the appropriate response is, and how the response will affect the system or program.

**FABY002A INVALID RECORD IN DFSURWF1
 records**

Explanation

The FABYMAIN program found invalid records in the input data set. Only valid DFSURWF1 records are expected; these are created by IMS internal modules during initial load, IMS HD Reorganization Reload and IMS Database Scan utility processing. *records* contain input records in hexadecimal and EBCDIC format.

System action

Processing terminates with a return code of 8.

User response

Examine the hexadecimal image of the record displayed and find the cause of the error.

Possible cause is the specification of a DFSURCDS that is not current, or the concatenation of an incorrect DFSURWF1 data set.

**FABY003A DDNAME xxxxxxxx REQUIRED BUT
 WAS NOT SUPPLIED**

Explanation

The DD statement for the named data set was not supplied.

System action

Processing terminates with a condition code of 8.

User response

Check the data sets that are required, specify the DD statement, and resubmit the job. For Stand-Alone Prefix Resolution, see [Table 1 on page 11](#), and for Concurrent Prefix Update, see [Table 2 on page 26](#).

FABY006A	CONTROL DATA SET DFSURCDS DOES NOT CONTAIN VALID DATA
-----------------	--

Explanation

The control data set DFSURCDS created by the IMS Database Prereorganization utility contains inconsistent data. The control data set was created for a different database, or it was damaged.

System action

Processing terminates with a condition code of 8.

User response

Find the cause of the problem and rerun the IMS Database Prereorganization utility.

FABY007A	UNABLE TO OPEN DATA SET WITH DDNAME nnnnnnnn
-----------------	---

Explanation

The IMS HP Prefix Resolution module FABYMAIN was unable to open the DCB associated with the DDNAME *nnnnnnnn*.

System action

Processing terminates with a return code of 8.

User response

Determine and correct the cause of the problem and resubmit the job.

FABY008A	HIGH PERFORMANCE PREFIX RESOLUTION ENDED ABNORMALLY DUE TO AN INTERNAL ERROR - CC=ccc
-----------------	--

Explanation

An unexpected internal error was detected by IMS HP Prefix Resolution.

System action

Processing terminates with a return code of 16.

User response

Contact IBM Software Support.

FABY009I	LOGICAL PARENTS WITHOUT LOGICAL CHILDREN - SUMMARY:
-----------------	--

Explanation

A logical parent segment without logical children segments was detected.

This message is followed by a summary showing the logical parent's database and segment identifiers, the logical child's database and segment identifiers, and the number of logical parents without logical children for those segments. This message and the summary following it are issued when option SUMM is specified in the IMS Database Prereorganization utility.

This condition could be caused by not supplying as input to IMS HP Prefix Resolution all DFSURWF1 work data sets. Because it is not necessary for logical children to actually occur for each logical parent.

System action

Processing continues.

User response

None. This message is informational.

FABY010I	HIGH PERFORMANCE PREFIX RESOLUTION ENDED NORMALLY, RC=rr
-----------------	---

Explanation

IMS HP Prefix Resolution completed normally.

System action

None.

User response

None. This message is informational.

FABY010I	HIGH PERFORMANCE PREFIX RESOLUTION ENDED WITH RC=rr
-----------------	--

Explanation

IMS HP Prefix Resolution encountered a problem during execution.

System action

The return code *rr* is displayed at program completion.

User response

See previous FABY*nnn* messages for more information about the problem.

FABY011I (WTO) message text

Explanation

This message is issued to show the progress of the IMS HP Prefix Resolution job. The start and completion of internal processes are indicated.

System action

The return code is not set. Processing continues.

User response

None. This message is informational.

FABY012A LOAD FAILED FOR MODULE: xxxxxxx

Explanation

Load failure occurred for module xxxxxxx.

System action

Processing terminates with a condition code of 8.

User response

Contact IBM Software Support.

FABY013A MODULE *mmmmmmmm* NOT FOUND

Explanation

Module *mmmmmmmm* was not found in the STEPLIB or JOBLIB concatenation.

System action

The program ends abnormally.

User response

Check that the load module in the program libraries that are concatenated to the STEPLIB or JOBLIB DD statement is correct. Correct it if necessary.

FABY014A DD *ddddddd* NOT FOUND

Explanation

The required DD statement *ddddddd* was not found in the JCL.

System action

The program ends abnormally.

User response

Check the DD statement in the JCL. Correct it if necessary.

FABY015A DUMMY WAS SPECIFIED FOR DD ddddddd

Explanation

DUMMY DD is specified for the required DD *ddddddd* statement.

System action

The program ends abnormally.

User response

Check the DD statement in the JCL. Correct it if necessary.

FABY017A TYPE KEYWORD WAS NOT SPECIFIED

Explanation

The required keyword TYPE= was not specified in the FABYIN input stream.

System action

The program ends abnormally.

User response

Check that the TYPE keyword statement is correct. Correct it if necessary.

FABY018A INCONSISTENT KEYWORD WAS SPECIFIED

Explanation

The FABYIN input streams were being evaluated. The action completed unsuccessfully.

System action

The program ends abnormally.

User response

Check that the keyword statements are correct.
Correct it if necessary.

**FABY019A INCORRECT CONTROL
STATEMENT WAS SPECIFIED**

Explanation

An incorrect control statement was found in the FABYIN input stream.

System action

The program ends abnormally.

User response

Check that the keyword statements are correct.
Correct it if necessary.

**FABY020A DUPLICATE KEYWORD WAS
SPECIFIED**

Explanation

Duplicate specification of keyword was found in the FABYIN input stream.

System action

The program ends abnormally.

User response

Check that the keyword statements are correct.
Correct it if necessary.

**FABY021A INCORRECT VALUE FOR
KEYWORD WAS SPECIFIED**

Explanation

A statement with an incorrect value for a keyword was found in the FABYIN input stream.

System action

The program ends abnormally.

User response

Check that the value for the keyword is correct.
Correct it if necessary.

**FABY022A INCORRECT KEYWORD WAS
SPECIFIED**

Explanation

A statement with an incorrect keyword was found in the FABYIN input stream.

System action

The program ends abnormally.

User response

Check that the keyword statements are correct.
Correct it if necessary.

**FABY023A LOCAL-TIME ON MVS CLOCK IS
INVALID**

Explanation

The UTC offset must be within the range of -11:00 to +14:00 hours. The time of the MVS clock is outside this range. The SET CLOCK command might be specified incorrectly.

System action

Processing ends with a return code of 8.

User response

Run the SET CLOCK command to set the correct time, then rerun the utility.

FABY024A GETMAIN FAILED

Explanation

The program could not obtain enough area with the GETMAIN macro.

System action

The program ends abnormally.

User response

If the specified region size is too small, increase the value of REGION size in the JOB statement in the JCL, and rerun the utility.

**FABY025A GET FAILED FOR DDNAME:
nnnnnnnn**

Explanation

The program found incorrect records in the *nnnnnnnn* data set.

System action

Processing ends with a return code of 8.

User response

Check that the input data sets specified are correct. Correct it if necessary.

FABY026I **PUT FAILED FOR DDNAME:**
nnnnnnnn

Explanation

The PUT macro that was issued to the FABYMSG or the FABYPRNT data set failed. Further messages or reports are not written to the data set.

System action

Processing continues.

User response

None. This message is informational.

FABY026A **PUT FAILED FOR DDNAME:**
nnnnnnnn

Explanation

The PUT macro that was issued to data set *nnnnnnnn* failed.

System action

Processing ends with a return code of 8.

User response

Correct the error and rerun the utility.

FABY027A **BLDL FAILED FOR DFSMDA**
MEMBER *membername*

Explanation

An error occurred when a BLDL macro was issued. The entire database must be allocated by either a JCL stream or by the DFSMDA member.

System action

The program ends abnormally.

User response

Check that the DD statement in the JCL or the load module in the program libraries that are concatenated

to the STEPLIB, JOBLIB, or IMSDALIB DD statement is correct. Correct it if necessary.

FABY028A **INCORRECT DFSMDA MEMBER**
membername

Explanation

The member was loaded as a DFSMDA member, but it was not in a correct DFSMDA format.

System action

The program ends abnormally.

User response

Check the format of DFSMDA member. Correct it if necessary.

FABY029A **DD NAME WAS NOT DEFINED IN**
DFSMDA MEMBER *membername*

Explanation

The member was loaded as a DFSMDA member, but it had no DD name defined.

System action

The program ends abnormally.

User response

Check the DD name of DFSMDA member. Correct it if necessary.

FABY030A **DYNAMIC ALLOCATION FAILED**
FOR DDNAME *ddddddd* RC=*rr*
RSN=*ssss*

Explanation

An attempt to dynamically allocate or deallocate the ddname data set failed. The return code was *rr*, and the reason code was *ssss*.

System action

The program ends abnormally.

User response

Find the reason for the dynamic allocation request failure. For the return code and the reason code, refer to the *z/OS MVS Programming Authorized Assembler Services Guide (SA22-7608)*. Correct it if necessary.

FABY031A **WF2OUT=YES IS NOT SUPPORTED**
WITH TYPE=IM, TYPE=LM

Explanation

WF2OUT=YES and TYPE=IM or TYPE=LM were found in the FABYIN input stream, but this combination is not supported.

System action

The program ends abnormally.

User response

Change the WF2OUT parameter or the TYPE parameter. Then, rerun the job.

FABY032A UNSUPPORTED LEVEL OF IMS IS BEING USED: *nn*

Explanation

You are running the job on a version of IMS that is not supported by IMS HP Prefix Resolution. *nn* indicates the version of IMS that you are using.

System action

IMS HP Prefix Resolution ends with a return code of 8.

User response

Run the job on a version of IMS that is supported by IMS HP Prefix Resolution.

FABY033I IMS MANAGED ACBS ENABLED: [ACTIVE | PENDING] DEFINITIONS ARE USED

Explanation

IMS HP Prefix Resolution found that the IMS catalog is enabled and that the ACBs are managed by IMS.

- ACTIVE indicates that the database information is retrieved from the IMS catalog directory data sets.
- PENDING indicates that the database information is retrieved from the IMS catalog staging data sets.

System action

IMS HP Prefix Resolution continues processing by using the database definitions in the IMS catalog instead of the definitions in the DBDLIB that is specified by the IMS DD statement.

User response

None. This message is informational.

FABY100I PREFIX UPDATE ENDED NORMALLY, RC=*rr*

Explanation

The Prefix Update function ended successfully. This message is informational.

System action

None.

User response

None.

FABY100I PREFIX UPDATE ENDED WITH RC=*rr*

Explanation

The Prefix Update function encountered an error.

System action

The program ends with a condition code of *rr*.

User response

For more information about the problem, see the preceding messages.

FABY101A INCORRECT RECORD WAS FOUND IN DFSURWF3 RSN=*rr* records

Explanation

The program found incorrect records in the input data set. *records* contain input records in hexadecimal and EBCDIC format. The reason is shown in *rr*.

<i>rr</i>	Meaning
01	An incorrect record type was found in the WF3 record.
02	The segment was not found in DBD.
03	A DBD with the logical parent or the logical child was not found when processing the type 10 or the type 00 record.
04	The segment for the logical parent or the logical child was not found in DBD when processing the type 10 or the type 00 record.
05	A mismatch was found in the logical relationship described by DBD and the WF3 record.
06	Although the counter field was not defined in DBD, the program tried to update the counter field.

System action

Processing ends with a return code of 8.

User response

Check that the DFSURWF3 or IMS DD data set specified is correct. Correct it if necessary.

FABY102W	HISAM UPDATE RECORDS ARE WRITTEN IN THE FABYWF30 DATA SET
-----------------	--

Explanation

The Prefix Update function found DFSURWF3 records for a HISAM database and wrote them in the FABYWF30 data set. You can update the prefix of the logical segments in the HISAM database with the IMS Database Prefix Update Utility (DFSURGPO) by using the FABYWF30 data set.

System action

Processing continues. Return code is set to 4.

User response

None.

FABY103A	DD FABYWF30 FOR HISAM UPDATE RECORDS ARE NOT FOUND
-----------------	---

Explanation

The Prefix Update function found DFSURWF3 records for the HISAM database, but the FABYWF30 data set was not found.

System action

Processing ends with a return code of 8.

User response

Check the DD statement in the JCL. Correct it if necessary.

FABY104A	UNABLE TO BUILD CONTROL BLOCKS FOR DATABASE <i>dbdname</i> RSN=<i>rr</i>
-----------------	---

Explanation

No control blocks for the database were built. The reason is shown in *rr*.

<i>rr</i>	Meaning
-----------	---------

01	A DBD was not found in the IMS DD data sets.
02	A DBD for the database could not be loaded.
03	A logical child segment was not found.
04	An unknown database organization was found.
05	A DBD referred to as an external logical relationship was not found.
06	A DBD for the database had no logical segments.

System action

The program ends abnormally.

User response

Check that the IMS DD data set that is specified is correct. If the error still persists, contact IBM Software Support.

FABY105A	INCORRECT BLOCK SIZE FOR DDNAME: <i>dddddddd</i>
-----------------	---

Explanation

Prefix Update function detected an incorrect block size for the database in the internal control block.

System action

Processing ends with a return code of 8.

User response

Contact IBM Software Support.

FABY106A	VSAM OPEN FAILED FOR DDNAME: <i>dddddddd</i> RC=<i>rr</i> RSN=<i>ssss</i>
-----------------	--

Explanation

The OPEN macro for data set *dddddddd* failed. The return code was *rr*, and the reason code was *ssss*.

System action

The program ends abnormally.

User response

Check that the VSAM data set that was used is correct. For the return code and the reason code of the OPEN macro, refer to the *z/OS DFSMS Macro Instructions for Data Sets* (SC23-6852). Correct it if necessary.

**FABY107A VSAM GET FAILED FOR DDNAME:
dddddddd RC=rr RSN=ssss****Explanation**

The GET macro that was issued to data set *dddddddd* failed. The return code was *rr*, and the reason code was *ssss*.

System action

The program ends abnormally.

User response

Check that the VSAM data set that was used is correct. For the return code and the reason code of the OPEN macro, refer to the *z/OS DFSMS Macro Instructions for Data Sets* (SC23-6852). Correct it if necessary.

**FABY108A VSAM PUT FAILED FOR DDNAME:
dddddddd RC=rr RSN=ssss****Explanation**

The PUT macro that was issued to data set *dddddddd* failed. The return code was *rr*, and the reason code was *ssss*.

System action

The program ends abnormally.

User response

Check that the VSAM data set used is correct. For the return code and the reason code of the OPEN macro, refer to the *z/OS DFSMS Macro Instructions for Data Sets* (SC23-6852). Correct it if necessary.

**FABY109A VSAM SHOWCB FAILED FOR
DDNAME: dddddddd RC=rr
RSN=ssss****Explanation**

The SHOWCB macro that was issued to data set *dddddddd* failed. The return code was *rr*, and the reason code was *ssss*.

System action

The program ends abnormally.

User response

Check that the VSAM data set used is correct. For the return code and the reason code of the OPEN macro,

refer to the *z/OS DFSMS Macro Instructions for Data Sets* (SC23-6852). Correct it if necessary.

**FABY110A UNABLE TO COMPLETE THE DBRC
CALL FUNC =ffffff****Explanation**

The Prefix Update function was unable to complete the DBRC call successfully. The meanings of the functions are:

Function	Meaning
SIGNON	Sign-on call
SIGNOFF	Sign-off call
AUTH	Authorization call
INIT0	INIT0 function call
INIT1	INIT1 function call

The preceding DBRC message explains the reason code.

System action

Processing ends with a return code of 8.

User response

Check the DBRC message and follow the response in that message.

FABY111A DBRC IS REQUIRED FOR THIS RUN**Explanation**

Although DBRC=FORCE was specified at IMS system definition time or in the DFSIDEFO module, DBRC=NO was specified.

System action

Processing ends with a return code of 8.

User response

Make sure that DBRC is present for this run.

**FABY112A UNABLE TO HANDLE A LARGE
FORMAT DATA SET FOR DDNAME
dddddddd****Explanation**

HPPR buffer handler was unable to handle the data set associated with the DDNAME *dddddddd* because it was a large format data set. If you update the prefix of

the logical segments in large format data sets, specify HPPRBH=NO in the FABYIN input stream.

System action

Processing ends with a return code of 8.

User response

Specify HPPRBH=NO and resubmit the job.

FABY113A	VSAM ENDREQ FAILED FOR DDNAME dddddddd RC=rr RSN=ssss
-----------------	--

Explanation

The ENDREQ macro for data set *ddddddd* failed. The return code was *rr*, and the reason code was *ssss*.

System action

The program ends abnormally.

User response

Check that the VSAM data set that was used is correct. For the return code and the reason code of the ENDREQ macro, see the *z/OS DFSMS Macro Instructions for Data Sets (SC23-6852)*. If necessary, correct the data set and rerun the job.

FABY120A	NAME/TOKEN SERVICE XXXXXXXXX FAILURE. RC=rr
-----------------	--

Explanation

An attempt to use the name/token service *XXXXXXXX* failed. The return code from the service was *rr*.

System action

Processing ends with a return code of 8.

User response

Call IBM Software Support.

FABY121A	BUFFER HANDLER RETURNED AN ERROR CODE OF cc
-----------------	--

Explanation

The program received a nonzero return code from the buffer handler. The meaning of this return code can be found in the PST DSECT in the field labeled PSTRTCDE. See the buffer handler return codes in *IMS Messages and Codes, Volume 1*.

System action

Processing ends with a return code of 8.

User response

Correct any errors specified by the return code, and rerun the job.

FABY122A	INTERNAL ERROR IN BLOCK BUILDER: FUNC=xxxxxxx RSN=rr
-----------------	---

Explanation

There was an internal error while the control blocks were being built.

System action

Processing ends with a return code of 8.

User response

Call IBM Software Support.

FABY877A	DUPLICATE RECORD FOR (LOGICAL PARENT LOGICAL CHILD) records
-----------------	--

Explanation

The issuing program, FABYMAIN, found the following errors:

- For a logical parent segment, a type 00 input work data set record that was for the same occurrence of a logical parent/logical child pair as a previous input work data set record. Only one type 00 record can exist for an occurrence of a logical parent/logical child pair.
- For a logical child segment, duplicate type 20 or type 30 input work data set records for the same type 10 record. Only one type 20 or type 30 record can exist for each type 10 record.

These error conditions could be caused by supplying as input to the issuing program work data sets that were generated by multiple runs of a database initial load, reorganization, or scan. *records* contain input records in hexadecimal and EBCDIC format.

System action

The return code is set to 8, and Prefix Resolution processing continues.

User response

The result of prefix resolution is invalid. Determine the cause of the incorrect DFSURWF1 record. These

records can be analyzed using the DFSURWF1 DSECT from the assembly of IMS HP Prefix Resolution, FABYMAIN. If DBIL is used in PREREORG, then the logical parent concatenated key begins at offset X'19'. If DBR is used in PREREORG, then the logical parent (LP) old address also begins at offset X'19'. This segment's RBA address is at offset X'0C' in the DFSURWF1 record.

Make sure that only work data sets from databases currently being initially loaded, reorganized, or scanned are supplied as input to the issuing program, FABYMAIN.

FABY878A CAUTION-NO LOGICAL CHILD RECORD FOUND FOR THE LOGICAL PARENT RECORD records

Explanation

The issuing program expected to find one or more type 10 records for the type 00 input work data set record displayed. A type 00 record is generated for a logical parent. A type 10 record is generated for each of its logical children. Though it is not necessary for logical children to exist for every logical parent, this message is issued as an error because ALLOWLP=NO was specified. *records* contain input records in hexadecimal and EBCDIC format.

System action

The return code is set to 8, and Prefix Resolution processing continues.

User response

Take the same action as specified in message FABY877A.

FABY879A NO LOGICAL PARENT RECORD FOUND FOR LOGICAL CHILD RECORD records

Explanation

The issuing program expected to find a type 00 record for the type 10, 20, or 30 input work data set record displayed. A type 00 record is generated for a logical parent. A type 10 record is generated for each of its logical children. Type 20 and type 30 records are generated for the logical twin forward and backward pointers, respectively, of each logical child. *records* contain input records in hexadecimal and EBCDIC format.

System action

The return code is set to 8 and Prefix Resolution processing continues.

User response

Same action as specified in message FABY877A.

FABY879W NO LOGICAL PARENT RECORD FOUND FOR LOGICAL CHILD RECORD records

Explanation

The issuing program expected to find a type 00 record for the type 10, 20, or 30 input work data set record displayed. A type 00 record is generated for a logical parent. A type 10 record is generated for each of its logical children. For each logical child, the type 20 record is generated for the logical twin forward pointer, and the type 30 record is generated for the backward pointers. Although the database might be in an abnormal status, this message is issued as a caution because ALLOWLC=YES was specified. *records* contain input records in hexadecimal and EBCDIC format.

System action

The return code is set to 4, and processing continues.

User response

None.

FABY880A NO LOGICAL CHILD RECORD FOUND FOR THE LOGICAL TWIN RECORD records

Explanation

The issuing program expected to find a type 10 record for the type 20 or 30 input work data set record displayed. Type 10, 20, and 30 records are generated as indicated in the explanation of FABY879A. *records* contain input records in hexadecimal and EBCDIC format.

System action

The return code is set to 8, and Prefix Resolution processing continues.

User response

The result of prefix resolution is invalid. Determine the cause of the incorrect DFSURWF1 record. These records should be analyzed using the DFSURWF1

DSECT from the assembly of IMS HP Prefix Resolution, FABYMAIN. If DBIL is used in PREREORG, then the logical parent concatenated key begins at offset X'19'. If DBR is used in PREREORG, then the logical parent (LP)ARENT old address also begins at offset X'19'. This segment's RBA address is at offset X'0C' in the DFSURWF1 record.

Make sure that only work data sets from databases currently being initially loaded, reorganized, or scanned are supplied as input to the issuing program, FABYMAIN.

FABY889I **MULTIPLE LOGICAL CHILD RECORDS/LP NO LOGICAL LT PTRS SPECIFIED** *records*

Explanation

The issuing program found a second logical child record for a logical parent record, but no logical twin pointers were specified for the logical child segment type. *records* contain input records in hexadecimal and EBCDIC format.

System action

The return code is set to 8 and Prefix Resolution processing continues.

User response

Determine whether this condition is according to the DBD specifications, make corrections, and rerun the IMS HP Prefix Resolution job. A possible reason may be removal of input data which caused more than one logical child (LC) to point to the same logical parent (LP) or a new DBDGEN to include logical twin (LT) pointers in the logical child (LC) segment.

FABY961W **MULTIPLE OCCURRENCES OF LOGICAL TWIN SEQ FIELD DETECTED. FIELD DEFINED AS UNIQUE.**

Explanation

A database with a logical child indicated that a unique logical twin sequence field was already loaded with non-unique logical twin sequence fields.

System action

The return code is set to 4 and processing continues. The Prefix Update utility (DFSURGP0) will mark the non-unique logical twin record deleted on the logical path. The delete rules are ignored.

User response

Delete the affected segments and reinsert them with corrected sequence fields during any subsequent update run.

FABY2000I **PIPE SERVICE INITIALIZATION SUCCESSFUL (HPPRPIPE V.nn.nn.n)**

Explanation

HPPRPIPE service is initialized successfully. The string V.nn.nn.n is the internal version ID of HPPRPIPE.

System action

The processing continues.

User response

None. This message is informational.

FABY2001E **PIPE SERVICE ['INIT'|'TERM'] ERROR; REASON=xxxxxxxx**

Explanation

An error occurred while the HPPRPIPE service was being initialized or terminated. Reason code xxxxxxxx shows the reason for the error.

System action

HPPRPIPE returns a return code of 8.

User response

Contact IBM Software Support.

FABY2002E **ERROR IN ALLOCATING PIPE ppppppppppppppppp; REASON=xyyyzzz-sssssss**

Explanation

An error occurred while pipe ppppppppppppppppp was being allocated. Reason code xyyyyzzz-sssssss shows the reason for the error.

System action

HPPRPIPE returns a return code of 8.

User response

Contact IBM Software Support.

FABY2003E **ERROR IN DEALLOCATING PIPE ppppppppppppppppp;**

**REASON=xyyyzz-aaaaaa-
bbbbbb**

Explanation

An error occurred while pipe *pppppppppppppppp* was being deallocated. Reason code *xyyyzz-aaaaaa-bbbbbbb* shows the reason for the error.

System action

HPPRPIPE returns a return code of 8.

User response

Contact IBM Software Support.

FABY2004E **TIME-OUT IN *ttttt* OF
PIPE *pppppppppppppppp*;
REASON=*rrrrrrr***

Explanation

A timeout occurred while *ttttt*, the writer task or the reader task in pipe *pppppppppppppppp*, was waiting for the pipe. Reason code *rrrrrrr* shows the reason for the error.

System action

Message FABY2006E follows and the task ends abnormally.

User response

Contact IBM Software Support.

FABY2005E **PIPE SERVICE ERROR IN *ttttt*
OF PIPE *pppppppppppppppp*;
REASON=*ssttrrr***

Explanation

A pipe service requested by *ttttt*, the writer task or the reader task in pipe *pppppppppppppppp*, is stopped by an error in the task. The *ss* part of the hexadecimal reason code shows the service requested at the time of the error. See the following table:

Code (ss)	Meaning
X'80'	The OPEN processing
X'90'	The GET processing for the inbound pipe
X'A0'	The PUT processing for the outbound pipe

Code (ss)	Meaning
X'D0'	The CLOSE processing for the inbound pipe
X'E0'	The CLOSE processing for the outbound pipe

System action

The task ends abnormally with a user completion code of 2005.

User response

Identify the cause of the error. If you cannot find it, contact IBM Software Support.

FABY2006E **PIPE SERVICE REQUESTED BY
ttttt OF PIPE *pppppppppppppppp*
IS ABORTED; REASON=*ssttrrr***

Explanation

A pipe service requested by *ttttt*, the writer task or the reader task of pipe *pppppppppppppppp*, has been stopped by an error in the partner task. The *ss* part of the hexadecimal reason code shows the service requested at the time of the error, and the *rrrrrr* part of the reason code shows the error in the partner task. See the following table:

Code (ss)	Meaning
X'80'	The OPEN processing
X'90'	The GET processing for the inbound pipe
X'A0'	The PUT processing for the outbound pipe
X'D0'	The CLOSE processing for the inbound pipe
X'E0'	The CLOSE processing for the outbound pipe

System action

The task ends abnormally with a user completion code of 2006.

User response

Identify the cause of the error in the partner task. If you cannot find the cause, contact IBM Software Support.

FABY2007E **PIPE *ttttt* ALREADY CLOSED THE
PIPE *pppppppppppppppp***

Explanation

ttttt, the writer task or the reader task, tried to close pipe *pppppppppppppppppp*, but the pipe had already been closed.

System action

Message FABY2005E follows and the task ends abnormally.

User response

This is likely to be an internal error. Contact IBM Software Support.

FABY2008I	PIPE <i>ttttt</i> WAITING FOR PARTNER TO OPEN PIPE <i>pppppppppppppppppp</i>
------------------	---

Explanation

ttttt, the writer task or the reader task, is waiting for the partner task to open the pipe.

System action

The task waits for one minute for the pipe to open .

User response

If this message is followed by message FABY2009I issued from the partner task and message FABY2010I, no action is required. If this message is followed by message FABY2011E, there is an error in the partner task; for example, the partner task abnormally ended before the pipe was opened.

FABY2009I	PIPE <i>ttttt</i> OPENED PIPE <i>pppppppppppppppppp</i>
------------------	--

Explanation

ttttt, the writer task or the reader task, has opened the pipe that the partner task was waiting for. Message FABY2010I follows.

System action

The task that issued the message continues processing.

User response

None. This message is informational.

FABY2010I	PIPE CONNECTION ESTABLISHED FOR PIPE <i>pppppppppppppppppp</i>
------------------	---

Explanation

The connection to pipe *pppppppppppppppppp* has been established. This message is issued from the task that issued the preceding message FABY2008I for the pipe.

System action

The partner task and the task that issued the message continue processing.

User response

None. This message is informational.

FABY2011E	TIME-OUT WHILE PIPE <i>ttttt</i> WAITING FOR PARTNER TO OPEN PIPE <i>pppppppppppppppppp</i>
------------------	--

Explanation

If the partner task does not open the pipe within a minute, this message is issued from the task that issued the preceding message FABY2008I for pipe *pppppppppppppppppp*. There is an error in the partner task.

System action

Message FABY2006E follows, and the task ends abnormally.

User response

Identify the error in the partner task.

FABY2998E	PIPE IS NOT OPENED. GPR2=ADDR(PDCB)
------------------	--

Explanation

The writer task or the reader task tried to close the pipe, which had not been opened.

System action

The task ends abnormally with a completion code of U2998.

User response

This is likely an internal error. Contact IBM Software Support.

FABY3000A	SYNAD EXIT WAS INVOKED FOR DDNAME: <i>ddddddd</i>; FUNC=<i>fffff</i>
------------------	---

Explanation

The SYNAD exit was invoked for DD name *ddddddd*.

System action

The program ends abnormally.

User response

Contact IBM Software Support.

FABY3001A	A BDAM READ WAS DONE FOR OUT OF DATA SET EXTENTS DDNAME: <i>ddddddd</i>
------------------	--

Explanation

A BDAM READ was attempted for a record outside of the data set extents.

System action

The program ends abnormally.

User response

Contact IBM Software Support.

FABY3002A	ERROR RETURNED FROM CATALOG API: FUNC=OPEN RC=<i>rc</i> RSN=<i>rsn</i>
------------------	---

Explanation

IMS HP Prefix Resolution received an error return code from IMS Tools Catalog Interface.

System action

IMS HP Prefix Resolution issues a user 3002 abend and a dump.

User response

Contact IBM Software Support.

FABY3003A	ERROR RETURNED FROM CATALOG API: FUNC=GET RC=<i>rc</i> RSN=<i>rsn</i> DBD=<i>dbdname</i>
------------------	---

Explanation

IMS HP Prefix Resolution received an error return code from IMS Tools Catalog Interface.

System action

IMS HP Prefix Resolution issues a user 3003 abend and a dump.

User response

Contact IBM Software Support.

FABY3999A	THE REORG MANAGER SERVICE FAILURE. RC=<i>rr</i> RSN=<i>xxxxxxxx- xxxxxxxx</i>
------------------	--

Explanation

A REORG manager service that was requested by the Prefix Resolution Utility has ended with an error.

System action

The program ends abnormally.

User response

Contact IBM Software Support.

FABY4000I	OUTPUT REPOSITORY PROCESSING WAS TERMINATED
------------------	--

Explanation

This message indicates that the connection to the IMS Tools Knowledge Base Output repository has ended.

System action

Processing continues.

User response

None. This message is informational.

FABY4002W	AN ERROR OCCURRED IN OUTPUT REPOSITORY PROCESSING
------------------	--

Explanation

An error occurred while processing the IMS Tools Knowledge Base Output repository.

System action

Processing continues.

User response

Refer to the messages that were issued by IMS Tools Knowledge Base to determine the cause of the error.

FABY4011W	THE ACCESS TO OUTPUT REPOSITORY WAS CANCELED. REASON: <i>reason</i>
------------------	--

Explanation

IMS HP Prefix Resolution canceled its access to the IMS Tools Knowledge Base Output repository because the initialization process failed. *reason* shows one of the following texts:

ITKBLOAD DYNALLOC FAILURE

Failed to dynamically allocate the library that is specified on the ITKBLOAD control statement.

HKTXXLI LOAD FAILURE

Failed to load the HKTXXLI module.

ITKBLOAD OPEN FAILURE

Failed to open the library that is specified on the ITKBLOAD control statement.

System action

Processing continues, but no reports are stored in the IMS Tools Knowledge Base Output repository.

User response

If you want to store reports in the IMS Tools Knowledge Base Output repository, specify the IMS Tools Knowledge Base product load module library correctly.

FABY4014W	ERROR OCCURRED IN ACCESSING OUTPUT REPOSITORY FUNC: function RC: rc RSN: rsn
------------------	---

Explanation

An error occurred while accessing the IMS Tools Knowledge Base Output repository.

System action

Processing continues. If the return code is equal to or greater than 4, no reports are stored in the IMS Tools Knowledge Base Output repository.

User response

If you want to store the reports in the IMS Tools Knowledge Base Output repository, correct the error. If any of the messages, FABY4020W, FABY4021W, FABY4022W, or FABY4023W, which describe the cause of the error, are issued following this message, see the explanation for those messages. If these messages are not issued, check the return code *rc* and the reason code *rsn*. The codes are in hexadecimal. For a description of the codes, see the *Tools Base IMS Tools Knowledge Base User's Guide*.

FABY4015W	ERROR OCCURRED IN ACCESSING OUTPUT REPOSITORY FUNC: function RC: rc RSN: rsn
------------------	---

Explanation

An error occurred while accessing the IMS Tools Knowledge Base Output repository.

System action

Processing continues. If the return code is equal to or greater than 4, no reports are stored in the IMS Tools Knowledge Base Output repository.

User response

See the description for the FABY4014W message.

FABY4016W	DBD=dbdname PART=partname REPORT=report-name
------------------	---

Explanation

This message follows the FABY4015W message to show which report is processed.

System action

See the description for the FABY4015W message.

User response

See the description for the FABY4015W message.

FABY4018W	GETMAIN FAILED FOR ITKB TEMPORARY WORK STORAGE
------------------	---

Explanation

An error occurred in the GETMAIN macro to store reports in the temporary work storage.

System action

Processing continues. Some of the reports will not be stored in the IMS Tools Knowledge Base Output repository.

User response

Ensure that sufficient virtual storage is available.

FABY4019W	GETMAIN FAILED FOR ITKB INDEX WORK STORAGE
------------------	---

Explanation

An error occurred in the GETMAIN macro to store IMS Tools Knowledge Base index in the temporary work storage.

System action

Processing continues, but no reports are stored in the IMS Tools Knowledge Base Output repository.

User response

Ensure that sufficient virtual storage is available.

FABY4020W RECON ENTRY WAS NOT FOUND IN ITKB

Explanation

The RECON entry was not found in your IMS Tools Knowledge Base information management environment.

System action

Processing continues, but no reports are stored in the IMS Tools Knowledge Base Output repository.

User response

If you want to store reports in the IMS Tools Knowledge Base Output repository, add a RECON environment. For more information about adding the RECON environment, see the *Tools Base Configuration Guide for IMS*.

FABY4021W RECON ENTRY WAS NOT FOUND IN ITKB

Explanation

IMS HP Prefix Resolution could not connect to the IMS Tools Knowledge Base server because the server name specified by the ITKBSRVR control statement was incorrect.

System action

Processing continues, but no reports are stored in the IMS Tools Knowledge Base Output repository.

User response

If you want to store reports in the IMS Tools Knowledge Base Output repository, specify the correct IMS Tools Knowledge Base server name.

FABY4022W THE PRODUCT HPPR WAS NOT DEFINED IN ITKB

Explanation

IMS HP Prefix Resolution was not defined in the IMS Tools Knowledge Base information management environment as a product that can store reports in the IMS Tools Knowledge Base Output repository.

System action

Processing continues, but no reports produced by IMS HP Prefix Resolution are stored in the IMS Tools Knowledge Base Output repository.

User response

If you want to store reports in the IMS Tools Knowledge Base Output repository, register the IMS HP Prefix Resolution product by using the IMS Tools Knowledge Base product administration utility. For details, see the *Tools Base Configuration Guide for IMS*.

FABY4023W THE REPORT WAS NOT DEFINED IN ITKB

Explanation

The report was not defined in the IMS Tools Knowledge Base information management environment.

System action

Processing continues, but the report is not stored in the IMS Tools Knowledge Base Output repository.

User response

If you want to store the report in the IMS Tools Knowledge Base Output repository, register the report by using the IMS Tools Knowledge Base product administration utility. For details, see the *Tools Base Configuration Guide for IMS*.

Gathering diagnostic information

Before you report a problem with IMS HP Prefix Resolution to IBM Software Support, you need to gather the appropriate diagnostic information.

Procedure

Provide the following information for all IMS HP Prefix Resolution problems:

- A clear description of the problem and the steps that are required to re-create the problem
- The version of IMS that you are using and the version of the operating system that you are using
- A complete log of the job
- A Load Module/Macro APAR Status report

For information about creating a Load Module/Macro APAR Status report, see [“Diagnostics Aid” on page 90](#).

Diagnostics Aid

If you have a problem that you think is not a user error, run the Diagnostics Aid (FABYDIAG), obtain the Load Module/Macro APAR Status report, attach it to the other diagnostic documents (such as job dump list or I/O of the utility), and report the error to IBM.

The Diagnostics Aid generates Load Module/Macro APAR Status reports. These reports show the latest APAR fixes applied to each module and macro.

The Diagnostics Aid is not applicable for any other versions or releases.

Topics:

- [“Running the Diagnostics Aid with JCL” on page 90](#)
- [“Load Module/Macro APAR Status report” on page 91](#)
- [“Messages and codes” on page 92](#)

Running the Diagnostics Aid with JCL

To run the Diagnostics Aid program (FABYDIAG), supply an EXEC statement and DD statements that define the input and the output data sets.

Procedure

1. Specify the EXEC statement. It must be in the following form:

```
//stepname EXEC PGM=FABYDIAG
```

2. Specify the DD statements.

DD statement	Description
STEPLIB DD	This statement defines the library that contains the load modules (usually HPS.SHPSLMD0).
SHPSLMD DD	This statement defines the library that contains the load modules (usually HPS.SHPSLMD0) for which you have a problem. The Load Module APAR Status report is not generated if this DD statement is not provided or if DD DUMMY is specified. It is always recommended that you specify this DD statement.

DD statement	Description
SHPSMAC DD	This statement defines the library that contains the provided macros (usually HPS.SHPSMACO) for which you have a problem. The Macro APAR Status report is not generated if this DD statement is not provided or if DD DUMMY is specified.
SYSPRINT DD	This output data set contains the Load Module/Macro APAR Status report. The data set contains 133-byte, fixed-length records. It can reside on a tape, direct-access device, or printer; or it can be routed through the output stream. If BLKSIZE is coded in the DD statement, it must be a multiple of 133. However, it is recommended that you use: <pre>//SYSPRINT DD SYSOUT=A</pre>

3. Run the job.

Load Module/Macro APAR Status report

The Diagnostics Aid generates two reports for maintenance by IBM.

The generated reports are:

- Load Module APAR Status report
- Macro APAR Status report

Load Module APAR Status report

The Load Module APAR Status report contains information about the modules and their applied APARs.

This report contains the following information:

MODULE LIBRARY

This field includes the data set names that are specified in the SHPSLMD DD statement. If more than 30 data sets are concatenated, only the first 30 data sets are listed.

MODULE NAME

This field shows the name of the load module member or the alias.

ALIAS-OF

This field shows the name of the original member of the alias. If the module name is not an alias, this field is left blank.

CSECT NAME

This field shows the name of the included CSECT in the module. The CSECT names are reported in the included order in the module.

APAR NUMBER

This field shows the latest APAR number that is applied to the module represented by the CSECT name. If no APAR is applied, NONE is shown.

APAR FIX-DATE

This field shows the date when the modification was prepared for the module that is represented by the CSECT name. If no APAR is applied, N/A is shown.

Notes:

1. If the CSECT name does not start with *FAB* or the program structure of the CSECT does not conform to the IMS HP Prefix Resolution module standard to identify the APAR number and the APAR fixed date, the fields APAR NUMBER and APAR FIX-DATE are filled with asterisks (*).
2. If the load module is a member of the PDSE library, the following statement is shown on the report line and the job completes with a return code of 4.

```
** IT CAN NOT BE ANALYZED DUE TO PDSE LIBRARY MEMBER **
```

3. If the load macro fails for a utility member, the following statement is shown on the report line and the job completes with a return code of 8.

```
** IT CAN NOT BE ANALYZED DUE TO LOAD FAILED MEMBER **
```

Macro APAR Status report

The Macro APAR Status report contains information about macros and their applied APARs.

This report contains the following information:

MACRO LIBRARY

This field includes the data set names that are specified in the SHPSMAC DD statement. If more than 30 data sets are concatenated, only the first 30 data sets are listed.

MACRO NAME

This field shows the name of the macro member or the alias.

ALIAS-OF

This field shows the name of the original member of the alias. If the macro name is not an alias, this field is left blank.

APAR NUMBER

This field shows the latest APAR number that is applied to the macro. If no APAR is applied, NONE is shown.

APAR FIX-DATE

This field shows the date when the modification was prepared for the macro. If no APAR is applied, N/A is shown.

Note: If the macro source statement structure does not conform to the IMS HP Prefix Resolution macro standard to identify the APAR number and the APAR fixed date, the fields APAR NUMBER and APAR FIX-DATE are filled with asterisks (*).

Messages and codes

The following topics explain the messages and codes that are issued by the Diagnostics Aid (FABYDIAG).

Return codes

FABYDIAG contains the following return codes:

0

Successful completion of the program.

4

Warning messages were issued, but the requested operation was completed.

8

Error messages were issued, but the request operation was completed.

Abend codes

All 36xx abend codes are accompanied by an FABU36xx message. Locate the associated message for problem determination.

Messages

Use the information in these messages to help you diagnose and solve FABYDIAG problems.

FABU1001I

DIAG ENDED NORMALLY

System action

Diagnostic Aid completes the job successfully with a return code of 0.

Explanation

This message is issued when Diagnostic Aid ends successfully.

User response

None. This message is informational.

FABU1002W DIAG ENDED WITH WARNINGS

Explanation

This message is generated when trivial error conditions are encountered by Diagnostic Aid.

System action

Diagnostic Aid ends with a return code of 4.

User response

See other messages that are generated by Diagnostic Aid to determine the nature and the cause of the detected errors. Correct the problem and rerun the job.

FABU1003E DIAG ENDED WITH ERRORS

Explanation

This message is generated when severe error conditions are encountered by Diagnostic Aid.

System action

Diagnostic Aid ends with a return code of 8.

User response

See other messages that are generated by Diagnostic Aid to determine the nature and the cause of the detected errors. Correct the problem and rerun the job.

FABU1005W [SHPSLMD | SHPSMAC] DD STATEMENT NOT FOUND

Explanation

Diagnostic Aid could not find the SHPSLMD/SHPSMAC DD statement.

System action

Diagnostic Aid sets an end-of-job return code of 4 and continues processing. Diagnostic Aid does not generate a report for the load module or the macro.

User response

If you intended to specify the indicated DD statement, correct the error and rerun the job.

FABU1006W DUPLICATE *member name* IN LIBRARY: DDNAME *ddname*

Explanation

Diagnostic Aid found a duplicated member in the concatenated libraries.

System action

Diagnostic Aid uses the member which is first found in the concatenated libraries. Diagnostic Aid sets an end-of-job return code of 4 and continues processing.

User response

Ensure that the libraries have correct module/macro libraries. Correct the error and rerun the job if necessary.

FABU1007W DUMMY SPECIFIED FOR [SHPSLMD | SHPSMAC] DD STATEMENT

Explanation

DUMMY is specified for the SHPSLMD/SHPSMAC DD statement.

System action

Diagnostic Aid sets an end-of-job return code of 4 and continues processing. Diagnostic Aid does not generate a report for the load module or the macro.

User response

If you did not intend to specify the dummy DD statement, correct the error and rerun the job.

FABU1008W NO UTILITY [MODULE | MACRO] MEMBERS FOUND IN DDNAME [SHPSLMD | SHPSMAC]

Explanation

Diagnostic Aid could not find any utility modules or macros members from the DD ddname data set.

System action

Diagnostic Aid sets an end-of-job return code of 4 and continues processing.

User response

Ensure that the libraries have correct utility module or macro libraries. Correct the error and rerun the job.

FABU2001E LOAD FAILED FOR DDNAME
ddname MEMBER member**Explanation**

Diagnostic Aid could not load the indicated member from *ddname*.

System action

Diagnostic Aid sets an end-of-job return code of 8 and continues processing.

User response

Ensure that the indicated member exists in the data set that is specified for the indicated *ddname*. Correct the error and rerun the job.

FABU3600E OPEN FAILED FOR DDNAME
ddname**Explanation**

The named DCB could not be opened.

System action

Diagnostic Aid ends with an abend code of U3600.

User response

Ensure that a *ddname* DD statement exists, and that it specifies the correct DD parameter. Correct any errors, and rerun the job.

FABU3601E GET FAILED FOR DDNAME *ddname***Explanation**

The GET failed for a directory from the DD *ddname* data set.

System action

Diagnostic Aid ends with an abend code of U3601.

User response

See the MVS system message and its programmer response. Correct the error and rerun Diagnostic Aid. If the error persists, contact IBM Software Support.

FABU3602E READ FAILED FOR DDNAME
ddname MEMBER member**Explanation**

The READ failed for a *member* from the DD *ddname* data set.

System action

Diagnostic Aid ends with an abend code of U3602.

User response

See the MVS system message and its programmer response. Correct the error and rerun Diagnostic Aid. If the error persists, contact IBM Software Support.

FABU3603E BLDL FAILED FOR DDNAME
ddname MEMBER member**Explanation**

The *member* was not found when the BLDL macro searched the PDS directory for the *ddname*.

System action

Diagnostic Aid ends with an abend code of U3603.

User response

Ensure that the member indicated exists in the data set that is specified for the indicated *ddname*. Correct the error and rerun the job. If the error persists, contact IBM Software Support.

FABU3604E LOAD FAILED FOR DDNAME
ddname MEMBER member**Explanation**

Diagnostic Aid could not load the *member name* from the *ddname*.

System action

Diagnostic Aid ends with an abend code of U3604.

User response

See the MVS system message and its programmer response. Correct the error and rerun Diagnostic Aid. If the error persists, contact IBM Software Support.

FABU3605E DELETE FAILED FOR MODULE
member**Explanation**

Diagnostic Aid could not delete the indicated member.

System action

Diagnostic Aid ends with an abend code of U3605.

User response

Contact IBM Software Support.

FABU3606E PUT FAILED FOR SYSPRINT

Explanation

Diagnostic Aid could not put report data in SYSPRINT.

System action

Diagnostic Aid ends with an abend code of U3606.

User response

See the MVS system message and its programmer response. Correct the error and rerun Diagnostic Aid. If the error persists, contact IBM Software Support.

FABU3607E OPEN FAILED FOR SYSPRINT

Explanation

SYSPRINT DCB could not be opened.

System action

Diagnostic Aid ends with an abend code of U3607.

User response

Ensure that a *ddname* SYSPRINT DD statement exists, and that it specifies the correct DD parameter. Correct any errors, and rerun the job.

FABU3608E FIND FAILED FOR DDNAME *ddname* MEMBER *member*

Explanation

The FIND failed for a *member* from DDNAME *ddname* data set.

System action

Diagnostic Aid ends with an abend code of U3608.

User response

Ensure that the member indicated exists in the data set that is specified for the indicated *ddname*. Correct the error and rerun the job. If the error persists, contact IBM Software Support.

FABU3609E DEVTYPE FAILED FOR DDNAME *ddname*

Explanation

The DEVTYPE failed for DDNAME *ddname* data set.

System action

Diagnostic Aid ends with an abend code of U3609.

User response

Contact IBM Software Support.

FABU3610E RDJFCB FAILED FOR DDNAME *ddname*

Explanation

The READJFCB failed for DDNAME *ddname* data set.

System action

Diagnostic Aid ends with an abend code of U3610.

User response

Contact IBM Software Support.

FABU3611E GETMAIN FAILED. INSUFFICIENT STORAGE TO RUN THE JOB

Explanation

Workspace for Diagnostic Aid could not be obtained.

System action

Diagnostic Aid ends with an abend code of U3611.

User response

Increase the region size and rerun the job.

FABU3612E TOO MANY UTILITY [MODULE | MACRO] MEMBERS DETECTED IN DDNAME [SFABMOD | SHPSMAC]

Explanation

There are too many utility members in the SFABMOD/SHPSMAC DD data set.

System action

Diagnostic Aid ends with an abend code of U3612.

User response

Specify the correct data set for the indicated DD statement and rerun the job.

Chapter 8. Reference

Use the following information to interpret syntax diagrams included in the IMS HP Prefix Resolution topics.

Topics:

- [“How to read syntax diagrams” on page 97](#)

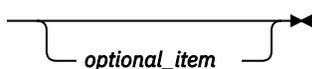
How to read syntax diagrams

The following rules apply to the syntax diagrams that are used in this information:

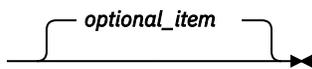
- Read the syntax diagrams from left to right, from top to bottom, following the path of the line. The following conventions are used:
 - The >>--- symbol indicates the beginning of a syntax diagram.
 - The ---> symbol indicates that the syntax diagram is continued on the next line.
 - The >--- symbol indicates that a syntax diagram is continued from the previous line.
 - The --->< symbol indicates the end of a syntax diagram.
- Required items appear on the horizontal line (the main path).

▶▶ *required_item* ▶▶

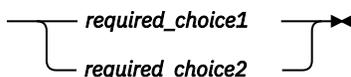
- Optional items appear below the main path.

▶▶ *required_item* 

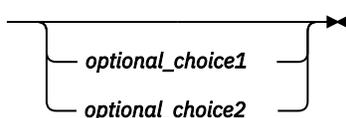
If an optional item appears above the main path, that item has no effect on the execution of the syntax element and is used only for readability.

▶▶ *required_item* 

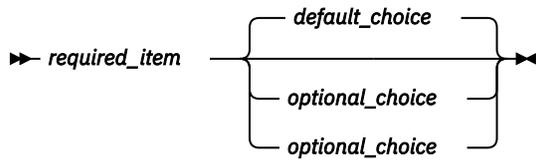
- If you can choose from two or more items, they appear vertically, in a stack. If you *must* choose one of the items, one item of the stack appears on the main path.

▶▶ *required_item* 

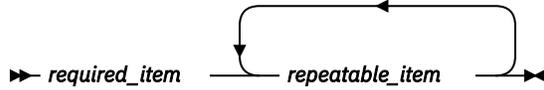
If choosing one of the items is optional, the entire stack appears below the main path.

▶▶ *required_item* 

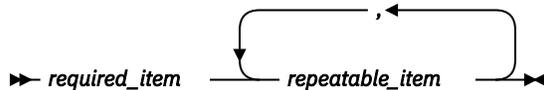
If one of the items is the default, it appears above the main path, and the remaining choices are shown below.



- An arrow returning to the left, above the main line, indicates an item that can be repeated.



If the repeat arrow contains a comma, you must separate repeated items with a comma.



A repeat arrow above a stack indicates that you can repeat the items in the stack.

- Keywords, and their minimum abbreviations if applicable, appear in uppercase. They must be spelled exactly as shown. Variables appear in all lowercase italic letters (for example, *column-name*). They represent user-supplied names or values.
- Separate keywords and parameters by at least one space if no intervening punctuation is shown in the diagram.
- Enter punctuation marks, parentheses, arithmetic operators, and other symbols exactly as shown in the diagram.
- Footnotes are shown by a number in parentheses; for example, (1).

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