IBM IMS Tools Base for z/OS

Policy Services User's Guide and Reference

1.8

SC27-9854-07

IBM

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Note:

Before using this information and the product it supports, read the information in “Notices” on page 523.

Second Edition

This edition applies to Version 1.8 of IBM® IMS Tools Base for z/OS® (program number 5655-V93) and to all subsequent releases and modifications until otherwise indicated in new editions.

This edition replaces SC27-9854-06.

About this information

IBM® IMS Tools Base for z/OS® Policy Services (also referred to as Policy Services) is a core IMS Tools technology that can monitor specific database state by evaluating the sensor data collected by an IMS Tools product, and by providing a response to any conditions that exceed the threshold values specified for this state. IBM® IMS Tools Base for z/OS® is also referred to as IMS Tools Base.

These topics provide instructions for installing, configuring, and using Policy Services.

To use these instructions, you must have already installed Policy Services by completing the instructions in the *Program Directory for IBM® IMS Tools Base for z/OS®* (GI10-8819), which is included with the product media and is also available on the IMS Tools Product Documentation page.

These topics are designed to help database administrators, system programmers, application programmers, and system operators perform the following tasks:

- Understand the capabilities of the functions that are associated with Policy Services
- Install and operate Policy Services
- Customize your Policy Services environment
- Diagnose and recover from Policy Services problems
- Use Policy Services with other IMS products

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

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

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
- Technical articles from IBM® Software Support
- White papers that describe product business scenarios and solutions

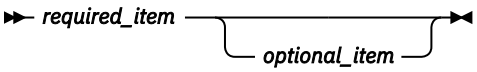
How to read syntax diagrams

The following rules apply to the syntax diagrams that are used in this information:

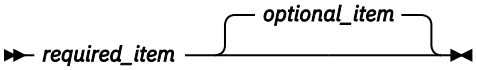
- Read the syntax diagrams from left to right, from top to bottom, following the path of the line. The following conventions are used:
  - The >>--- symbol indicates the beginning of a syntax diagram.
  - The ---> symbol indicates that the syntax diagram is continued on the next line.
  - The >--- symbol 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* ►◄

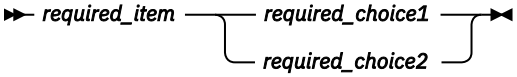
- Optional items appear below the main path.



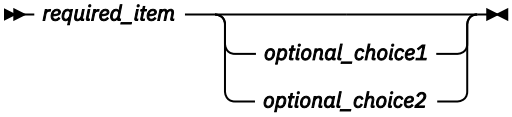
If an optional item appears above the main path, that item has no effect on the execution of the syntax element and is used only for readability.



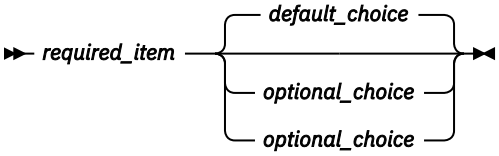
– If you can choose from two or more items, they appear vertically, in a stack.
If you *must* choose one of the items, one item of the stack appears on the main path.



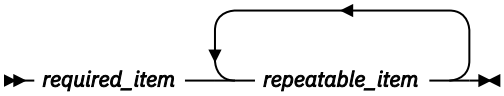
If choosing one of the items is optional, the entire stack appears below the main path.



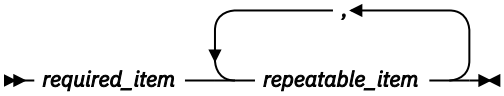
If one of the items is the default, it appears above the main path, and the remaining choices are shown below.



– An arrow returning to the left, above the main line, indicates an item that can be repeated.



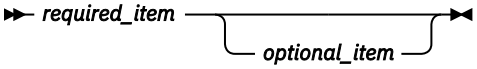
If the repeat arrow contains a comma, you must separate repeated items with a comma.



A repeat arrow above a stack indicates that you can repeat the items in the stack.

– Sometimes a diagram must be split into fragments. The syntax fragment is shown separately from the main syntax diagram, but the contents of the fragment should be read as if they are on the main path of the diagram.

fragment-name



– A b symbol indicates one blank position.

– 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).

Policy Services overview

IBM® IMS Tools Base for z/OS® Policy Services (also referred to as Policy Services) is a core IMS Tools technology that supports conditional autonomic database health management functionality for participating IMS Tools products. IBM® IMS Tools Base for z/OS® is also referred to as IMS Tools Base.

Topics:

- “Policy Services overview” on page 11
- “Hardware and software prerequisites” on page 20
- “Sensor data service” on page 20
- “Policies, rules, and notification lists” on page 22
- “Domains, locales, and environments” on page 40

Policy Services overview

IBM® IMS Tools Base for z/OS® Policy Services (also referred to as Policy Services) is a core IMS Tools technology that can monitor specific database state by evaluating the sensor data collected by an IMS Tools product, and by providing a response to any conditions that exceed the threshold values specified for this state. IBM® IMS Tools Base for z/OS® is also referred to as IMS Tools Base.

Topics:

- “What's new in Policy Services” on page 11
- “What does Policy Services do?” on page 12
- “Implementing policy-based database health management” on page 15
- “Policy Services components” on page 16
- “Service updates and support information” on page 19
- “Product documentation and updates” on page 19
- “Accessibility features” on page 20

What's new in Policy Services

This topic summarizes the technical changes for this edition.

New and changed information is denoted by carets (|<) and (>|) at the beginning and end of the new or changed information. Editorial changes that have no technical significance are not noted.

Revision markers follow these general conventions:

- Only technical changes are marked; style and grammatical changes are not marked.
- If part of an element, such as a paragraph, syntax diagram, list item, task step, or figure is changed, the entire element is marked with revision markers, even though only part of the element might have changed.
- If a topic is changed by more than 50%, the entire topic is marked with revision markers (so it might seem to be a new topic, even though it is not).

Revision markers do not necessarily indicate all the changes made to the information because deleted text and graphics cannot be marked with revision markers.

For a complete list of new-function APARs, see IMS Tools continuous delivery and new functions.

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SC27-9854-07 - July 2026

Table 1: SC27-9854-07 updates	
Description	**Related APARs**
Data element topics are updated to introduce data element categories for full-function and Fast Path databases and to describe category availability by IMS Tools products. See the following topics for data element categories: – “Data elements for full-function databases” on page 142 – “Data elements for Fast Path databases” on page 166	N/A

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SC27-9854-06 - March 2026

Table 2: SC27-9854-06 updates	
Description	**Related APARs**
Refreshed for IMS Tools Base 1.8.	N/A

What does Policy Services do?

Policy Services is a core IMS Tools technology that supports conditional autonomic database health management functionality for participating IMS Tools products.

Conditional autonomics can provide the following functionality:

- Evaluate the need for any given database maintenance operation to occur or not
- Make recommendations for corrective actions based on user-defined (policy-driven) requirements

In a conditional autonomics environment, a sensor-enabled IMS Tools product can capture the measurement of the state of a specific database condition. This information, called sensor data, is handled by the IMS Tools Knowledge Base server and stored in a central IMS Tools Knowledge Base Sensor Data repository.

Policy Services uses a policy definition to evaluate this data against the threshold values specified for this condition. Policy Services can then provide a response to any events that exceed the threshold limits.

The response can consist of sending warning notifications to administrators and making a recommendation to the IMS Tools product to take a specific corrective action.

Policy-based autonomics can increase the value of IMS to the enterprise:

- Assist in decisions about when a database maintenance task is required, so that time and resources are not used unnecessarily
- Avoid running jobs that consume direct-access storage devices (DASD) and tapes when a maintenance operation is not required at the time
- Provide feedback on the effectiveness of a policy-driven action by reevaluating the condition

Providing assistance for demanding DBA responsibilities

Policy Services can help address the increasing demands being placed on database administrators (DBA) who are responsible for ever-growing information collecting and processing.

For example, database reorganization is one of the responsibilities of database administrators that involves complex analysis tasks. Generally, these are time-consuming tasks that require knowledge, expertise, and experience in IMS database space management.

Policy Services provides the following benefits for assisting the DBA:

- Conditionally control when and how often maintenance tasks, such as database reorganization, are performed
- Avoid unnecessary tasks that are based on fixed schedules that do not consider if the tasks are actually required
- Perform some of the often complex and time-consuming analysis tasks required to make effective database space management decisions

- Provide relief in an environment where there is a shortage of knowledge due to insufficient process documentation, and a decline in the population of experienced DBAs

Policy Services details

Policy Services technology is made up of the following services:

- Sensor data collection and storage services
  - Static information of database state is collected by the IMS Tools client and later used in policy evaluations.
  - Sensor data is stored in the IMS Tools Knowledge Base Sensor Data repository.
- Policy definition and management services
  - Policies are defined by rule conditions that can compare collected database state data with defined threshold limits for the database state.
  - Policy Services provides default policies that can be used by participating IMS Tools products. For example, IMS Database Reorganization Expert uses policies that address the need for better space utilization in IMS full-function databases.
  - Policy definitions can be edited, customized, and newly created using the Policy Services ISPF user interface.
  - A wide range of warning levels allow you to configure multiple layers of responses for different policies as they apply to different databases.
- Policy analysis and evaluation services
  - Policy Services can help automate day-to-day database space management operations.
  - Policy Services can help evaluate the necessity for any action (response) to happen. For example:
    - What adjustments need to be made?
    - What changes need to be implemented?
  - Requested actions are conditioned on user-defined (policy driven) requirements.

IMS Tools integration with Policy Services

Specific IMS Tools products can use Policy Services technology to conditionally control the operation of specific database maintenance tasks.

For example, IMS Database Reorganization Expert offers database administrators the capability of centrally controlling the reorganization of IMS full-function databases when a reorganization of a database is truly required. This capability helps avoid unnecessary reorganizations that are based on fixed schedules that do not consider if a reorganization is actually required. Early warning notification can be provided when changes are necessary in database definition parameters or in space allocation parameters for the database data sets.

The combination of Policy Services, IMS Tools Knowledge Base, and the IMS Database Reorganization Expert tool can help you manage IMS database reorganizations effectively and efficiently by:

- Performing statistical analysis and applying policies to determine whether the action is appropriate
- Helping proactive planning for database management
- Improving database availability
- Reducing system resource waste
- Storing historical data for later analysis

IMS Database Reorganization Expert supports conditional control of the database reorganization maintenance task with the following features:

- Evaluate an IMS full-function database and determine the need for reorganization
- Request the reorganization process only when database reorganization need is deemed necessary as the result of policy evaluation
- Re-evaluate the reorganized database to check the effect of the reorganization action
- Provide a comprehensible summary report on the database status, and when the database is reorganized, detect any change in the status

IMS Tools Knowledge Base is the foundational infrastructure that provides a centralized information management environment for IMS Tools products. IMS Tools Knowledge Base allows you to store, manage, and access information resources (such as reports, sensor data, policies, and rules) that are generated or used by any tool product that has been enabled and registered to participate in this environment.

IMS Tools Knowledge Base provides a common information management service that allows the sharing of data generated and used by multiple tool products within a sysplex. IMS Tools Knowledge Base is managed from a single, centralized user interface.

The following functional overview diagram shows an environment composed of the following components and services:

- IMS Tools Knowledge Base central repository service
- Report service, for archiving reports generated by IMS Tools products
- Sensor data service, for collecting database state information (for use, in this example, by Policy Services)
- Policy Services, for providing evaluation of database state statistics (sensor data) against user-defined threshold limits (policies) on those states
- An IMS Tools product (for example, IMS Database Reorganization Expert), which provides conditional database reorganization capability and responds to recommendations from Policy Services for exception notification and action (REORG).

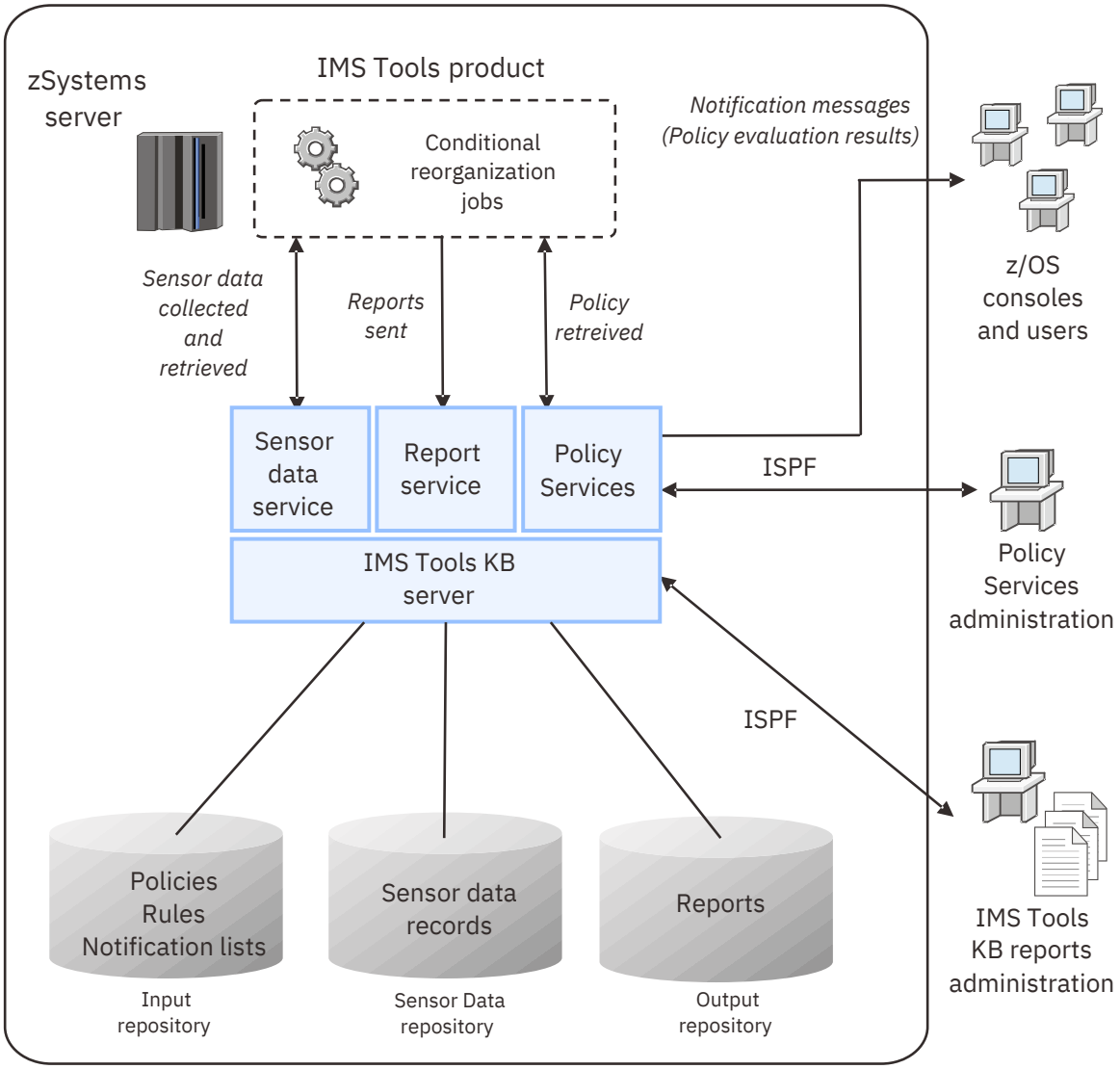


Figure 1: Example conditional reorganization scenario

Implementing policy-based database health management

As an IMS database administrator (DBA), you have many IMS maintenance tasks to perform, often with too little time.

The following list identifies some of the major tasks required of a DBA to manage database health:

1. Gathering data on database activity
   - LISTCAT
   - Pointer checker
   - DASD volume analysis
   - Transaction performance
   - System resource use
2. Analyzing database state data
3. Identifying priority issues
   - Immediacy of problems
   - Service level agreements
   - Application priority
4. Scheduling maintenance into time windows
   - Application availability
   - System resources
5. Monitoring IMS systems for problems
6. Analyzing results and reports

Policy-based conditional database management can relieve you from some of the more typical database maintenance tasks. Policy Services can be particularly useful in taking over the duties of capturing, storing, and analyzing database state information required to make decisions about performing specific maintenance tasks.

An important goal of Policy Services technology is to free up time and resources, and allow you to spend time using new IMS technologies that facilitate emerging business needs.

In the following sections, questions and solutions about implementing policy-based database health management are explored. The information in these sections uses the example of conditional database reorganization as provided by IMS Database Reorganization Expert.

Determining policy definitions

Questions:

- How can the space of this database be managed?
- Which database statistics can I observe?

Solutions:

You can write down answers to these questions, discuss them with fellow DBAs in your shop, and decide on those policies which would make the greatest impact on the efficiency of your organization.

Handling conditional reorganization

Questions:

- Is the database state so critical that I need to take immediate action?

Solutions:

- An IMS Database Reorganization Expert job, for example, can use its Smart Reorg utility and a policy to evaluate the current state of the database, determine the severity level of any threshold exception, and respond with message notifications and an action to perform database reorganization.
- The database can be reorganized only when reorganization is needed.

Refining exception detection and notification

Questions:

- What exception state is observed for the database?
- What database statistics can be observed to detect such exception states?
- What database states are considered so severe or critical that an immediate reorganization or restructure is needed?

Solutions:

- Policy condition exceptions are classified based on the exception type (class) and severity levels.
- A wide range of warning levels allow you to configure multiple layers of responses for different policies as they apply to different databases.

Establishing notification lists for exception messages

Questions:

- Who can know about exceptions to policy conditions?

Solutions:

- Exception messages can be sent to:
  - Designated TSO users by using TSO/E SEND command
  - Designated z/OS® operator consoles by using z/OS® WTO service
  - Designated email and text message addresses
- Exception messages are recorded in a report and in a journal.

Post-reorganization feedback, analysis, and fine-tuning

Questions:

- When was this database reorganized last time?
- Were the past database reorganizations effective?
- Could I know why the database was reorganized?
- Could I know whether the reorganization performed was effective in removing severe exceptions?
- Is the policy effectively configured for the database?

Solutions:

- The Diagnosis Report is produced by IMS Database Reorganization Expert.
- The Diagnosis Report provides the following information:
  - Summary of policy evaluation
    - Specific policy applied to the database
    - Reorganization need (phase 1)
    - Result of policy evaluation, including exception messages with exception class and level
    - Result of policy reevaluation (phase 2) after reorganization (if reorganization was performed)
    - A summary message for the reorganization effect
  - Database statistics before and after reorganization (and their differences)

Policy Services components

Policy Services uses a large set of components to implement the analysis of sensor data, evaluate policies against this data, and respond to threshold violations with exception messages and process actions.

Sensor Data Service component

The Sensor Data Service component provides services to construct and deconstruct the sensor data that is stored in the Sensor Data repository. The Sensor Data Service ensures that the data stored is known and valid.

The Sensor Data Service provides a transparent method for data storage and retrieval, and shelters the user from data format issues.

The communication between the client application (such as IMS Database Reorganization Expert and stand-alone DB Sensor) and the Sensor Data Service is handled by the Sensor Data API. This API creates a communications environment and manages requests and responses, such as writes, retrieves, and deletes.

Data Dictionary component

The Data Dictionary component provides a standardized method for the definition of data across multiple formats. The Data Dictionary component allows the various IMS Tools products to use data from each other without having to understand the tool-specific format of the data.

Sensor data is stored in the Sensor Data repository and is shared among the IMS Tools products participating in the Policy Services environment. Data stored in the present must be comprehensible in future years and releases. The Data Dictionary provides a homogeneous view of Policy Services data. The data is given a context that makes it independent of the actual format of the data. This context provides requesters of the data with a consistent data view.

The Data Dictionary describes all data elements that are stored in (and retrieved from) the Sensor Data Service. The dictionary documents the nature of the data and provides all data providers and consumers a clear understanding of the meaning of the data element values. The dictionary also documents the valid data values and ranges for data elements to enforce the data understanding and to enable dictionary services to protect the data consumers.

Policy Services API

The Policy Services API is the communication path for IMS Tools products and the ISPF user interface to connect to other Policy Services components.

Action Manager component

The Action Manager component is responsible for delegating actions to the IMS Tools product upon request. This component notes and records all action results reported by the client product.

In particular, notification actions are requested by the Action Manager component. Message actions are formatted and journaled by the Action Manager component. The Action Manager supports two-phase processing:

- The first phase of processing returns only processes and related messages.
- The second phase produces only message actions.
  This phase allows for a reassessment of the state after the processes requested in phase 1 are effected, resulting in more meaningful messaging.

Policy Validation component

The Policy Validation component validates policies when they are created, during maintenance updates, and before evaluation.

Policy Evaluation component

The Policy Evaluation component evaluates policy rules in accordance with rule evaluation strategy and directives.

A given rule might be applicable to a subset of the resource types supported by the policy. Rule evaluation does not process rules that are not applicable to the resource being processed based on the resource type attribute for the rule.

Policy Data Store component

The Policy Data Store component provides access to and storage of policy definition objects. The Policy Data Store component is responsible for reading and writing policy definitions to and from the repository.

The Policy Data Store component provides transformation methods that convert between the data structure optimized for storage and the structures required for efficient functional reference. The component provides a full set of functions for creating and maintaining policy definitions.

Policy definitions exist in two forms:

- Policy templates
- Policy streams

Policy templates describe the contents of a policy and ultimately are transformed into policy streams at bind time. Policy streams are syntactically correct and functionally complete policy definitions. Policy streams represent the updating of a policy template with the most recent rule, notification list, and action definitions provided by maintenance updates.

The policy is defined and stored in template form only. A policy stream is generated for a policy on demand and then is disposed of when it is no longer needed. Advanced users can hand code and import a policy stream. These policy streams do not have a corresponding template. There is no transformation from a stream to a template.

Policies are referred to only by name. Therefore, policy templates and policy streams share the same name space.

Rule Data Store component

The Rule Data Store component provides access to and storage of rule objects.

Rule objects exist in two forms

- Rule templates
- Rule streams

Rule templates describe the contents of a rules stream and are transformed into rule streams. They exist to simplify and constrain the definitional process.

The Rule Data Store component is responsible for reading and writing rule objects to and from the repository.

Notification List Data Store component

The Notification List Data Store component is responsible for reading and writing notification lists and directory entries to and from the permanent media. The component provides transformation methods that convert between the data structure optimized for storage and the structures required for efficient functional reference.

Notification List Manager component

Policy actions include the ability to notify one or many parties. The Notification List Manager component provides a message broadcast service.

Messages sent to the Notification List Manager are forwarded to one or more destinations. Message destinations include:

- TSO
- WTO
- Email
- Texting

The Notification List Manager component provides a description of the destination including a name, address, destination type, and possibly an address of a delivery agent.

The component journals each notification request and the results of each notification attempted. The requester is informed of overall success (for example, all succeeded, all failed, some succeeded, invalid request, invalid notification list).

Policy Environment Services component

The Policy Environment Services component provides, through the ISPF user interface, the ability to maintain and distribute policies, rules, and notification lists. The component is responsible for maintaining policy environments and related information that is kept in the repository.

The Policy Environment Services component manages all knowledge of the physical data storage by manipulating the data structures and limiting access to these data structures.

Journal Manager component

Journaling provides a record of policy-related activities. The Journal Manager collects activities that document product usage at varying levels and collects diagnostic entries at varying levels.

The journal events are written to a file locally (based on DD presence). If no journal DD statement exists, the journal is not written. The purpose of this journal is to assist in Policy Services problem analysis.

Service updates and support information

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

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

IBM® Support: IMS Tools Base 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
- Technical articles from IBM® Software Support
- 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 technical articles 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/mynotifications
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 is important in helping us provide the most accurate and highest quality information. If you have any comments about this information, see How to provide feedback in IBM® Documentation.

When you provide feedback, include as much information as you can about the content you are commenting on, where we can find it, and what your suggestions for improvement might be.

Accessibility features

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

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

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

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

Hardware and software prerequisites

Policy Services is installed by using SMP/E and standard RECEIVE, APPLY, and ACCEPT processing.

IBM® IMS Tools Base for z/OS® is installed using the SMP/E RECEIVE, APPLY, and ACCEPT process. For detailed instructions on how to install the product, refer to the *Program Directory for IBM® IMS Tools Base for z/OS®*. The program directory is included with the product media and is also available on the IMS Tools Library page.

Hardware prerequisites

Policy Services (5655-V93) operates on any hardware configuration that supports the required version of IMS.

Software prerequisites

Policy Services is designed to operate with any version of z/OS® that supports the version of IMS that you are running. All supported releases of IMS are supported by Policy Services.

Sensor data service

Sensor data is the data collected by an IMS Tools product when it measures the condition (or state) of one or more databases.

This sensor data is information captured at an instance in time that represents the condition, or state, of one or more databases. The data can be used for later analysis and policy evaluation.

Policies consist of a set of rules that each define threshold limits for specific types of database conditions. The policy service mechanism evaluates threshold values against the actual data values that an IMS Tools product collects and stores in the IMS Tools Knowledge Base Sensor Data repository.

The sensor data is stored in the Sensor Data repository as records made up of data element values. The data record is stored in a well-understood and flexible format that allows its use years and multiple product releases later in time. The data and its format is understandable between products and releases to ensure reliable functionality.

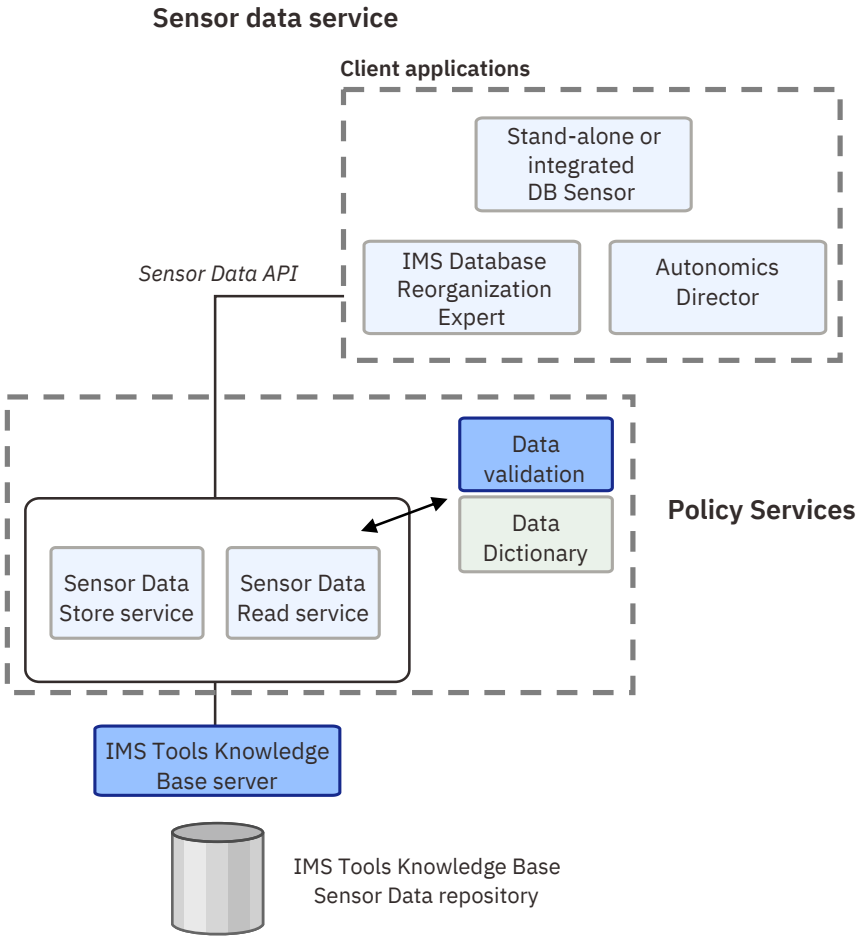


Figure 2: Sensor data service architecture

Sensor Data repository

All sensor data is handled by the IMS Tools Knowledge Base server and stored in an IMS Tools Knowledge Base Sensor Data repository.

IMS Tools Knowledge Base provides a common information management service that allows the sharing of data generated by multiple tool products within a sysplex from a single, centralized interface.

Data records and elements

Sensor data is stored in the IMS Tools Knowledge Base Sensor Data repository in the form of records made up of data element values. A data element consists of a data element tag and a data element value pair.

Sensor data records are a collection of information related to a client application that are valid with their dictionary definitions and their element structure. A collection of sensor data records is processed as a group by using the record set identifier (RSI).

Data elements are used by services outside of sensor service functions, such as the policy evaluation component. The self-describing nature of a data element, as dictated by the Data Dictionary, facilitates generic data manipulation.

Data Dictionary

Sensor data is stored in the IMS Tools Knowledge Base Sensor Data repository and is shared among the IMS Tools products participating in the Policy Services environment. Data stored in the present must be comprehensible in future years and releases. The Data Dictionary provides the rigor in data type adherence for Policy Services.

The Data Dictionary describes all data elements (names and attributes) that are stored in (and retrieved from) the sensor data service. The dictionary documents the nature of the data and provides all data providers and consumers a clear understanding of the meaning of the data element values. The dictionary also documents the valid data values and ranges for data elements to enforce the data understanding and to enable dictionary services to protect the data consumers.

There is a set of rules for managing the elements defined in the dictionary that is available for both for the maintainer of the dictionary and for the client products.

Sensor Data Store service

The Sensor Data Store component provides services to construct and deconstruct the sensor data stored in the IMS Tools Knowledge Base Sensor Data repository. The sensor data store ensures that the data stored is known and valid.

The Sensor Data Store provides a transparent method for data storage and retrieval, and shelters the user from data format issues.

Sensor Data Read service

The Sensor Data Read component provides services to retrieve the sensor data from the IMS Tools Knowledge Base Sensor Data repository.

The Sensor Data Read reads the requested sensor data from the IMS Tools Knowledge Base Sensor Data repository, and then constructs a list of data elements for client components.

Sensor Data API

The communication between the client application (such as IMS Database Reorganization Expert and stand-alone DB Sensor) and the Sensor Data Store or the Sensor Data Read is handled by the Sensor Data API. This API creates a communications environment and manages requests and responses, such as writes, retrieves, and deletes.

Data validation and transformational layer

The Sensor Data Store uses a validation and transformational layer to ensure that all data being written to the repository is usable and that all data being retrieved is in a useful format.

Write validation ensures that all the data elements are defined in the dictionary and conform to their definitions. The validation service also ensures the integrity of the record and data structure.

Read validation also ensures the integrity of the record and data structures. The transformation service provides mapping of the data from the records into the format and location requested by the client product.

Policies, rules, and notification lists

Policy Services is a core IMS Tools technology that can monitor specific database state by evaluating the sensor data collected by an IMS Tools product, and by providing a response to any conditions that exceed the threshold values specified for this state.

Topics:

- "What is a policy?" on page 22
- "What is sensor data?" on page 25
- "What is a rule?" on page 25
- "What is an exception?" on page 29
- "What is an action?" on page 30
- "What is a directory entry?" on page 33
- "What is a notification list?" on page 34
- "Exporting and importing Policy Services objects" on page 35
- "Example policy evaluation process flow" on page 36
- "Example scenario for conditional reorganization" on page 39

What is a policy?

A policy is the expression, or definition, that is used by Policy Services to evaluate specific database states, such as the state of space utilization at a specific instance in time.

The policy definition is used to evaluate the database state, and specifies how Policy Services responds to any events that reach or exceed the threshold values specified for this state.

A policy definition consists of the following components:

- **One or more condition expressions (rules) that are used to evaluate the database statistics (sensor data) that are collected by the IMS Tools product**
  A condition is a Boolean expression that compares threshold values that are defined in the rule to the collected sensor data values (data elements) that represent the database statistics at an instance in time.

  The purpose of the rule is to detect an exception to the database state by using the rule condition.
- **A resulting exception when a condition threshold has been reached or exceeded**
  Each rule contains threshold values that specify the limits (numeric or percentage) for each data element that is being evaluated.

  The exception is defined in the condition and consists of an exception class (exception type), a severity level (warning, severe, critical), and the message text that describes the exception.

  The exception class identifies a type of database condition such as fragmented free space, too many split segments, or RAP overload.

  Each severity level is mapped to an action type (a message, a process, or both).
- **An action to perform when an exception for a specific severity level occurs**
  Actions consist of warning messages that are sent to members of one or more notification lists, and processes that can be implemented by the client application (such as database reorganization).

The following figure shows how a policy consists of a set of rules and a list of actions:

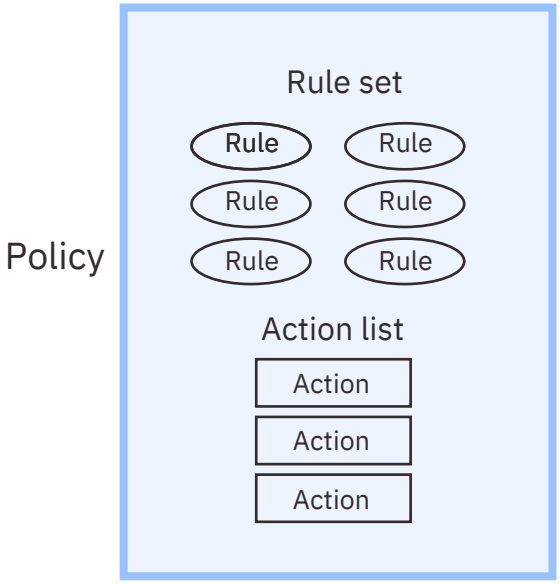


Figure 3: Policy components

Policy templates are distributed by Policy Services. You can customize policies to detect exceptions to specific database states, or to change the action that the IMS Tools client takes in response to an exception. You can also create new custom policies for a specific database or group of databases in your environment.

There are two methods for creating and customizing policies:

- Create a new policy by using an existing policy as a model
  You must copy the existing policy, rename the copied version, then customize this copy.
- Create a completely new policy
  You must build the policy from a blank template.

Policies can be designed to apply to the following database combinations:

- A specific database type
- A subgroup of databases (for example, all HISAM database types)
- All database types

Policies are defined as applicable to one or more resource types. It is not logical, for example, to check for CI Splits in an OSAM data set. Resource types can include the following database types:

- HDAM
- HIDAM
- PHDAM
- PHIDAM
- HISAM
- SHISAM
- DEDB
- INDEX
- PSINDEX

To simplify the management of policy definitions, you can define policies that apply to many resource types, and you can define rules that test thresholds that might not apply to every resource.

What is a policy template and a policy stream?

Policy definitions exist in two forms:

- Policy templates
- Policy streams

Policy templates describe the contents of a policy and ultimately are transformed into policy streams when a policy lookup is requested by Policy Services. Policy streams are syntactically correct and functionally complete policy definitions. Policy streams represent the on demand updating (binding) of a policy template with the most recent rule, notification list, and action definitions that are provided by maintenance updates.

A policy stream is built from a policy template and all referenced rules (created as needed) when a policy lookup is requested by the Policy Services API client. The Policy Services ISPF user interface does not provide any means to define, modify, or save a policy stream. The policy stream is disposed of when it is no longer needed.

Advanced users can manually code and import a custom policy stream. These custom policy streams do not have a corresponding template.

Streams are not transformed to templates.

Policies are referred to only by name. Therefore, the policy templates and policy streams share the same name space.

Guidelines for editing a policy stream

You can export a policy template as a policy stream and then edit the policy stream, although this procedure is not recommended. The capability to edit a policy stream is available to those advanced users who need to modify sections of the policy that are not available through the user interface.

If this process is not handled correctly, an edited policy stream can fail during the evaluation of sensor data. The user is responsible for resolving and correcting such problems. The user is also responsible for ensuring that the modified policy stream is valid, and that it is the user's own process that performs the validation.

The following conditions apply to exporting a policy template as a policy stream and then editing the policy stream:

- Do not modify the ORIGINAL_NAME(IBM.*policy_name*) statement within the policy stream.
  This statement is required to refer to the origin of the policy.
- Modify the NAME(*policy_name1*) statement to have a new name NAME(*policy_name99*).
  This statement allows you to import the new policy stream.

If a policy template and a user-built policy stream have the same policy name, the policy template always replaces the policy stream in the repository. However, the user-built policy stream is never allowed to be imported to replace a policy template.

What is sensor data?

Sensor data is information captured at an instance in time that represents the condition, or state, of one or more databases. The data can be used for later analysis and policy evaluation.

Each policy consists of a set of rules that define threshold limits for specific types of database conditions. The policy service mechanism evaluates these threshold values against the sensor data that an IMS Tools product collects and stores in the IMS Tools Knowledge Base Sensor Data repository.

The sensor data is stored in the Sensor Data repository as a group (or a set) of records made up of data elements. A data element consists of a data element tag and a data element value pair. A policy and the required data elements are presented to the decision-making processing as a pair.

IMS Tools Knowledge Base provides a common information management service that allows the sharing of data that is generated by multiple tool products within a sysplex from a single, centralized interface.

The following figure shows the storage of sensor data elements in a repository:

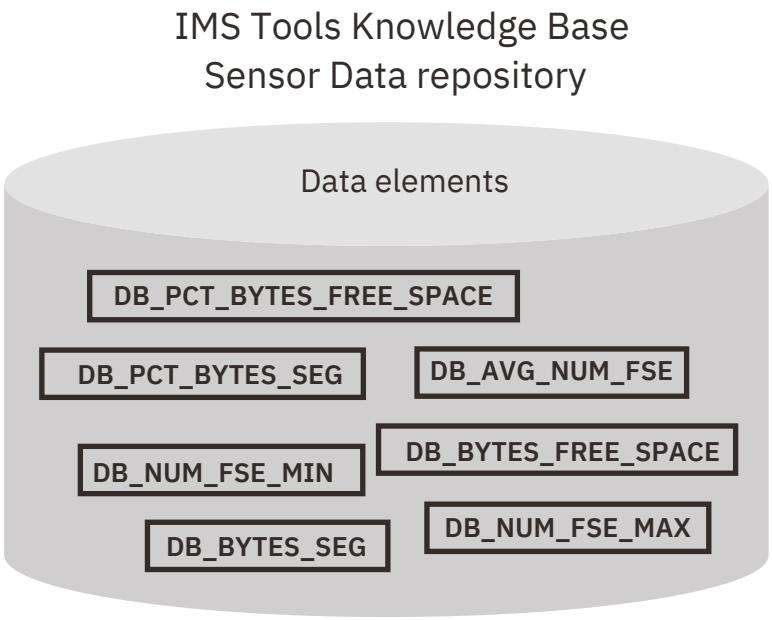


Figure 4: Sensor Data repository stores rule data elements

As an example, the following categories of sensor data are collected by IMS Database Reorganization Expert:

- Database record statistics (per database or HALDB partition)
- Randomizer statistics (per HDAM or PHDAM partition)
- Volume and extents statistics (per data set)
- Data set space usage statistics (per data set)
- IMS space utilization statistics (per data set)
- HISAM and SHISAM statistics (for HISAM)

What is a rule?

A rule is made up of a simple or complex condition and a corresponding exception that is detected by this condition.

A rule compares the stored data element values to the predefined threshold values that specify the limits for that set of data element values.

For example, if database state information is being collected, a rule can set the boundary, or limit, for a specific type of database state. During a policy evaluation, the rule's conditional expression compares the sensor data that was collected for this state (a set of data element values) against the limit that was specified in the rule for this state (a set of threshold values).

Each IMS Tools product that participates in the Policy Services environment is responsible for capturing and storing data elements for the appropriate information that it is interested in evaluating.

The following outline illustrates the components of a rule:

- **Rule condition**
  - Conditional expression
    The rule's conditional expression is the formula that compares stored data element values with the threshold values specified for this data.

    The conditional expression uses one or more variables (for example `&1, &2, &3`) to represent the threshold value for that condition.
  - Threshold sets
    A threshold set consists of the group of threshold variables (used in the conditional expression) with assigned threshold values.

    A threshold value specifies the boundary, or limit, for the specific database state being governed by this rule.

    Each threshold set in a rule template uses the same group of threshold variables. Each set is distinguished by its name.

    A rule template typically has at least three threshold sets predefined by IBM® (HIGH, MED, LOW). Custom sets can also be created.
- **Threshold exception**
  - Exception class
  - Exception (severity) level (WARNING, SEVERE, or CRITICAL)
  - Exception message text

Policies depend on the condition and exception expressions provided by rules in order to evaluate the state of a database and identify the exception state. Policies can contain one or more rules.

You can customize the following features of a rule:

- Threshold values in each threshold set
- Exception message text
- Association of a severity level with a threshold set
- Add new (user-defined) threshold sets and values

The following figure shows the condition and exception components of a rule, and expands on the features of the condition:

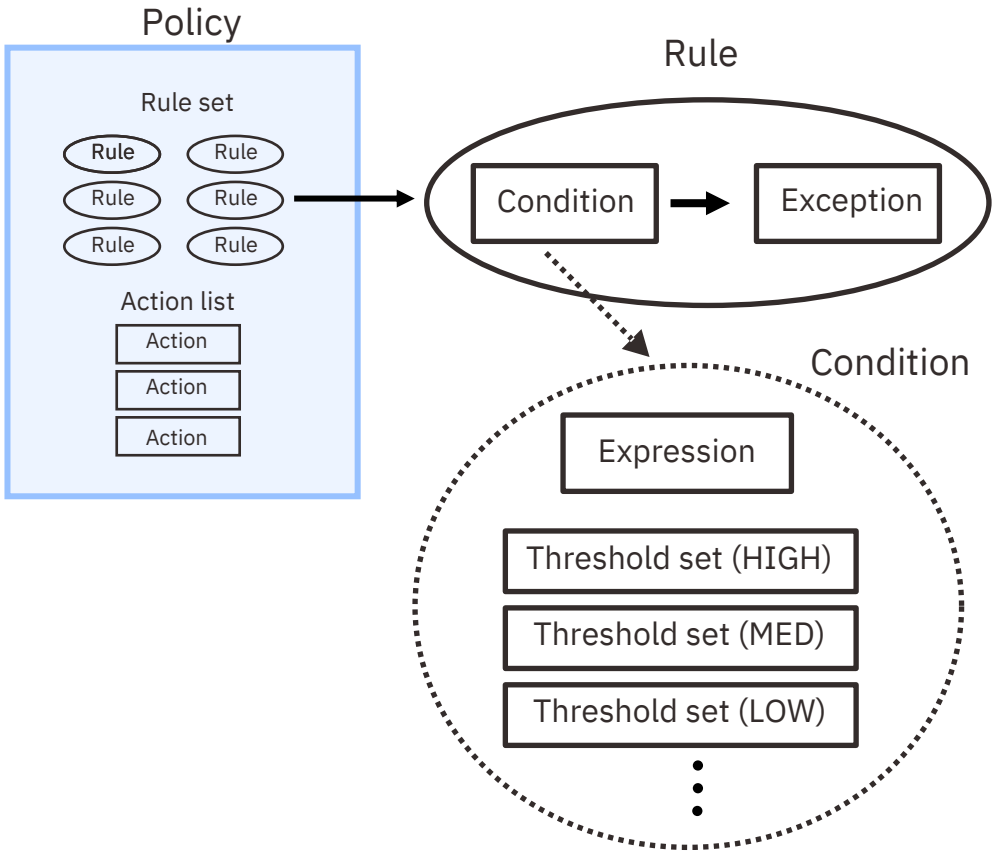


Figure 5: Rule condition components

Data elements used by the rule condition

A rule performs a comparison of a set of data element values to a set of threshold values. Each participating IMS Tools product collects and stores database state data as data element values.

Examples of database states and associated data elements include:

Percentage of CI or CA splits in a HISAM or SHISAM database

Data elements: DB_PCT_NUM_CI_SPLIT and DB_PCT_NUM_CA_SPLIT

IMS free space availability

Data elements: DB_BYTES_SEG, DB_PCT_BYTES_SEG, DB_BYTES_FREE_SPACE, and DB_PCT_BYTES_FREE_SPACE

Percentage of overflow data in an HDAM or PHDAM database

Data elements: DB_PCT_BYTES_OVFL

Number of database records

Data element: DB_NUM_ROOT

Imbalanced HDAM or PHDAM randomizing

Data elements: DB_PCT_NUM_UNUSED_RAP and DB_PCT_NUM_SYNONYM

Threshold variables, values, and sets

A rule specifies the boundary, or limit, for a particular database state as a set of threshold values. The policy service evaluates the set of threshold values against the set of values of the appropriate data elements for this database state that were collected and stored in the repository.

For example, the rule template that specifies the limits on IMS free space availability (IBM.FREE_SPACES.10) contains the following set of conditions and threshold variables:

- Threshold on the total bytes of segments in the data set (threshold variable &1)
- Threshold on the percentage of total segment data against the used space that is allocated for the data set (threshold variable &2)

- Threshold on the total bytes of free spaces remaining in the data set (threshold variable &3)
- Threshold on the percentage of total free spaces against the used space that is allocated for the data set (threshold variable &4)

The group of threshold variables with assigned threshold values is called a threshold set. For example:

```
&1 = 8589934592
&2 = 70
&3 = 0
&4 = 30
```

Each rule template contains at least three predefined IBM® threshold sets with the following name designations: LOW, MED(IUM), HIGH. However, some rule templates contain fewer threshold sets. For example, the rule template that checks the RECON IC NEEDED flag (IBM.IC_NEEDED) supports only one threshold set (&1=Y) that sets the data element value for DB_DBRC_IC_NEEDED to Y when the RECON IC NEEDED flag is ON.

Custom threshold sets with unique names (such as IMS2HIGH, IMS3LOW) can also be defined and included with the rule template.

Each threshold set typically has different threshold values. The goal is to create (and have available for policy evaluation) a range of different boundaries for the particular database state governed by the rule.

Multiple policies can use the same rule. Therefore, a wide range of thresholds allows you to configure multiple layers of exceptions and responses for different policies as they apply to the needs of different databases.

In the previous example, the conditions are evaluated with the logical OR, which means that the rule condition is said to be met (or TRUE) if one or more of these individual threshold comparisons are reached in one or more of the data sets that compose the database.

Example: Rule threshold sets

The following example shows a combination of predefined IBM® and user-created threshold sets for the rule template that governs IMS free space availability:

Table 3: Example threshold sets for the rule template IBM.FREE_SPACES.10

Threshold set name	Threshold variables and values
LOW (IBM® predefined)	&1 = 8589934592 &2 = 70 &3 = 0 &4 = 30
MED (IBM® predefined)	&1 = 8589934592 &2 = 80 &3 = 0 &4 = 20
HIGH (IBM® predefined)	&1 = 8589934592 &2 = 90 &3 = 0 &4 = 10
IMS3LOW (user-created)	&1 = 8589934592 &2 = 60 &3 = 0 &4 = 40
IMS3HIGH (user-created)	&1 = 8589934592 &2 = 85 &3 = 0 &4 = 15

Important: The threshold value 8589934592 for the variable &1 and the threshold value 0 for the variable &3 represent the upper threshold value and the lower threshold value that are never reached. In this rule condition, these threshold values are used to disable the evaluation of the data element values that correspond to &1 and &3. Change these values only if you want to monitor these conditions.

The threshold sets for this rule template can be used by several policies. Each policy uses some combination of the threshold sets that are provided in the rule template (up to a maximum of three sets). For example:

- POLICY1
  LOW, MED, IMS3HIGH
- POLICY2
  IMS3LOW, MED, HIGH
- POLICY3
  IMS3LOW, IMS3HIGH

When a policy evaluation determines that a set of threshold values satisfies the rule condition, Policy Services recognizes the condition as an exception at a specific exception severity level. An exception to a rule condition prompts the policy to respond with an action that is associated with the threshold set that contains the values that were exceeded.

What is an exception?

A rule is made up of a condition that specifies a threshold boundary for a particular database state and a corresponding exception that defines the response to any crossing of that boundary.

The rule exception has three components:

- Exception class
- Exception severity level
- Exception message

The following figure shows the condition and exception components of a rule, and expands on the features of the exception:

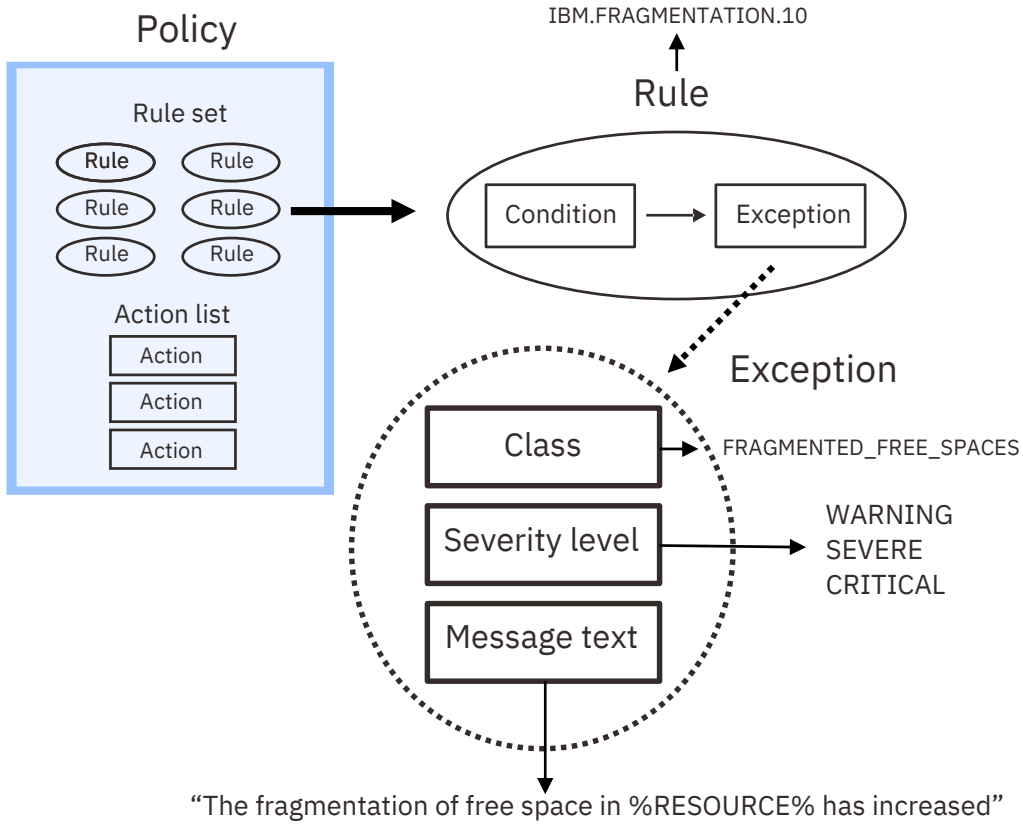


Figure 6: Rule exception components

Exception class

The exception class represents the specific database state type that is being governed by the rule. The exception class is used to map the exception to a specific action in the policy.

For example, the rule IBM.FRAGMENTATION.10 monitors free space fragmentation in a database. The exception class defined for this rule is:

```
FRAGMENTED_FREE_SPACES
```

Exception severity level

The exception severity level is a category that represents a degree of concern for the detected exception.

There are three fixed exception severity levels:

- WARNING
- SEVERE
- CRITICAL

A policy is used to map threshold sets (LOW, MED, HIGH, custom) to exception severity levels to form a functional rule. Only one threshold set is mapped to each exception severity level.

You use the Policy Services ISPF user interface to configure this mapping for each rule template that is used in individual policies. The following table illustrates that threshold sets are mapped to severity levels:

Table 4: Rule threshold sets mapped in the policy to exception severity levels

Threshold sets	>>MAP TO>>	Severity levels
LOW MED HIGH MYLOW MYHIGH		WARNING SEVERE CRITICAL

Although there is no predefined correlation between the threshold sets (LOW, MED, and HIGH) and severity levels (WARNING, SEVERE, and CRITICAL), each predefined IBM® policy by default makes the following correlations:

- LOW with WARNING
- MED with SEVERE
- HIGH with CRITICAL

Each threshold set typically uses different threshold values. The goal is to create (and have available for policy evaluation) a range of different boundaries for the particular database state governed by the rule template.

Multiple policies can use the same rule template. Therefore, a wide range of thresholds allows you to configure multiple layers of exceptions and responses for different policies as they apply to the needs of different databases.

Exception message text

The exception message is the text that can be used by the resulting policy action to describe the database state that crossed a rule threshold set.

For example (for rule template IBM.FREE_SPACES.10):

```
IMS space utilization statistics of %RESOURCE% has reached or crossed a threshold.
```

You cannot use the Policy Services user interface to modify the text of the exception message for any rule template.

The variable %RESOURCE% is replaced by the DBD name or the HALDB partition name when the message is printed or sent.

What is an action?

A policy also defines the mapping of a rule exception and severity level to a resulting action.

A policy implements an action when a rule condition is reached or exceeded during a policy evaluation.

An action for each exception is actually an action recommendation. An action is determined by the action list defined in the policy. Three forms of an action are possible:

- **Send an exception message for each exception detected**
  The exception message is sent to the destinations that are contained in the notification list or lists that are associated with that exception class and severity level either specified by the Rule, or the Policy. For example (for rule IBM.FREE_SPACES.10):

  ```
  IMS space utilization statistics of %RESOURCE% has reached or crossed a threshold.
  ```

  The exception message text is contained in the rule template.

  Messages are typically sent to the client's SYSOUT and recorded in the Policy Services journal report.

- **Perform a process only** (for example, perform a database reorganization)
  Policy Services can recommend a specific process to the caller (client) of the Policy Services.

  The purpose of the recommended process is to remove the detected exception or lower the level of the exception.

- **Recommend a process and send an exception message for each exception that remains after the process**
  A process action can also be accompanied by the standard exception message that is associated with the rule.

  The process action is delegated to and handled by the IMS Tools client or some other external program.

  The associated exception message is handled by Policy Services.

The following figure shows the features of an action list entry for a policy:

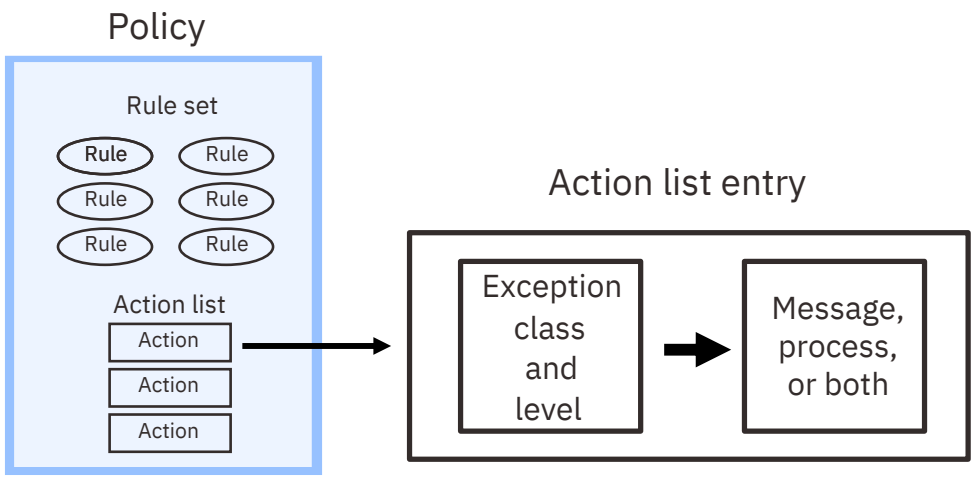


Figure 7: Policy action components

Example action process flow

An exception message associated with a rule is sent only when at least one notification list is attached to the rule. If a notification list is not defined for the rule, the notification list that is defined by the policy for the summary notification is used.

The process action is not performed immediately and the exception message associated with the process action is not sent immediately. The resulting action or actions are determined by the set of process actions recommended by the policy evaluation.

For example, in the Smart Reorg utility of IMS Database Reorganization Expert, multiple reorganization processes, each of which was recommended for a different exception, result in a single reorganization action.

The reorganization is performed by the Smart Reorg utility only once, not multiple times. The exception message that was associated with an action is sent only when the exception still remains after the action has been performed.

At the end of a policy evaluation session, a message that summarizes the result of the policy evaluation is sent to the destinations contained in the notification list or lists associated with the policy if at least one exception was detected by a rule defined in the policy. The message is called the summary message for the policy evaluation session.

Action selection: Exception-to-action mapping

The form of action depends on how the specific rule exception was mapped in the policy. A rule threshold set is mapped to a severity level for the exception class that is associated with the rule. In turn, the severity level is mapped to an action.

The following table illustrates that threshold sets are mapped to severity levels that are mapped to an action type:

Table 5: Thresholds mapped to severity levels mapped to policy actions

Threshold sets	>>MAP TO>>	Severity levels	>>MAP TO>>	Policy actions
LOW MED HIGH MYLOW MYHIGH		WARNING SEVERE CRITICAL		Message Process

For example, the custom threshold set MYLOW can be mapped to severity level WARNING, which in turn is mapped to the action of sending an exception message out to the notification list that is associated with this exception class and severity level.

In predefined policies provided by IBM®, the severity-level-to-action mappings are fixed for each exception class and are not customizable through the Policy Services ISPF user interface:

- WARNING always maps to a message action
- SEVERE always maps to a message action
- CRITICAL maps to either a message action or a process action
  The following topics contain a table for each policy that shows the exception class and severity level pairs that specifically result in a process action:
  - "Domain REORG policies" on page 304
  - "Domain RECOVERY policies" on page 354

Exception message format

Exception messages are sent to the target by the Policy Services Action Manager. Those exception messages are also returned to the IMS Tools Policy Services client, such as IMS Database Reorganization Expert, with information on the source of the exception detection.

The following example from the Diagnosis Report of IMS Database Reorganization Expert shows how an exception message from Policy Services can appear:

```
The size of a database data set in BKDB has reached or exceeded a threshold
```

Message text

The message text that comes from the text contained in the rule template (indicating the resource affected; the database BKDB in this example)
You cannot modify the message content.

Class

The exception class name

Level

The severity level (WARNING, SEVERE, CRITICAL)

Rule

The rule template that detected this exception

Threshold Set

The name of the threshold set in this rule template that was used to detect this exception
This threshold set was mapped to the severity level.

Additional information about message actions

Although reaching or exceeding a rule condition can trigger one of the three severity levels, the text of the exception message for each severity level is the same (shared among all severity levels). The text comes from

the IMS Reorganization Expert report. The messages are distinguished by the return of the exception class and severity level type with the message.

For example:

```
The size of a database data set in BKDB has reached or exceeded a threshold
   Class: DATA_SET_SIZE_GROWTH            Level: WARNING
   Rule: R:IBM.DBDS_GROWTH.10      Threshold Set: MYLOW

The size of a database data set in BKDB has reached or exceeded a threshold
   Class: DATA_SET_SIZE_GROWTH            Level: SEVERE
   Rule: R:IBM.DBDS_GROWTH.10      Threshold Set: MED

The size of a database data set in BKDB has reached or exceeded a threshold
   Class: DATA_SET_SIZE_GROWTH            Level: CRITICAL
   Rule: R:IBM.DBDS_GROWTH.10      Threshold Set: MYHIGH
```

In the conditional reorganization scenario of Reorganization Expert, Policy Services uses the same exception class messages for both the phase 1 first evaluation and the phase 2 second evaluation that is made after the actions recommended in phase 1 have been performed.

In the policy evaluation that is performed by Autonomics Director, only the phase 1 policy evaluation is performed.

Additional information about the summary message

A set of summary messages are defined for the policy domain and they are specific to the domain and the resource type. The appropriate summary message is selected based on the combination of the results of phase 1 and phase 2 policy reevaluations.

In the conditional reorganization scenario of Reorganization Expert, the summary message is returned after phase 2 processing completes successfully and at the same time the standard exception message or messages are returned. If the phase 2 policy evaluation fails, a specific summary message is returned that indicates the reason. The appropriate summary message is selected based on the combination of the results of phase 1 processing, process action (such as REORG of the Database), and phase 2 policy reevaluations.

In Autonomics Director, the summary message is returned at the phase 1 policy evaluation.

Policy Services messages can direct you to the IMS Tools product for which the summary message was issued, where more tool-specific explanation, system action, and user action information is available.

Additional information about process actions

The response to a recommendation to perform a process action is specific to the IMS Tools client product.

For example, the Smart Reorg utility in IMS Database Reorganization Expert can respond to a Policy Services recommendation and perform a reorganization process. In this example, the recommendation is returned to the tool's Conditional Reorganization Support Service, which internally calls Policy Services.

The recommendation for a process action can be accompanied by the standard exception message that is appropriate for the exception class and severity level. This exception message describes the rule condition that was reached or exceeded and that caused the recommendation for the process action.

What is a directory entry?

A directory entry is the mechanism used by Policy Services to define users who can receive exception notifications messages that are sent out to warn or report on results of policy evaluations.

A single directory entry defines a name of a user, the connection type (such as WTO or TSO), and all connection specifications that are required to deliver a message to that user. You use the Policy Services user interface to define directory entries.

Directory entries are used to populate one or more notification lists. Notification lists are used by a policy when a rule exception occurs and the resulting action requires a warning message to be sent to appropriate users, as defined by the notification list mechanism.

Policy Services supports two directory entry types:

- WTO
- User (TSO, EMAIL, or TEXTING)

The WTO directory entry contains the following information fields:

- Short name
- Long name
- Description
- Delivery type:
  - WTO

The User directory entry contains the following information fields:

- Short name
- Long name
- Description
- Delivery type:
  - TSO, EMAIL, or TEXTING

What is a notification list?

A notification list is a mechanism for grouping users into unique business categories, such as all DBAs, or all users who represent an installation application area or a set of databases associated with a given application or location.

The notification list is created by including the directory entry short names of the users who are appropriate for the required notification category. Notification lists can contain both directory entries and other notification lists.

The short name used in a notification list maps to the directory entry of that user. The directory entry contains the information (for example, TSO and WTO IDs) that are required to deliver messages. You use option 3 **Notification lists, directory entries management** on the Policy Services user interface to define lists that include one or more directory entries.

The following example shows how notification lists can include combinations of WTO consoles, TSO users, and other notification lists:

Table 6: Example notification lists

Notification list A	Notification list B
TSOUSER1	TSOUSER1
TSOUSER2	TSOUSER4
TSOUSER3	TSOUSER5
CONSOLE1	CONSOLE2
	NOTLISTC

A policy and each rule in the policy can refer to one or more notification lists. The directory entries contain the information such as user name, destination type, destination address, and description. If an exception is raised by the evaluation of a policy, a message can be sent to all destinations (directory entries) listed in the notification lists that are specified by the rule.

Important: If a notification list is not specified by the rule, the notification list that is specified by the policy, the summary notification list, is used to send a message to all destinations if an exception is raised by the evaluation of a policy.

In a rule, notification lists are associated with a threshold set and severity level combination. For example:

Table 7: Example notification list associations

Action	Severity level	Threshold set	Notification list
MESSAGE	WARNING	LOW	Notification List A

Action	Severity level	Threshold set	Notification list
MESSAGE	SEVERE	MED	Notification List A Notification List B
REORG	CRITICAL	HIGH	Notification List A Notification List C Notification List E

The following figure shows the mapping of specific notification lists to specific severity level and threshold set combinations:

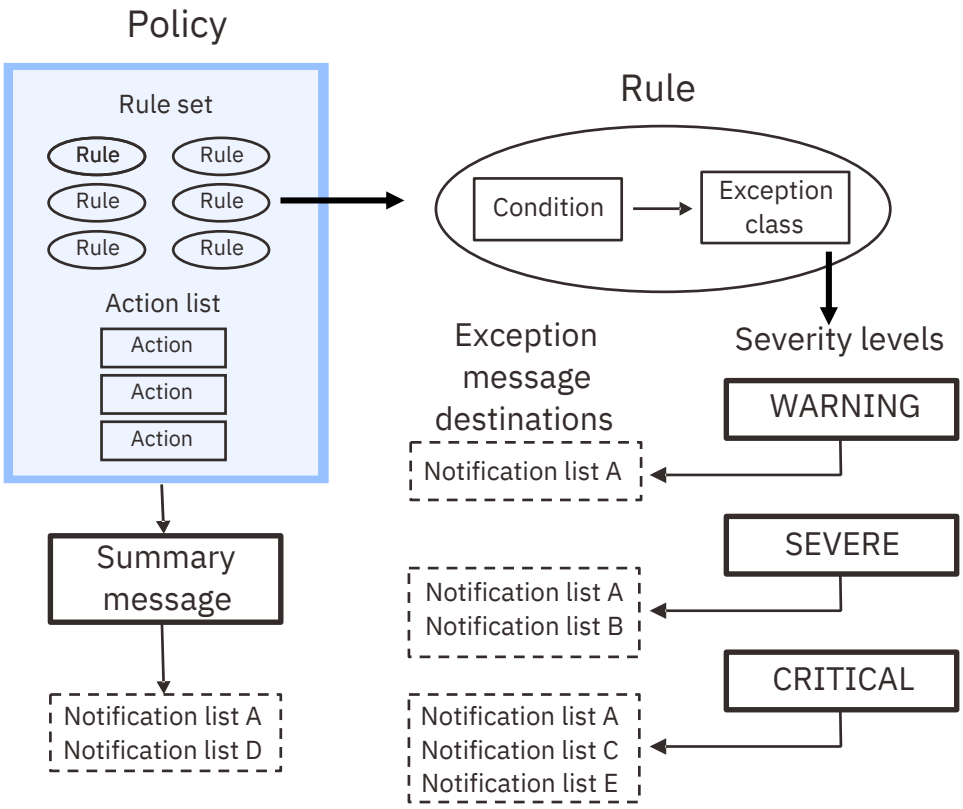


Figure 8: Notification lists associated with severity level and threshold set combinations

Notification lists can be associated with two notification message types:

- **Exception messages**
  Each exception class that is associated with a rule template can have three severity levels (WARNING, SEVERE, CRITICAL).

  You can associate one or more notification lists with each rule threshold set and severity level combination.

- **Summary messages**
  The summary message is sent after the second evaluation phase.

  This message provides information about the results of the policy reevaluation that takes place after action was taken in response to an exception during the first policy evaluation.

  The summary message is sent also when an exception was detected but no associated process action was designated, or the recommended process action was canceled for some reason.

Exporting and importing Policy Services objects

The installed policy and rule templates can be copied and customized, and then exported to and imported from another environment.

Directory entries and notification lists can also be exported and imported.

The initial package of predefined IBM® policies and rules is installed from partition data sets (PDS). This package is installed into the IMS Tools Knowledge Base Input repository as a set of policy and rule templates.

Policy templates describe the contents of a policy and ultimately are transformed into policy streams when a policy lookup is requested by Policy Services.

You can use the export and import functions to:

- Move policy and rule templates to and from another environment
- Back up the policy and rule templates

The export process begins by preparing a selection list for export and by creating an export package with the selected objects. Exported packages are created as partition data sets (PDS).

Exported packages consist of one member with control information and other members for each exported object.

You can then use the import process to install exported packages in another environment in the same domain.

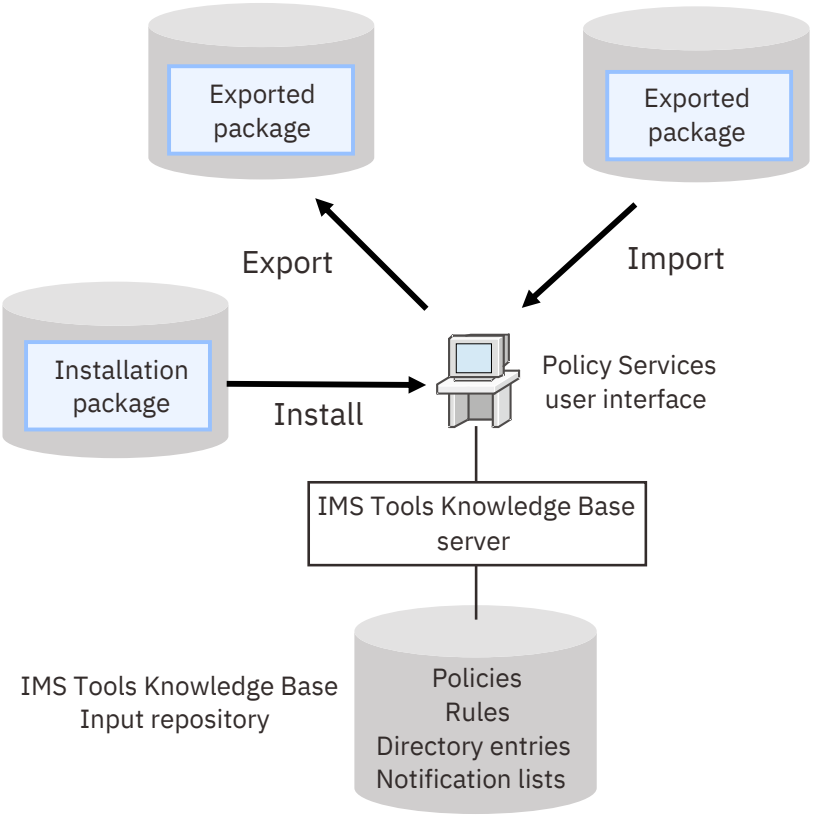


Figure 9: Exporting and importing

Example policy evaluation process flow

To illustrate a policy evaluation process flow, the following example is based on the conditional database reorganization capabilities of the IMS Database Reorganization Expert product.

IMS Database Reorganization Expert uses Policy Services to provide advanced functions that help IMS database administrators perform database reorganization tasks.

Database reorganization is one of the responsibilities of database administrators that involves complex analysis tasks. Generally, these are time-consuming tasks that require knowledge, expertise, and experience in IMS database space management. IMS Database Reorganization Expert can reduce the complexity of the database reorganization tasks for IMS full-function databases by helping you automate the analysis and response to specific database conditions.

The IMS Database Reorganization Expert Smart Reorg utility enables the conditional reorganization feature. This feature automates the database diagnosis process and, only when database reorganization is deemed necessary, runs the reorganization job, all in a single job step. A Smart Reorg utility job that is run with the conditional reorganization feature is referred to as conditional reorganization job.

The following example process flow shows how various policy and rule components are used by Policy Services during a conditional reorganization job.

Table 8: Example policy evaluation process flow

Process flow	Example
The conditional reorganization job is initialized.	IMS Database Reorganization Expert - Smart Reorg utility
The selected policy is read.	SYS.DBDTYPE.HDAM The SYS. policy is a copied predefined IBM® basic policy for HDAM full function databases.
An example rule from this policy evaluates the statistics of Free Space Elements (FSE) in HD database data sets.	IBM.FRAGMENTATION.10
The rule contains a condition expression for evaluating the statistics of Free Space Elements (FSE) in HDAM database data sets.	The condition expression for this rule specifies the threshold values that are evaluated: – Threshold value &1 - the average number of free space elements (FSEs) per block or CI in the data set – Threshold value &2 - the average number, per block or CI, of FSEs whose lengths are less than the length of smallest segment in the data set – Threshold value &3 - the number of FSEs in the data set – Threshold value &4 - the number of FSEs that can hold a smallest segment in the data set – Threshold value &5 - the number of FSEs that can hold a largest segment in the data set
Data element (sensor data) values are collected and evaluated against the value of each threshold in the condition expression.	DB_AVG_NUM_FSE for &1 DB_AVG_NUM_NOREUSE_FSE for &2 DB_NUM_FSE for &3 DB_NUM_FSE_MIN for &4 DB_NUM_FSE_MAX for &5

Process flow	Example
The rule contains threshold sets that define threshold values for varying levels of the rule conditions. The example rule contains the three default threshold sets (LOW, MED, HIGH) and two custom threshold sets (IMS3LOW, IMS3HIGH). The rule compares threshold values (expressed in the rule as variables) to stored data element values: &1 = DB_AVG_NUM_FSE &2 = DB_AVG_NUM_NOREUSE_FSE &3 = DB_NUM_FSE &4 = DB_NUM_FSE_MIN &5 = DB_NUM_FSE_MAX The value 2147483648 is the never-to-be-reached maximum threshold value. If this (default) value is specified, you can disable the evaluation of the corresponding data element value.	Threshold sets: **LOW** &1 = 5 &2 = 5 &3 = 2147483648 &4 = 2147483648 &5 = 2147483648 **MED** &1 = 10 &2 = 10 &3 = 2147483648 &4 = 2147483648 &5 = 2147483648 **HIGH** &1 = 20 &2 = 20 &3 = 2147483648 &4 = 2147483648 &5 = 2147483648 **IMS3LOW** &1 = 8 &2 = 8 &3 = 2147483648 &4 = 2147483648 &5 = 2147483648 **IMS3HIGH** &1 = 25 &2 = 25 &3 = 2147483648 &4 = 2147483648 &5 = 2147483648
Rule threshold sets are mapped to a maximum of three exception severity levels. Only the selected (mapped) threshold are used in a policy evaluation.	LOW =>WARNING MED => SEVERE IMS3HIGH => CRITICAL
Policy evaluation detects that the threshold set IMS3HIGH was crossed, which eventually generates the defined exception in the CRITICAL severity level.	Exception class for ruleIBM.FRAGMENTATION.10 is: FRAGMENTED_FREE_SPACES

Process flow	Example
Policy actions are defined for the exception class FRAGMENTED_FREE_SPACES at the policy severity level CRITICAL. The actions include a REORG process and an exception message.	The REORG action recommends to the Smart Reorg utility of IMS Database Reorganization Expert to perform a reorganization (unloading and reloading without DBD change) of the database. The action process (REORG) is handled by the client tool's function (the parallel reorganization function of the Smart Reorg utility). The message process (send out exception message to the notification lists specified for the CRITICAL severity level of this rule) is handled by Policy Services. When the REORG action completes, the IMS Tools product performs phase 2. Based on the results of the REORG process, a summary message is issued that clarifies the results of the REORG. The summary message indicates the degree of improvement that resulted from the REORG action.
Phase 2 policy evaluation for the status of the reorganized database detects no crossing of any threshold set of any rule. Therefore, no exception is returned.	The exception messages for the exceptions detected in the first phase evaluation are suppressed and not sent.
The summary message is sent after the second evaluation phase.	Because no exception is observed after the reorganization action, the following summary message is sent and returned to the Smart Reorg utility: `BBE2900I resource_name IN RECONID=recon_id HAS BEEN REORGANIZED, AND NO EXCEPTIONS WERE DETECTED AFTER THE REORG.`

Example scenario for conditional reorganization

Policy Services can monitor a specific database state by evaluating statistical data that is collected by an IMS Tools product, and providing a response to any conditions that exceed the threshold limits specified for this state.

Policy Services provides policy-based database management for members of the IMS Tools product family that are enabled to participate in an autonomics environment. All information is stored in and managed by central repositories that are controlled by IMS Tools Knowledge Base.

IMS Database Reorganization Expert, together with Policy Services, can assist the duties of database administration by providing policy-based conditional database reorganization for the databases that are important to the business.

The conditional reorganization job is similar to a standard IMS Database Reorganization Expert job. The main difference is that the conditional reorganization job, based on user configuration, decides whether to reorganize the database.

With IMS Database Reorganization Expert, you are relieved from researching stored statistics to determine the need for a reorganization. However, you still must request that the conditional reorganization evaluate the appropriate databases within the correct time frame. You must also prioritize the database reorganizations for any limited maintenance windows.

IMS Database Reorganization Expert uses its Smart Reorg utility to coordinate the evaluation of reorganization policies, and to implement an appropriate response to the reaching or exceeding of thresholds that are specified for the sensor data that is collected by the tool.

Phase 1 sensor data collection, analysis, and evaluation

1. The Database Administrator submits a Smart Reorg driver job with the option `CONDREORG=YES`.
2. The driver initializes the conditional reorganization environment.

3. A selected conditional reorganization policy definition is read from the IMS Tools Knowledge Base Input repository.
4. Database statistics (sensor data) that was previously collected by the DB Sensor of IMS Database Reorganization Expert are analyzed.
   Database statistics are stored as a set of sensor data records in the IMS Tools Knowledge Base sensor data repository.

   The collected statistics are evaluated against the rules that are defined in the policy to detect any exceptions and to determine appropriate actions.

Action processing (notification and reorganization)

1. The policy evaluation determines any required action.
   Actions can take the form of an exception message sent to the appropriate notification lists, an actual implementation of a process (database reorganization), or both.

   The actual notifications are sent in the Report phase.
2. If a database reorganization action (REORG) is required by the policy evaluation, the driver gets a GO signal.
   The database is reorganized only when a condition for reorganization is met during policy evaluation.
3. Additional statistics (sensor data) are collected and stored during the reorganization reload.
   At this stage, the evaluation of the new data is not performed yet. So you cannot know whether any exception remains or any new exception is detected.

Phase 2 sensor data analysis and reevaluation

In this phase, the exceptions that remain even after the reorganization action are detected by the phase 2 evaluation and are notified to the Smart Reorg utility (the client program), but not to you (the user).

Report phase

1. In this phase, each of the exceptions that were detected in Phase 2 result in messages sent to the destinations in the notification lists that are related, in the policy, to the rule that generated the exception.
2. The summarized results are delivered to the appropriate notification list as a summary notification message.
3. The summarized results are also stored in the IMS Tools Knowledge Base Output repository as a diagnosis report.
   The report contains the result of policy evaluation and provides a comparison of statistics before and after the reorganization.

Refer to the *IMS Database Reorganization Expert User's Guide* for full details on how this IMS Tools product uses Policy Services to perform conditional database reorganization.

Domains, locales, and environments

Policy Services uses a key sequence of domains, locales, and environment levels to track, retrieve, and process policies, rules, directory entries, and notification lists.

Topics:

- “Domains” on page 40
- “Locales” on page 41
- “Maintenance and operation environments” on page 42
- “Maintenance and operation connections” on page 43
- “Maintenance, operation, and history levels” on page 44
- “Special conditions and best practices for environments” on page 45

Domains

A domain is a descriptive term used by Policy Services to represent one or more IMS Tools products that share the same set of policies and rules that result in performing the same action type.

Every policy belongs to a policy domain. For example, all policies and rules that are used by the Smart Reorg utility of IMS Database Reorganization Expert belong to the REORG policy domain.

A policy domain is not specific to a particular IMS Tools product. Rather, the domain is associated with a specific system management function (such as reorganization, backup, recovery, performance). Currently the REORG and RECOVERY domains are the policy domains that are supported.

Locales

Locale is a descriptive term used to define the IMS environments in which Policy Services is used. The locale designation is used as part of the internal naming of policies, rules, and notification lists.

A Policy Services locale represents an IMSplex that contains one or more IMS systems. A Policy Services locale can also be viewed as a single IMS system that is not defined as an IMSplex.

For each IMS Tools product, the locale definition mechanism can vary. For example, the locale as used and defined by IMS Database Reorganization Expert is defined as a RECON ID, which represents the name of an IMSplex or a DBRC group in an IMSplex.

In the example of IMS Database Reorganization Expert, the RECON data sets for each IMSplex or each DBRC group in each IMSplex are defined to IMS Tools Knowledge Base through the user interface and are stored in the repository.

An internal ID is generated by IMS Tools Knowledge Base for each user-defined external ID. The external ID is the locale used by the ISPF user interfaces for the IMS Tools product and Policy Services.

The locale (external ID) can be changed using the IMS Tools Knowledge Base user interface. However, the locale's internal ID always remains the same.

Global locale

A global Policy Services locale definition (BSNGLOBL) is also automatically defined by IMS Tools Knowledge Base and becomes the default locale for Policy Services.

BSNGLOBL is the generic locale value that works for all IMSplex-specific locales if a policy that is requested does not exist for the locale the IMS Tools product is requesting.

All policies and rules are initially installed at the BSNGLOBL locale and therefore become valid for any IMSplex-specific locale with the following conditions:

- BSNGLOBL policies can only contain rules templates and notification lists from the global locale.
- Locale-specific policies can contain rule templates and notification lists from both the same locale-specific locale and the global locale.
  For example, a policy for locale RECONA can reference rules and notification lists from RECONA and BSNGLOBL, but not from any other locale such as RECONB.

Policy evaluation and locales

The locale name is part of a key sequence (along with domain and environment level) used by Policy Services to retrieve policies, rules, directory entries, and notification lists. For example:

```
DOMAIN.ENVIRONMENT-LEVEL.LOCALE.POLICY-NAME
DOMAIN.ENVIRONMENT-LEVEL.LOCALE.RULE-NAME
DOMAIN.ENVIRONMENT-LEVEL.LOCALE.RULE-NAME/THRESHOLD
ENVIRONMENT-LEVEL.LOCALE.NOTIFICATION-LIST-NAME
ENVIRONMENT-LEVEL.LOCALE.DIRECTORY-NAME/DESTINATION-TYPE
```

When an IMS Tools product requires a policy to perform an evaluation, a request goes out for a policy template or stream (for example, POLICY1). Policy Services supplies the remaining information using the following key sequence:

- Domain (for example, REORG)
- Environment level (for example, 00000002)
- Locale (for example, MYRECON1)

For POLICY1 example, the first request occurs for the following key sequence:

```
REORG.00000002.MYRECON1.POLICY1
```

If the locale-specific policy is not found, a second attempt is made to retrieve it from the global locale:

```
REORG.00000002.BSNGLOBL.POLICY1
```

If that policy does not exist, then there is no policy (POLICY1) available (defined) to be used by IMS Database Reorganization Expert for locale MYRECON1 and operation Environment 00000002.

Usage notes for locales

- Policy templates are defined and maintained for specific or global locales.
  Policy templates can be copied from one locale to the other.

  Policy streams can be exported and imported into and out of the specific or global locale.

  User policy templates can be imported into the specific or global locale.

  IBM® distributed policy templates (IBM.*) can only be imported into the global locale. The user can then copy the policies to other locales when required.
- Rule templates are defined and maintained in specific or global locales.
  Rule templates can be copied from one locale to the other.

  Rule templates can be imported and exported into and out of the specific or global locale.

  IBM® distributed rule templates can only be imported into the global locale. The user can then copy the rules to other locales when required.
- Notification lists are defined and maintained in specific or global locales.
  Notification lists can be imported and exported into and out of specific or global locales.

  Notification lists are defined and maintained in specific or global locales.

Maintenance and operation environments

There are two type of environments supported by Policy Services: maintenance and operation.

Maintenance updates and import actions can have broad impacts on the policy environment because the environment is destabilized until all customizations are completed.

To prevent impacting the operation environment where policy evaluations take place, disruptive changes to the Policy Services configuration should be performed in a maintenance environment. Changes that are made to the maintenance environment have no impact on the current operation environment.

This approach allows you to complete the changes in an isolated environment. When the changed environment is validated, the changed maintenance environment can be promoted to become the new operation environment.

The operation environment is available to any participating IMS Tools product to perform the evaluation of sensor data for a given policy request made by the IMS Tools product.

The multi-environment approach allows some degree of deployment control, allows backing out capabilities, and allows you to regress to any past saved (history) operation environment.

Maintenance environment

The maintenance environment is available through the Policy Services ISPF user interface and provides Policy Services clients with the following service functions to manage policies and rules:

- Create:
  - Policies
  - Notification lists
- View:
  - Policies
  - Rules
  - Notification lists
- Update:
  - Policies

        - Rules
        - Notification lists
    - Export Policy Services objects
    - Import Policy Services objects

Operation environment

The operation environment is available through the Policy Services ISPF user interface and provides Policy Services clients with the following service functions to manage policies and rules:

- Create:
    - Policies
    - Notification lists
- View:
    - Policies
    - Rules
    - Notification lists
- Update:
    - Policies
    - Rules
    - Notification lists
- Export Policy Services objects
- Import:
    - Policy streams
    - Notification lists

The operation environment is the only environment that is available to the IMS Tools product through the Policy Services API to provide policy evaluation functions.

Maintenance and operation connections

There are three types of connections that can be made between Policy Services and Policy Services clients.

IMS Tools client to Policy Services operation environment connection

The non-TSO operation environment connection type (from the IMS Tools Policy Services client to Policy Services itself) provides the Policy Services client with the following capabilities:

- Evaluate the rules defined in the policy name that is passed to Policy Services by the client
- Use the sensor data that is passed to Policy Services by the client

Policy Services operation environment connection

The TSO operation environment connection type (ISPF user interface) has the following capabilities:

- Connect a user to an existing operation environment
- Connect a new user to an existing operation environment

The TSO operation environment connection type (ISPF user interface) can perform the following functions to the operation environment level:

- View Policy Services operation environment level items in the repository
- Create policies and notification lists
- Update Policy Services operation environment level items in the repository for immediate use
- Export from the Policy Services operation environment level items from the repository

- Import into the Policy Services operation environment level policy streams into the repository for immediate use
- Import into the Policy Services operation environment level policy notification lists into the repository for immediate use
- Promote a maintenance environment to an operation environment
- Promote a history level to an operation environment

Policy Services maintenance environment connection

The TSO maintenance environment connection type (ISPF user interface) has the following capabilities:

- Connect a user to an existing maintenance environment
- Connect a new user to an existing maintenance environment

The TSO maintenance environment connection (ISPF user interface) type can perform the following functions to the maintenance environment level:

- Perform the initial installation of predefined IBM® policies and rules
- Create and view policies and notification lists
- Apply predefined IBM® policies and rule maintenance
- Update Policy Services maintenance level items in the repository
- Export from the Policy Services maintenance level items from the repository
- Import into the Policy Services maintenance level items into the repository for future use
- Promote a maintenance environment to an operation environment

Maintenance, operation, and history levels

Policy Services objects in the repository belong to one of three different levels: maintenance, operation, and history.

Maintenance level

Only one maintenance environment level can exist at any time for all domains that are supported by Policy Services. There can be multiple logons to this maintenance environment.

The purpose of the maintenance environment level is to store Policy Services objects while providing the following functions:

- Initial installation of predefined IBM® rules and policies
- Installation of IBM® service to existing rules and policies
- Installation of IBM® service to add new rules and policies
- Deletion of rules and policies using the installation of IBM® service
- User updates to existing rules and polices
- User addition of customer defined policies
- User creation of notification lists
- User updates to existing notification lists

Operation level

Only one operation environment level can exist at any time for each domain that is supported by Policy Services. There can be multiple logons to this operation environment.

The purpose of the operation environment level is to provide the following functions:

- Evaluation function to IMS Tools
- User updates to existing rules and polices
- User creation of customer defined policies

- User creation of notification lists
- User updates to existing notification lists
- User Imports of policy streams and notification lists

History levels

History levels are previous operation environment levels that have been archived after being replaced by a promoted maintenance environment.

0 to n history levels can exist at any time for each domain that is supported by Policy Services.

Each history level is created by the following sequence:

1. An existing maintenance environment (level 0000001) is promoted to an operation environment (level 0000002)
2. A new maintenance environment (level 0000003) is created
3. The new maintenance environment (level 0000003) is promoted to an operation environment (level 0000004)
4. The former operation environment (level 0000002) is now made to be a history level (level 0000002)

Any history level can be promoted to an operation environment for the following reasons:

- Return to some prior history level to determine how a particular policy worked
- Back up to the most recent history level (which would have been the previous operation level) because of an error occurring in the current operation level

Special conditions and best practices for environments

The following topics describe special conditions and best practices for managing maintenance and operation environments.

Only one operation environment per domain and one maintenance environment for all domains can exist at a time.

Initial conditions for a newly installed system

In an initial installation of a Policy Services system, there are no existing environments.

The following sequence describes the actions taken for an initial installation of a Policy Services system:

- From an IMS Tools connection such as IMS Reorganization Expert, all calls fail.
- From a TSO connection, the ISPF setup dialog forces you to create an initial maintenance environment:
  - Select a policy domain from the list of supported domains.
  - Select the option to create a new maintenance environment (which is an empty or null maintenance environment) for the selected domain.
  - Install the policies and rules.
  - The IBM. policies are copied to SYS. policies automatically as part of the maintenance installation process.
  - Create appropriate notification lists to receive messages of conditions met.
  - Update the policies and rules as necessary.
  - Add any new policies.
- This initial maintenance environment for the selected domain can now be promoted to create the first operation environment.

Selecting the operation environment

The operation environment always comes from the promotion of a maintenance environment or a history level (if no maintenance environment exists).

The following special conditions apply when you select the operation environment from the Policy Services user interface:

An operation environment does not exist, and a maintenance environment does not exist

You must create an initial maintenance environment.
This initial maintenance environment can then be promoted to create the first operation environment.

An operation environment exists, and a maintenance environment exists

Any changes that you make to Policy Services items in this operation environment is not reflected in the maintenance environment.
Because the maintenance environment can be promoted to a new operation environment, it can be advantageous for the maintenance environment to be based on the current operation environment.

Always ensure that any changes made to Policy Services items in the operation environment are also made to the maintenance environment.

An operation environment exists, and a maintenance environment does not exist

If a maintenance environment is created from this operation environment before you have completed making changes to the operation environment, the remaining changes are not reflected in the newly created maintenance environment.
Because the maintenance environment can be promoted to a new operation environment, it can be advantageous for the maintenance environment to be based on the current operation environment.

Always ensure that any changes made to Policy Services items in the operation environment are also made to the maintenance environment.

Creating a null maintenance environment

The following special conditions apply when you create a new null maintenance environment:

- A null maintenance environment contains no objects in the repository.
- You must create a null environment for the initial installation of Policy Services.
- You might want to create a null environment into which you would import a copy of a newly created operation environment from a central location.

Creating a maintenance environment from operation

The following special conditions apply when you create a new maintenance environment from an operation environment:

- If a maintenance environment is created from the operation environment, ensure that any updates being made to the operation environment are completed before creating the new maintenance environment.
- Because the maintenance environment can be promoted to a new operation environment, it can be advantageous for the maintenance environment to be based on the current operation environment.

Creating a maintenance environment from a history level

The following special conditions apply when you create a new maintenance environment from a history level:

- All updates to policies and rules that occurred between a history level and the current operation environment are not captured.
- All notification lists required by the history level and operation environment are merged to reflect the most current notification list.

Promoting a maintenance environment to operation

The Promote action converts the maintenance environment into a new operation environment, replacing the current operation environment. The operation environment being replaced becomes archived as a history level.

The Promote action can be made from either an operation environment or a maintenance environment.

The Promote action is made from the maintenance environment

Ensure that all changes to the maintenance environment are completed before you promote the maintenance environment.
When the maintenance environment (level 0000000n) is successfully promoted, your connection is changed from the maintenance environment (level 0000000n) to the new operation environment (level 0000000n+1).

The Promote action is made from the operation environment

Ensure that all changes to the maintenance environment are completed before you promote the maintenance environment.

When the maintenance environment (level 0000000n) is successfully promoted, your connection remains in an operation environment. However, your current operation environment level (level 0000000r) is changed to a new operation environment level (level 0000000n+1).

- Prior to the Promote action, all changes to Policy Services items are stored in the operation environment you are working in (level 0000000r).
- After the Promote action, that operation environment is archived as a history level (level 0000000r).
- If the changes made to the operation environment (level 0000000r) are not also made in the maintenance environment (level 0000000n), the new operation environment (level 0000000n+1) does not contain those changes.

Always ensure that any changes made to Policy Services items in the operation environment are also made to the maintenance environment.

Promoting a history level environment

The action of promoting a history level to an operation environment is only valid when the Promote action is requested from an operation environment connection, and no maintenance environment exists.

When the history environment (level 0000000n) is successfully promoted, your connection remains in an operation environment. However, your current operation environment level (level 0000000r) is changed to a new operation environment level (level 0000000n).

Prior to the Promote action, all changes to Policy Services items are stored in the operation level you are working in (level 0000000r).

After the Promote action, that operation environment is archived as a history level (level 0000000r).

Changes made to the former operation environment (level 0000000r) are not reflected in the new operation environment (level 0000000n).

Additional changes to Policy Services items are reflected only in the new current operation environment (level 0000000n).

Configuring Policy Services

Information about configuring Policy Services and other IMS Tools Base components is provided in IMS Tools Base Configuration Guide.

You can also download a PDF version of this information from the IMS Tools Product Documentation page.

Using Policy Services

The topics in this section provide detailed information on using Policy Services.

> **Note:** The TSO split screen is not supported by Policy Services.

Topics:

- "Starting the Policy Services user interface" on page 49
- "Copying rules" on page 50
- "Customizing BSNGLOBL or locale-specific rules" on page 53
- "Modifying rule thresholds" on page 56
- "Defining custom rule threshold values for individual databases" on page 58
- "Managing notification lists and directory entries" on page 63
- "Modifying policy actions" on page 75
- "Creating a new policy from executable BSNGLOBL policy and copying to a new locale" on page 79
- "Creating a new policy" on page 80
- "Promoting a maintenance environment to an operation environment" on page 83
- "Creating a new maintenance environment" on page 85
- "Guidelines for exporting and importing" on page 89

Starting the Policy Services user interface

To perform an initial installation of a domain, you must first start the Policy Services user interface.

Procedure

1. In the ISPF Primary Option Menu panel, select option **6** (**Command**).
   The ISPF Command Shell is displayed.
2. Invoke the Policy Services client interface by using one of the following methods:
   - To access Policy Services from the IMS Tools Base main menu, enter the following command:

     ```
     EX   'hlq.SHKTCEXE(HKTAPPL)' 'HLQ(hlq)'
     ```

     Substitute the *hlq* variable with the installation data set high level qualifier.

     After you submit the command, the IMS Tools Base main menu opens. Select option **2** (**Policy Services**) and press Enter.
   - To access Policy Services directly, enter the following command:

     ```
     EX 'hlq.SHKTCEXE(BSNZPRIM)' 'HLQ(hlq)'
     ```

     Substitute the *hlq* variable with the installation data set high level qualifier.

   The Policy Services user interface starts, and the Policy Services Setup: Select XCF Group Name panel is displayed.

```
Help
-------------------------------------------------------------------------------
                  Policy Services Setup: Select XCF Group Name
Command ===>

Type the XCF group name, and press Enter.

* XCF group name . . . . .__________


Do you want to get the exception messages at phase 1 of policy evaluation?
If not sure, contact your system administrator. In the meantime, leave it
unchanged (U).

 * Enter Y or N or U . . . U


Do you want to perform RECON/LOCALE maintenance?

* Enter Y or N . . . . . N
```

Figure 10: Policy Services Setup: Select XCF Group Name panel

Copying rules

You can copy IBM. rules to your own locale.

About this task

You can copy IBM. and optionally customize the rules to apply appropriately to your environment. The copy and customize tasks can be performed as part of the initial Policy Services setup, or the tasks can be performed at a later time.

The rule threshold values can be modified.

The Manage Rules panel lists all IBM. rules and all locale-specific rules (copied from the BSNGLOBL rule template).

Because rules can be copied and modified, you must be aware of the following possible copy and modify combinations:

Scenario 1: Modify an IBM. rule now, and then copy the rule to a new locale (or locales)

In this scenario, you can modify the IBM. version of the rule threshold values.
You then copy this modified version to one or more locales.

This is generally the most logical scenario to follow.

From the Manage Rules panel, you perform the following row actions in this order:

1. S - Select rule to customize
2. C - Copy IBM.*xxxxx* rule (to another locale)

Scenario 2: Copy an IBM. rule to a new locale (or locales), and then modify the copied rule now

In this scenario, you copy the IBM. rule from BSNGLOBL to one or more locales and then modify the copied version of the rule threshold values.
The danger of this scenario is that the rule template remaining in the BSNGLOBL locale is now different from the modified version of the rule in the new locale.

From the Manage Rules panel, you perform the following row actions in this order:

1. C - Copy IBM.*xxxxx* rule (to another locale)
2. S - Select rule to customize

Scenario 3: Copy an IBM. rule to a new locale (or locales) now, and modify the copied rule later or not at all

In this scenario, you copy the IBM. rule from BSNGLOBL to one ore more locales, but you modify the copied version of the rule at a later date, or not at all.
From the Manage Rules panel, you perform the following row action:

1. C - Copy IBM.*xxxxx* rule (to another locale)

Scenario 4: Modify the original IBM. version of the rule now, and do not copy the rule to any locale (or locales)

In this scenario, you modify the IBM. rule in the BSNGLOBL locale, but you do not copy the rule to a new locale (or locales). The rule template is now modified and ready for copying at a later time.
From the Manage Rules panel, you perform the following row action:

1. S - Select rule to customize

Scenario 5: Copy the IBM. rule to a new locale (or locales) later, and modify the copied rule later

In this scenario, you copy the IBM. rule in the BSNGLOBL locale at a later date. Additionally, you modify the copied rule at a later date.

> **Remember:** All Policy Services user interface panels provide field-specific and panel-specific help information when you press Help (PF1).

Procedure

To modify an IBM. rule now, and then copy the rule to a new locale (scenario 1), complete the following steps:

1. In the Policy Services Main Menu: Maintenance panel, select option **6** (**Maintenance management**), and press Enter.
   The Maintenance Management panel is displayed.
2. Select option **2** (**Customize rule templates**), and press Enter.
   The Customize Rule Template panel is displayed.

```
  Sort by  Help
------------------------------------------------------------------------------
REORG/MAINTENANCE   Customize Rule Template                 Row 1 to 19 of 21
Command ===>

Type a row action, then press Enter.
A: Row Action: C - Copy IBM. rule           F - Mark as customized
               L - List policies for rule   M - View rule in maint env.
               O - View rule in orig. env.  R - List of cloned rules
               S - Select rule to customize V - View maintenance info
A Rule Name                     Installed  Customized Copied
  IBM.AVG_DBREC_LEN.10          INSTALLED
  IBM.CICA_SPLITS.10            INSTALLED
  IBM.DBDS_EXTENTS.10           INSTALLED
  IBM.DBDS_GROWTH.10            INSTALLED
  IBM.DBDS_GROWTH.20            INSTALLED
  IBM.DBDS_GROWTH.30            INSTALLED
  IBM.DEDB_DBREC_IO.10          INSTALLED
  IBM.DEDB_DBREC_IO.20          INSTALLED
  IBM.DEDB_DBRECCNT.10          INSTALLED
  IBM.DEDB_FS.10                INSTALLED
  IBM.DEDB_FS.20                INSTALLED
```

Figure 11: Customize Rule Template panel

3. Type the S row action (Select rule to customize) on the rule that you want to modify (for example, IBM.AVG_DBREC_LEN.10), and press Enter.
   The View/Update Rule panel is displayed.

```
  Help
-------------------------------------------------------------------------------
REORG/MAINTENANCE                          View/Update Rule     Row 1 to 3 of 3

View rule/update threshold set and values. End to exit.
Locale  . . . . . : BSNGLOBL  Rule name . . : IBM.AVG_DBREC_LEN.10
Description . . . :
Average length of database records
Exception class . : AVERAGE_DB_RECORD_LENGTH
Resource types:
HDAM HIDAM PHDAM PHIDAM HISAM SHISAM
Message: The average length of database records in %RESOURCE% has reached
         or exceeded a threshold
Threshold value set.
A: Row Actions: V - Display  U - Update  D - Delete  A - Add  F - View formula
A Threshold
  LOW
  MED
  HIGH
****************************** Bottom of data ********************************
```

4. Type the U row action (Update) on a threshold set row (for example, LOW), and press Enter.
   The Update/Add Threshold Value Set panel is displayed.

```
  Commands  Help
-------------------------------------------------------------------------------
REORG/MAINTENANCE     Update/Add Threshold Value Set           Row 1 to 1 of 1

Update the threshold values and press Enter to commit the updates. Acceptable
range for each threshold value is shown in the Description field. Press Cancel
to remove all updates and exit. Use the Commands menu to display the rule
evaluation formula.

Locale  . . . . . : BSNGLOBL  Rule name  : IBM.AVG_DBREC_LEN.10
Value set for threshold : LOW
ID#     Value                              Description
&1  85899345920   Numeric, range: 0 to 8589934592000
                  Data element name:  DB_AVG_DBREC_LENGTH
                  The average length of database records in the database, the
                  partition, or the area.
****************************** Bottom of data ********************************
```

5. Note in the Description column the valid range allowed for the threshold you want to change. Type the new threshold value, and press Enter.
6. When you have completed all modifications to this rule, press Enter.
   A Confirmation window is displayed.

```
                Confirmation

Confirm you want to commit the changes.

Do you want to commit all changes
for rule: IBM.AVG_DBREC_LEN.10

                Y  (Y/N)
```

7. Type Y (Yes) to commit all changes that you made to this rule, and press Enter.
   The Manage Rules panel is displayed.
8. Type the C row action (Copy IBM. rule) on the row of the first rule you want to copy (for example, IBM.AVG_DBREC_LEN.10), and press Enter.
   The Locales in Current Environment panel is displayed.

```
  Help
------------------------------------------------------------------------------
REORG/MAINTENANCE   Locales in Current Environment          Row 1 to 4 of 6
Command ===>

Rule name to copy to new locale(s) . : IBM.AVG_DBREC_LEN.10

Enter ALL for all locales.
Enter row action for one or more locales.
A: Row Action: S- select locale

A   Locale    Description
_   MYRECON1  MyRecon1
_   MYRECON2  MyRecon2
_   MYRECON3  MyRecon3
_   MYRECON4  MyRecon4
```

Figure 12: Locales in Current Environment panel

All listed locales were established during the Policy Services post-installation process using the IMS Tools Knowledge Base user/administration interface.

9. Type the S row action (Select locale) on the row of the appropriate locale (or locales), and press Enter. You can also type ALL in the command line to select all listed locales.

   The Customize Rule Template panel is displayed again.

   The Copied column is updated to indicate that the rule has been copied to your locale (COPIED).

   A message is also displayed to indicate the success of the task:

```
Rule IBM.AVG_DBREC_LEN.10 copied to new locale(s)
```

```
  Sort by  Help
------------------------------------------------------------------------------
REORG/MAINTENANCE   Customize Rule Template                 Row 1 to 19 of 21
Command ===>
Rule IBM.AVG_DBREC_LEN.10 copied to new locale(s)
Type a row action, then press Enter.
A: Row Action: C - Copy IBM. rule           F - Mark as customized
               L - List policies for rule   M - View rule in maint env.
               O - View rule in orig. env.  R - List of cloned rules
               S - Select rule to customize V - View maintenance info
A Rule Name                     Installed  Customized Copied
  IBM.AVG_DBREC_LEN.10          INSTALLED             COPIED
  IBM.CICA_SPLITS.10            INSTALLED             COPIED
  IBM.DBDS_EXTENTS.10           INSTALLED             COPIED
  IBM.DBDS_GROWTH.10            INSTALLED             COPIED
  IBM.DBDS_GROWTH.20            INSTALLED             COPIED
  IBM.DBDS_GROWTH.30            INSTALLED             COPIED
  IBM.DEDB_DBREC_IO.10          INSTALLED             COPIED
  IBM.DEDB_DBREC_IO.20          INSTALLED             COPIED
  IBM.DEDB_DBRECCNT.10          INSTALLED             COPIED
  IBM.DEDB_FS.10                INSTALLED             COPIED
  IBM.DEDB_FS.20                INSTALLED             COPIED
```

Figure 13: Customize Rule Template panel

10. Repeat the copy procedure for each remaining rule you want to copy. You can only perform this task one rule at a time.
11. Press End (PF3).
    The Maintenance Management panel is displayed.
12. Press End (PF3).
    The Policy Services Main Menu: Maintenance panel is displayed.

Customizing BSNGLOBL or locale-specific rules

You can modify and copy IBM. rules to your own locale.

About this task

You can copy IBM. rules and customize the rules to apply appropriately to your environment. The copy and customize tasks can be performed now as part of the Policy Services setup, or the tasks can be performed at a later time.

The following rule threshold values can be modified.

The Manage Rules panel lists all IBM. rules and all locale-specific rules (copied from the BSNGLOBL rule template).

Because rules can be copied and modified, you must be aware of the following copy and modify combinations:

Scenario 1: Modify an IBM. rule now, and then copy the rule to a new locale (or locales)

In this scenario, you can modify the IBM. rule threshold values in BSNGLOBL.
You then copy this modified version to one or more locales.

This is generally the most logical scenario to follow.

From the Manage Rules panel, you perform the following row actions in this order:

1. S - Select rule to customize
2. C - Copy IBM.*xxxxxx* rule (to another locale)

Scenario 2: Copy an IBM. rule to a new locale (or locales), and then modify the copied rule now

In this scenario, you copy the IBM. rule from BSNGLOBL to one or more locales and then modify the copied version of the rule threshold values.
The danger of this scenario is that the rule template remaining in the BSNGLOBL locale is now different from the modified version of the rule in the new locale.

From the Manage Rules panel, you perform the following row actions in this order:

1. C - Copy IBM.*xxxxxx* rule (to another locale)
2. S - Select rule to customize

Scenario 3: Copy an IBM. rule to a new locale (or locales) now, and modify the copied rule later or not at all

In this scenario, you copy the IBM. rule from BSNGLOBL to one ore more locales, but you modify the copied version of the rule at a later date, or not at all.
From the Manage Rules panel, you perform the following row action:

1. C - Copy IBM.*xxxxxx* rule (to another locale)

Scenario 4: Modify the original IBM. version of the rule now, and do not copy the rule to any locale (or locales)

In this scenario, you modify the IBM. rule in the BSNGLOBL locale, but you do not copy the rule to a new locale (or locales). The rule template is now modified and ready for copying at a later time.
From the Manage Rules panel, you perform the following row action:

1. S - Select rule to customize

Scenario 5: Copy the IBM. rule to a new locale (or locales) later, and modify the copied rule later

In this scenario, you copy the IBM. rule in the BSNGLOBL locale at a later date. Additionally, you modify the copied rule at a later date.

> **Remember:** All Policy Services user interface panels provide field-specific and panel-specific help information when you press Help (PF1).

Procedure

To modify a BSNGLOBL or locale-specific IBM. rule now, complete the following steps:

1. In the Policy Services Main Menu: Maintenance panel, select option **2** (**Rules management**), and press Enter.
   The Manage Rules panel is displayed.

```
  Commands  View  Help
------------------------------------------------------------------------------
REORG/MAINTENANCE                          Manage Rules      Row 1 to 17 of 21
Command ===>

Select a row action or a command from the commands menu. End to exit.
Resource types selected:     (Active logic: OR)
HDAM HIDAM PHDAM PHIDAM HISAM SHISAM DEDB INDEX PSINDEX


S: Status     : V - Viewed/Updated  P - Listed policies referencing this rule.
A: Row Actions: V - View rule details and optionally update them.
                P - List policies referencing this rule.
A S Locale   Rule Name            Description
    BSNGLOBL IBM.AVG_DBREC_LEN.10 Average length of database records
    BSNGLOBL IBM.CICA_SPLITS.10   KSDS CI or CA splits in HISAM and SHISAM
    BSNGLOBL IBM.DBDS_EXTENTS.10  Availability of data set extents
    BSNGLOBL IBM.DBDS_GROWTH.10   Growth data set size
    BSNGLOBL IBM.DBDS_GROWTH.20   Percentage growth data set and free space
    BSNGLOBL IBM.DBDS_GROWTH.30   Growth data set size full of segment data
    BSNGLOBL IBM.DEDB_DBREC_IO.10 Average number of I/Os per database record
    BSNGLOBL IBM.DEDB_DBREC_IO.20 Maximum number of I/Os per database record
    BSNGLOBL IBM.DEDB_DBRECCNT.10 Number of database records in a DEDB area
```

Figure 14: Manage Rules panel

2. Type the V row action (View rule details and optionally update them) on the rule you want to modify, and press Enter.
   The View/Update Rule panel is displayed.

```
  Help
------------------------------------------------------------------------------
REORG/MAINTENANCE                          View/Update Rule      Row 1 to 6 of 6
Command ===>

View/Update message or threshold values. To exit View: End, Update: Enter.
Locale  . . . : BSNGLOBL  Rule name . . : IBM.AVG_DBREC_LEN.10
Description . : Simple rule on the average length of database records
Resource types:
HDAM HIDAM PHDAM PHIDAM HISAM SHISAM
Message: The average length of database records in %RESOURCE% has reached
         or exceeded a threshold
Threshold value set.
A: Row Actions: V - Display  U - Update  D - Delete  A - Add  F - View formula
A Threshold
  LOW
  MED
  HIGH
  MYLOW
  MYMED
  MYHIGH
****************************** Bottom of data ********************************
```

Figure 15: View/Update Rule panel

3. You can modify the rule thresholds, one at a time, by typing the U row action (Update) on the threshold row.
   You can exit this panel without saving changes by pressing PF3 and responding to the Confirmation prompt.

4. To save all changes made to this rule, press Enter.
   A Confirmation window is displayed.

```
               Confirmation
Command ===>

Confirm you want to commit the changes. End
to exit.

Do you want to commit all changes
for rule: IBM.AVG_DBREC_LEN.10

               Y  (Y/N)
```

Figure 16: Confirmation window

5. Type Y (Yes) and press Enter.
   The Manage Rules panel is displayed.
6. Press PF3 to return to the Policy Services Main Menu: Maintenance panel.

Modifying rule thresholds

You can modify the numerical values for the LOW, MED, HIGH threshold sets.

About this task

Policies depend on the condition and exception expressions provided by rules in order to evaluate the state of a database. The condition expression refers to one or more threshold values that indicate the boundary, or limit, for the database state.

The following rule attributes can be modified:

– Rule threshold values

> **Remember:** All Policy Services user interface panels provide field-specific and panel-specific help information when you press Help (PF1).

Procedure

To modify threshold range settings, complete the following steps:

1. In the Policy Services Main Menu: Maintenance panel, select option **2** (**Rules management**), and press Enter.
   The Manage Rules panel is displayed.

```
  Commands  View  Help
------------------------------------------------------------------------------
REORG/MAINTENANCE                          Manage Rules     Row 1 to 17 of 31
Command ===>

Select a row action or a command from the commands menu. End to exit.
Resource types selected:     (Active logic: OR)
HDAM HIDAM PHDAM PHIDAM HISAM SHISAM DEDB INDEX PSINDEX


S: Status     : V - Viewed/Updated  C - Copied  P - Policies listed
A: Row Actions: V - View rule details and optionally update them.
                C - Copy the selected rule to another locale.
                P - List policies referencing this rule.
A S Locale   Rule Name            Description
_   BSNGLOBL IBM.AVG_DBREC_LEN.10 Average length of database records
_   BSNGLOBL IBM.CICA_SPLITS.10   KSDS CI or CA splits in HISAM and SHISAM
_   BSNGLOBL IBM.DBDS_EXTENTS.10  Availability of data set extents
_   BSNGLOBL IBM.DBDS_GROWTH.10   Growth data set size
_   BSNGLOBL IBM.DBDS_GROWTH.20   Percentage growth data set and free space
_   BSNGLOBL IBM.DBDS_GROWTH.30   Growth data set size full of segment data
_   BSNGLOBL IBM.DEDB_DBREC_IO.10 Average number of I/Os per database record
_   BSNGLOBL IBM.DEDB_DBREC_IO.20 Maximum number of I/Os per database record
_   BSNGLOBL IBM.DEDB_DBRECCNT.10 Number of database records in a DEDB area
```

Figure 17: Manage Rules panel

2. Type the V row action (View rule details and optionally update them) on the rule you want to modify, and press Enter.
   The View/Update Rule panel is displayed.

```
  Help
-------------------------------------------------------------------------------
REORG/MAINTENANCE                          View/Update Rule      Row 1 to 6 of 6
Command ===>

View rule details and optionally update threshold settings. Press End to exit.

Locale  . . . : BSNGLOBL  Rule name . . : IBM.AVG_DBREC_LEN.10
Description . : Simple rule on the average length of database records
Average length of database records

Resource types:
HDAM HIDAM PHDAM PHIDAM HISAM SHISAM
Message: The average length of database records in %RESOURCE% has reached
         or exceeded a threshold
Threshold value set.
A: Row Actions: V - Display  U - Update  D - Delete  A - Add  F - View formula
A Threshold
_ LOW
_ MED
_ HIGH
_ MYLOW
_ MYMED
_ MYHIGH

****************************** Bottom of data ********************************
```

Figure 18: View/Update Rule panel

3. Type the F row action (View formula) on a threshold set row (for example, LOW) to view the condition description for this rule, and press Enter.
   The Evaluation Formula Description (Rule Condition Description) panel is displayed.

```
  Help
-------------------------------------------------------------------------------
REORG/MAINTENANCE                 Evaluation Formula Descri Row 1 to 12 of 12

Rule name  . . . . . . . . : IBM.RANDOMIZING.10    Locale . . : MYRECON3
Value set for threshold  . : LOW
&1=20, &2=20,
 Evaluation formula description
Specify thresholds on the percentage of unused root anchor
points (DB_PCT_NUM_UNUSED_RAP) and the percentage of root
segments on synonym chains (DB_PCT_NUM_SYNONYM).
   DB_PCT_NUM_UNUSED_RAP: &1(20)
   DB_PCT_NUM_SYNONYM   : &2(20)

An exception is issued if both of these thresholds are
reached or exceeded. This condition indicates imbalanced
randomizing.

You can apply this rule to an HDAM database or a PHDAM
partition.
****************************** Bottom of data ********************************
```

Figure 19: Evaluation Formula Description (Rule Condition Description) panel

4. Press End (PF3) to return to the View/Update Rule panel.
5. Type the U row action (Update) on a threshold set row (for example, LOW), and press Enter.
   The Update/Add Threshold Value Set panel is displayed.

```
  Commands  Help
------------------------------------------------------------------------------
REORG/MAINTENANCE     Update/Add Threshold Value Set          Row 1 to 2 of 2

Update the threshold values and press Enter to commit the updates. Acceptable
range for each threshold value is shown in the Description field. Press Cancel
to remove all updates and exit. Use the Commands menu to display the rule
evaluation formula.

Locale  . . . . . : MYRECON3  Rule name  : IBM.RANDOMIZING.10
Value set for threshold : LOW
ID#     Value                              Description
&1  20            Numeric, range: 0 to 100
                  Data element name:  DB_PCT_NUM_UNUSED_RAP
                  The percentage of unused root anchor points compared to the
                  total root anchor points.
&2  20            Numeric, range: 0 to 100
                  Data element name:  DB_PCT_NUM_SYNONYM
                  The percentage of synonyms compared to the total number of
                  root segment occurrences.
****************************** Bottom of data ********************************
```

Figure 20: Update/Add Threshold Value Set panel

6. Note in the Description column the valid range allowed for the threshold you want to change. Type the new threshold value, and press Enter.
   A Confirmation window is displayed.

```
                Confirmation
Command ===>

Confirm you want to commit the changes.

Do you want to commit all changes
for rule: IBM.RANDOMIZING.10

                Y  (Y/N)
```

Figure 21: Confirmation window

7. Type Y (Yes) to commit all changes made to this rule, and press Enter.
   The Manage Rules panel is displayed.
8. Press End (PF3).
   The Policy Services Main Menu: Maintenance is displayed.

Defining custom rule threshold values for individual databases

In an environment of multiple databases, you can create a separate policy for each database, and then assign unique custom threshold values for a rule that is shared by those policies.

About this task

To specify custom threshold values for a rule that is used by multiple database policies:

1. Create separate policies for each database.
2. Create separate unique threshold values for the rule.
3. For each policy, specify the threshold values from the shared rule that are appropriate for that database.

You can add up to 20 threshold values for each rule.

The following figure shows how policies can use different threshold values from the same rule:

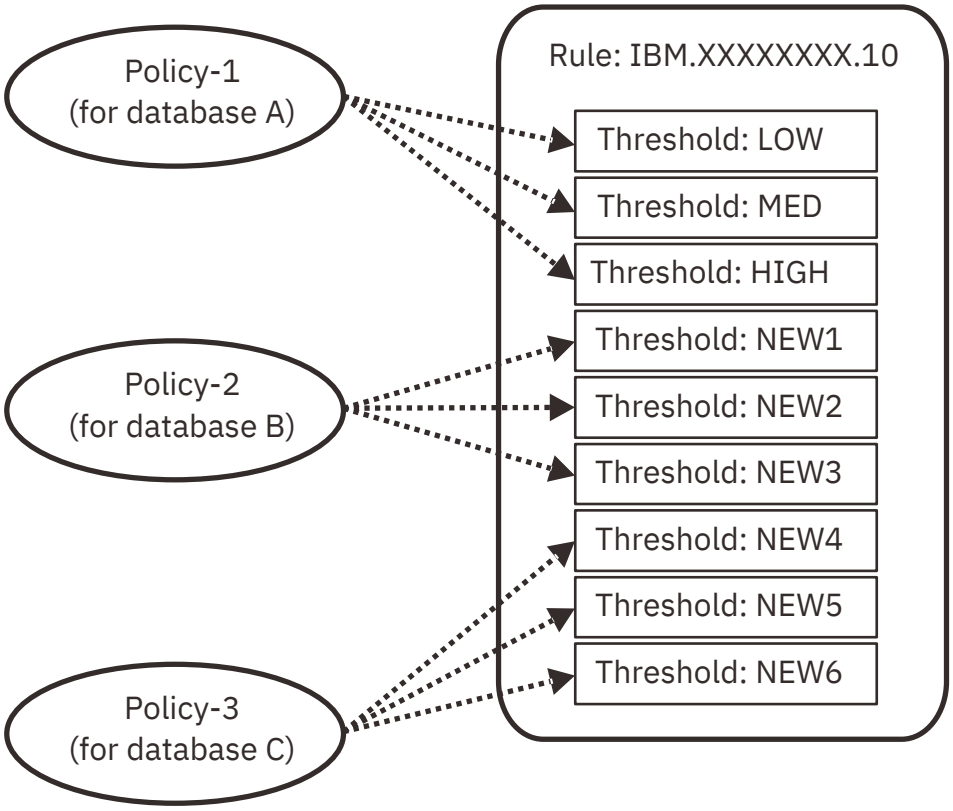


Figure 22: Specifying custom rule threshold values

Procedure

To specify different threshold values for each database, complete the following steps:

1. From the Policy Services Main Menu, select option **2** (**Rules management**), and press Enter.
   The Manage Rules panel is displayed.
2. Type the V (View) row action to select a rule that you want to add new thresholds to, and press Enter.
   The View/Update Rule panel is displayed.
3. Type the A (Add) row action to add a new threshold, and press Enter.
   The Select new threshold name window is displayed.

```
  Help
-------------------------------------------------------------------------------
REORG/OPERATION                          View/Update Rule     Row 1 to 3 of 3

View rule/update threshold set and values. End to exit.
Locale  . . . . . : BSNGLOBL  Rule name . . : IBM.HDAM_OVERFLOW.10
Description . . . :
Percent of segment data overflow
Exception class . : EXCESSIVE_HDAM_OVERFLOW
Resource types:
HDAM PHDAM
Message: Overflow data in %RESOURCE% has increased

Threshold value set.
A: Row Actions: V - Display  U - U
A Threshold                      +----------------------------------------+
A LOW                            | Select new threshold name. It will be  |
  MED                            | initialized with the values of the     |
  HIGH                           | threshold on the selected row.         |
****************************** Bo |                                        |
                                 | Enter new threshold name               |
                                 | ____________                           |
                                 |                                        |
                                 | Command ===> _________________________ |
                                 |  F1=Help      F3=End       F5=RFind    |
                                 |  F7=Up        F8=Down      F10=Actions |
```

Figure 23: View/Update Rule panel

4. Type a new threshold name (up to 12 characters), and press Enter.
   The Update/Add Threshold Value Set panel is displayed.

   The valid range allowed for the threshold you want to change is shown in the Description column.

```
  Commands  Help
-------------------------------------------------------------------------------

REORG/OPERATION          Update/Add Threshold Value Set        Row 1 to 2 of 2

Update the threshold values and press Enter to commit the updates. Acceptable
range for each threshold value is shown in the Description field. Press Cancel
to remove all updates and exit. Use the Commands menu to display the rule
evaluation formula.

Locale  . . . . . : MYRECON3  Rule name  : IBM.RANDOMIZING.10
Value set for threshold : LOW
ID#     Value                            Description
&1  20           Numeric, range: 0 to 100
                 The percentage of unused root anchor points compared to the
                 total root anchor points.
&2  20           Numeric, range: 0 to 100
                 The percentage of synonyms compared to the total number of
                 root segment occurrences.
****************************** Bottom of data ********************************
```

Figure 24: Update/Add Threshold Value Set panel

5. Type the new threshold value, and press Enter.
   You return to the View/Update Rule panel.
6. Confirm that the new threshold is added to the Threshold value set field.

```
  Help
-------------------------------------------------------------------------------
REORG/OPERATION                          View/Update Rule     Row 1 to 4 of 4

View rule/update threshold set and values. End to exit.
Locale  . . . . . : BSNGLOBL  Rule name . . : IBM.HDAM_OVERFLOW.10
Description . . . :
Percent of segment data overflow
Exception class . : EXCESSIVE_HDAM_OVERFLOW
Resource types:
HDAM PHDAM
Message: Overflow data in %RESOURCE% has increased

Threshold value set.
A: Row Actions: V - Display  U - Update  D - Delete  A - Add  F - View formula
A Threshold
_ LOW
_ MED
_ HIGH
_ NEW1
 ****************************** Bottom of data ********************************
```

Figure 25: View/Update Rule panel

7. Repeat step 3 to step 6 until all required thresholds are created.

```
  Help
-------------------------------------------------------------------------------
REORG/OPERATION                          View/Update Rule     Row 1 to 4 of 4

View rule/update threshold set and values. End to exit.
Locale  . . . . . : BSNGLOBL  Rule name . . : IBM.HDAM_OVERFLOW.10
Description . . . :
Percent of segment data overflow
Exception class . : EXCESSIVE_HDAM_OVERFLOW
Resource types:
HDAM PHDAM
Message: Overflow data in %RESOURCE% has increased

Threshold value set.
A: Row Actions: V - Display  U - Update  D - Delete  A - Add  F - View formula
A Threshold
_ LOW
_ MED
_ HIGH
_ NEW1
_ NEW2
_ NEW3
****************************** Bottom of data ********************************
```

Figure 26: View/Update Rule panel

8. When you have completed adding thresholds to this rule, press Enter.
   The Confirmation window is displayed.

```
  Help
-------------------------------------------------------------------------------
REORG/OPERATION                          View/Update Rule     Row 1 to 6 of 6

View rule/update threshold set and values. End to exit.
Locale  . . . . . : BSNGLOBL  Rule name . . : IBM.HDAM_OVERFLOW.10
Description . . . :
Percent of segment data overflow
Exception class . : EXCESSIVE_HDAM_OVERFLOW
Resource types:
HDAM PHDAM
Message: Overflow data in %RESOURCE% has increased

Threshold value set.           +-----------------------------------------------+
A: Row Actions: V - Display  U |                Confirmation                   |
A Threshold                    |                                               |
  LOW                          | Confirm you want to commit the changes.       |
  MED                          |                                               |
  HIGH                         | Do you want to commit all changes             |
  NEW1                         | for rule: IBM.HDAM_OVERFLOW.10                |
  NEW2                         |                                               |
  NEW3                         |                 Y  (Y/N)                      |
****************************** |                                               |
                               |                                               |
                               |                                               |
                               |                                               |
                               |                                               |
                               |                                               |
                               |                                               |
                               | Command ===> _________________________________|
                               +-----------------------------------------------+
```

Figure 27: Confirmation panel

9. Type Y (Yes) to commit all changes that you made to this rule, and press Enter.
   The Manage Rules panel is displayed.
10. Press End (PF3) to return to the Policy Services Main Menu.
11. Select option **1** (**Policies management**), and press Enter.
    The Policies Management panel is displayed.
12. Refer to one of the following topics to create a new policy that uses the new thresholds created in the previous steps
    - “Creating a new policy from executable BSNGLOBL policy and copying to a new locale” on page 79
      Specify the new thresholds in step “9” on page 80.
    - “Creating a new policy” on page 80
      Specify the new thresholds in step “10” on page 82.

```
  Commands  Help
-------------------------------------------------------------------------------
REORG/OPERATION                    Select Thresholds And Actio Row 1 to 6 of 6

Select a threshold and press Enter to be prompted to choose an action-level to
be used when the rule condition evaluates to true. When finished press Enter
to choose rule-threshold notification lists. Press End to eliminate all
threshold selections.
Locale  . . : BSNGLOBL  Policy name  . . : NEW.HDAM1
Locale  . . : BSNGLOBL  Rule name  . . . : IBM.HDAM_OVERFLOW.10
Description : Percent of segment data overflow

A: Row Actions: S - Select Threshold   U - Unselect
   Status:      S - Selected   O - Part of original policy. (Update only)

A   S  Threshold      Action        Level         Onmissing
_      LOW
_      MED
_      HIGH
_   S  NEW1           MESSAGE       WARNING       SKIPEVAL
_   S  NEW2           MESSAGE       SEVERE        SKIPEVAL
_   S  NEW3           MESSAGE       CRITICAL      SKIPEVAL
 ****************************** Bottom of data ********************************
```

Figure 28: Select Thresholds and Actions panel

Managing notification lists and directory entries

Directory entries and notification lists are used by Policy Services to define users who can receive exception notifications and summary messages that are sent out to warn or report on results of policy evaluations.

Topics:

- "Notification lists and directory entries overview" on page 63
- "Creating directory entries" on page 64
- "Modifying directory entries" on page 70
- "Creating notification lists" on page 70
- "Modifying notification lists" on page 72
- "Viewing and modifying the SMTP variables for email and texting" on page 73
- "Notifying users of phase 1 exception messages" on page 74

Notification lists and directory entries overview

Directory entries and notification lists are used by Policy Services to define users who can receive exception notifications and summary messages that are sent out to warn or report on results of policy evaluations.

About directory entries

A single directory entry defines a name of a user, the connection type (such as WTO or TSO), and all connection specifications that are required to deliver a message to that user. You use the Policy Services user interface to define directory entries.

Directory entries are used to populate one or more notification lists. Notification lists are used by a policy when a rule exception occurs and the resulting action requires that a warning message or a summary message be sent to appropriate users, as defined by the notification list mechanism.

Policy Services supports two directory entry types:

- WTO
- USER

The WTO directory entry contains the following information fields:

- Short name
- Long name
- Description
- Delivery type:
  - WTO

The USER directory entry contains the following information fields:

- Short name
- Long name
- Description
- Delivery type:
  - TSO
  - E-MAIL
  - TEXTING

About notification lists

A notification list is a mechanism for grouping users into a list that represents a unique business category, such as all DBAs, or all users who represent an installation application area or a set of databases associated with a given application or location.

The notification list is created by including the directory entry short names of the users who are appropriate for the required notification category. Notification lists can contain both directory entries and other notification lists.

The short name used in a notification list maps to the directory entry of that user. The directory entry contains the information (for example, TSO or email address) necessary to deliver messages. You use the Policy Services user interface to define lists that include one or more directory entries.

A policy and each rule in the policy can refer to one or more notification lists. The directory entries contain the information such as user name, destination type, destination address, and description.

It is important that you follow a logical naming convention that distinguishes directory entries from notifications lists. This naming convention should allow ease of use and maintenance. All directory entry names and notification list names must be unique.

Creating directory entries

Directory entries and notification lists are used by Policy Services to define users who can receive exception notifications and summary messages that are sent out to warn or report on results of policy evaluations.

In this topic:

- "Creating a WTO directory entry" on page 64
- "Creating a USER directory entry" on page 66

Creating a WTO directory entry

You can create a WTO directory entry that defines the name of a user, the connection type (WTO), and all connection specifications that are required to deliver a message to that user.

Procedure

To create a WTO directory entry:

1. From the Policy Services Main Menu: Maintenance panel, select option **3** (**Notification lists, directory entries management**), and press Enter.
   The Notification Lists, Directory Entries Management panel is displayed.

```
   Help
------------------------------------------------------------------------------
REORG/MAINTENANCE   Notification Lists, Directory Entries Management
Option ===>


Select an option, and press Enter.

 1 - Create directory entry
 2 - Manage directory entries
 3 - Create a new notification list
 4 - Manage notification lists
 5 - View/Update SMTP variables for e-mail/texting
 6 - View/Update TSO JCL job card for TSO-send
```

Figure 29: Notification Lists, Directory Entries Management panel

2. Select option **1** (**Create directory entry**), and press Enter.
   The Choose Directory Entry Type panel is displayed.

```
  Help
------------------------------------------------------------------------------
                           Choose Directory Entry Type
Option ===>

Select a Directory entry type.

 1   - Create directory entry of type WTO
 2   - Create directory entry of type USER
```

Figure 30: Choose Directory Entry Type panel

3. Select option **1** (**Create directory entry of type WTO**) and press Enter.
The Create a WTO Directory Entry panel is displayed.

```
  Help
------------------------------------------------------------------------------
REORG/MAINTENANCE                 Create a WTO Directory Entry
Command ===>

Select short and long name. Press Enter to commit the entries. Press End to
cancel all entries.
Short name  . .user1
Long name . . .user1

   The following entry is optional:
Description
DBA
```

Figure 31: Create a WTO Directory Entry panel

4. Specify a short name, long name, and description (optional) and press Enter.
The Create WTO Delivery Type panel is displayed.

```
  Help
------------------------------------------------------------------
REORG/MAINTENANCE   Create WTO Delivery Type
Command ===>

Short name  . : user1
Long name . . : user1
Description
DBA
Enter 4 bytes CONSID or 8 bytes CONSNAM and select options. Press
Enter to continue. Press End to exit.

CONSID/CONSNAM  . .

WTO delivery options
                              WTO address type
Routing1  . . . . .              1. Consid
Routing2  . . . . .              2. Consname
Descriptor Code . .
Key . . . . . .
```

Figure 32: Create WTO Delivery Type panel

5. Optional: Specify the WTO delivery type options and press Enter.

CONSID/CONSNAME

Specify the console ID (CONSID) or console name (CONSNAME) used to route messages. Console IDs must be 4 characters. Characters are alphanumeric only; no special characters allowed. Console names must be from two to eight characters and cannot start with a digit. Characters are alphanumeric and can also include the characters #, $, and @.

WTO delivery options

Routing Codes

The routing codes determine which console or consoles receive the message. Each code represents a predetermined subset of the consoles that are attached to the system, and that are able to display the message.
The installation must define to the system which routing codes are being received by each console.

The appropriate routing codes delivery option must then be set for the defined destination entry if the WTO is to be routed to additional devices.

- Routing1: Provide location routing code (optional)
- Routing2: Provide location routing code (optional)

Descriptor code (default=5) (optional)

Use descriptor code 5, rather than MCSFLAG, to indicate a command response.

Key (optional)

For the convenience of the operator, you can associate messages with individual key names. A key name consists of one to eight alphanumeric characters, and it accompanies the message on the console.

The key name can be used as an operand in the DISPLAY R console command, which operators can issue at the console.

WTO address type

Specify the address type to route messages to:

- 1. Consid - Route messages by console ID.
- 2. Consname - Route messages by console name.

If the CONSID or CONSNAME is specified and the routing codes are specified, the message or messages are sent to all the consoles that are specified by both sets of parameters.

6. Press PF3 until you return to the Policy Services Main Menu: Maintenance panel.

Creating a USER directory entry

You can create a USER directory entry that defines the name of a user, the connection type (email, text message, or TSO), and all connection specifications that are required to deliver a message to that user.

Procedure

To create a USER directory entry:

1. From the Policy Services Main Menu: Maintenance panel, select option **3** (**Notification lists, directory entries management**), and press Enter.
The Notification Lists, Directory Entries Management panel is displayed.

```
   Help
-------------------------------------------------------------------------------
REORG/MAINTENANCE   Notification Lists, Directory Entries Management
Option ===>


Select an option, and press Enter.

 1 - Create directory entry
 2 - Manage directory entries
 3 - Create a new notification list
 4 - Manage notification lists
 5 - View/Update SMTP variables for e-mail/texting
 6 - View/Update TSO JCL job card for TSO-send
```

Figure 33: Notification Lists, Directory Entries Management panel

2. Select option **1** (**Create directory entry**), and press Enter.
The Choose Directory Entry Type panel is displayed.

```
  Help
-------------------------------------------------------------------------------
                          Choose Directory Entry Type
Option ===>

Select a Directory entry type.

 1   - Create directory entry of type WTO
 2   - Create directory entry of type USER
```

Figure 34: Choose Directory Entry Type panel

3. Select option **2** (**Create directory entry of type USER**), and press Enter.
The Create Directory Entry panel is displayed.

```
  Help

--------------------------------------------------------------------------------

REORG/OPERATION       Create Directory Entry                  Row 1 to 3 of 3


Select short and long names. Then select delivery types. Press Enter to commit
the entries. Press End to cancel all entries.
Short name  . . _____________________
Long name . . . _____________________
Description(optional)
_____________________________________________________________________
Active(A/N/R)   A  Delegate  . . . ____________________  (Optional)
Delegate delivery type . . . . . . ________  TSO or E-MAIL or TEXTING or WTO
Suppress repeated notifications    N

Create the delivery types for this directory entry.
A: Row Actions:  S - Select          S : Status:  S - Selected

A S Delivery type
_   TSO
_   E-MAIL
_   TEXTING
```

Figure 35: Create Directory Entry panel

Short name

The unique name that is used in a notification list to identify the directory entry for this user.

Long name

The name used to identify the user to the Policy Services system.

Description

(Optional) The description of the users responsibilities.

Active (A/N/R)

The status of the user. Values are:

A

User is active on the system, and messages are not rerouted. This is the default.

N

User is not active on the system, and messages are not rerouted.

R

User is not active on the system, but messages are rerouted to the specified delegate.

Delegate

The short name used to identify an alternate user to which a message can be rerouted. Message rerouting to a delegate is valid only when Active=R.

Delegate delivery type

(Optional) The delivery type for messages sent to the specified delegate: Values are:

- TSO
- E-MAIL
- TEXTING

Suppress repeated notifications

The suppression option for repeated notification messages.

Y

Notification message for the same exception is sent only once.

N

Notification message for the same exception is sent each time the exception is detected by policy evaluation. The default is N.

Delivery type

The delivery type for messages sent to the user. Values are:

- TSO
- E-MAIL
- TEXTING

4. Specify the USER directory type information and press Enter.
The TSO, E-MAIL, and TEXTING Delivery Type panels are shown.

```
  Help
---------------------------------------------------------------
REORG/MAINTENANCE   Create TSO Delivery Type
Command ===>

Short name  . : USER4
Long name . . : user4
Description



Enter TSO destination address and select options. Press Enter to
continue. Press End to exit.

TSO destination . . usertso
Delivery options
1  1. Now                            2  1. Wait
   2. Logon                             2. Nowait
   3. Save
```

Figure 36: Create TSO Delivery Type panel

TSO destination

The 1- to 7-byte TSO user ID of the recipient.

> **Important:** Policy Services supports only 1- to 7- byte TSO user IDs.

Delivery options

Message send options:

- 1. Now - Specifies that the message is sent immediately. This is the default.
- 2. Logon - Specifies that the message is sent now (if the user is currently logged on) or saved in the broadcast data set until the specified user logs on.
- 3. Save - Specifies that the message is saved in the broadcast data set and not immediately sent.

Message receive options:

- 1. Wait - Specifies that the sender waits for logged-on users to receive the message.
- 2. Nowait - Specifies that the sender does not wait for logged-on users to receive the message. This is the default.

```
  Help
-----------------------------------------------
REORG/MAINTENANCE   Create E-mail Delivery Type
Command ===>

Short name  . : USER4
Long name . . : user4
Description


Enter E-mail address.
localaddress@hostaddress
```

Figure 37: Create E-mail Delivery Type panel

Enter E-mail address

The 1 - 255 byte email address of the recipient. Where *localaddress@hostaddress*:

localaddress

The local-part of the email address. A maximum of 64 characters are allowed. Valid characters for the local part of the address are: uppercase and lowercase letters, numbers, and characters (! # $ % & ' * + - / = ? ¬ _ ` { | } ~ .').

hostaddress

The domain part of the email address. Valid characters are: uppercase and lowercase letters, numbers, dash, and period.

The @ symbol is required between the local and host portions of the address.

For example:

```
SamSmith@us.mybank.com
```

```
  Help
-------------------------------------------------------------
REORG/MAINTENANCE   Create Texting Delivery Type
Command ===>

Short name  . : USER4
Long name . . : user4
Description


Enter the text address where the text message is to be sent.
phonenumber@hostaddress
```

Figure 38: Create Texting Delivery Type panel

Enter the text address where the text message is to be sent

The 1 - 76 byte text messaging address of the recipient. Where *phonenumber@hostaddress*:

phonenumber

The phone number. Only numerical characters are allowed. Parentheses () and dashes are not allowed within the number.

hostaddress

The SMS gateway. Valid characters are uppercase and lowercase letters, numbers, dashes, and periods. Consult your wireless carrier to determine the specific address.

The @ symbol is required between the phone number and the host portions of the address.

For example:

```
1234567890@messaging.phonecompany.com
```

5. Specify the TSO, E-MAIL, and TEXTING options as required and press Enter.
6. Press PF3 until you return to the Policy Services Main Menu: Maintenance panel.

Modifying directory entries

You can modify existing directory entries.

Procedure

To manage directory entries:

1. From the Policy Services Main Menu: Maintenance panel, select option **3** (**Notification lists, directory entries management**), and press Enter.
   The Notification Lists, Directory Entries Management panel is displayed.

```
   Help
------------------------------------------------------------------------------
REORG/MAINTENANCE   Notification Lists, Directory Entries Management
Option ===>


Select an option, and press Enter.

 1 - Create directory entry
 2 - Manage directory entries
 3 - Create a new notification list
 4 - Manage notification lists
 5 - View/Update SMTP variables for e-mail/texting
 6 - View/Update TSO JCL job card for TSO-send
```

Figure 39: Notification Lists, Directory Entries Management panel

2. Select option **2** (**Manage directory entries**), and press Enter.
   The Manage Directory Entry panel is displayed.

```
  Help
------------------------------------------------------------------------------
REORG/MAINTENANCE                    Manage Directory Entry   Row 1 to 4 of 4
Command ===>

Use row actions to work with the directory entries. Press Enter when ready to
commit. Press End to cancel.


A: Row Actions: D - Delete   U - Update   V - View    A - Add delivery type
S: Status:      D - Deleted  U - Updated  V - Viewed  A - Delivery type added

                          Delivery
A S Short Name            type      Description
    TESTUSER              E-MAIL
    TESTUSER              TEXTING
    TESTUSER              TSO
```

Figure 40: Manage Directory Entry panel

3. Select the row action for the directory entry and press Enter.
4. Press PF3 until you return to the Policy Services Main Menu: Maintenance panel.

Creating notification lists

Notification lists are used by Policy Services to define users who can receive exception notifications and summary messages that are sent out to warn or report on results of policy evaluations.

Procedure

1. From the Policy Services Main Menu: Maintenance panel, select option **3** (**Notification lists, directory entries management**), and press Enter.
   The Notification Lists, Directory Entries Management panel is displayed.

```
   Help
-------------------------------------------------------------------------------
REORG/MAINTENANCE   Notification Lists, Directory Entries Management
Option ===>


Select an option, and press Enter.

 1 - Create directory entry
 2 - Manage directory entries
 3 - Create a new notification list
 4 - Manage notification lists
 5 - View/Update SMTP variables for e-mail/texting
 6 - View/Update TSO JCL job card for TSO-send
```

Figure 41: Notification Lists, Directory Entries Management panel

2. From the Notification Lists, Directory Entries Management panel, select option **3** (**Create a new notification list**), and press Enter.
   The Create Notification List panel is displayed.

```
  Help
-------------------------------------------------------------------------------
REORG/MAINTENANCE                   Create Notification List
Command ===>

Enter new notification list name and locale and press Enter. Press End to
cancel.
Notification list name . . .
Locale . . . . . . . . . . . BSNGLOBL
Description
```

Figure 42: Create Notification List panel

3. Enter the required information to create a new notification list, and press Enter to continue.
   The Create Notification List panel is displayed.

```
  Help
-------------------------------------------------------------------------------
REORG/OPERATION                     Create Notification List  Row 1 to 5 of 8
Command ===>

Use row actions to select content of notification list. Press Enter when ready
to commit. Press End to cancel.
Notification list name . . : LISTA
Locale . . . . . . . . . . : BSNGLOBL
Description


Select appropriate directory entries or notification lists to be
included in the new notification list.
A: Row Actions: S - Select  U - Unselect        S: Status: S - Selected

A S Member name          L  Type     Directory/NTL Entry Description
    USERA                   E-MAIL   description
    USERB                   TSO      description
    USERC                   WTO      description
    USERD                   WTO      description
    USERE                   TSO      description
```

Figure 43: Create Notification List panel

Tip: Column "L" indicates which locale the notification list belongs to.

G

The BSNGLOBL locale.

R

> Same locale as the notification list being created.

4. Select the directory entries and notification lists (from the member name column) for this new notification list. Then press Enter.
   The Notification Lists, Directory Entries Management panel is displayed with a message indicating the creation of the new notification list.
5. From the Notification Lists, Directory Entries Management panel, select option **4** (**Manage notification lists**) to manage your notification lists.
   The Manage Notification List panel is displayed.

```
  Sort by  Help
------------------------------------------------------------------------------
REORG/OPERATION     Manage Notification Lists                 Row 1 to 1 of 1
Command ===>

Locale . . . . : BSNGLOBL

Type row action(s), then press Enter. Press End to exit.
A: Row Action: C - Copy notification list    D - Delete notification list
               U - Update Notification list  V - View notification list
               E - Expand notification list  L - List policies using the list

A Locale   Notification List Name  Description
  BSNGLOBL LIST01                 list01
```

Figure 44: Manage Notification List panel

6. Press PF3 until you return to the Policy Services Main Menu: Maintenance panel.

Modifying notification lists

You can modify existing notification list entries.

Procedure

To manage notification lists:

1. From the Policy Services Main Menu: Maintenance panel, select option **3** (**Notification lists, directory entries management**), and press Enter.
   The Notification Lists, Directory Entries Management panel is displayed.

```
   Help
------------------------------------------------------------------------------
REORG/MAINTENANCE   Notification Lists, Directory Entries Management
Option ===>


Select an option, and press Enter.

 1 - Create directory entry
 2 - Manage directory entries
 3 - Create a new notification list
 4 - Manage notification lists
 5 - View/Update SMTP variables for e-mail/texting
 6 - View/Update TSO JCL job card for TSO-send
```

Figure 45: Notification Lists, Directory Entries Management panel

2. Select option **4** (**Manage notification lists**), and press Enter.
   The Manage Notification Lists panel is displayed.

```
  Sort by  Help
------------------------------------------------------------------------------
REORG/MAINTENANCE   Manage Notification Lists                Row 1 to 1 of 1
Command ===>

Locale . . . . : ALL

Type row action(s), then press Enter. Press End to exit.
A: Row Action: C - Copy notification list    D - Delete notification list
               U - Update Notification list  V - View notification list
               E - Expand notification list  L - List policies using the list

A Locale   Notification List Name  Description
  BSNGLOBL LISTA                   ____________________________________________
```

Figure 46: Manage Notification Lists panel

3. Select the row action and press Enter.
4. Press PF3 until you return to the Policy Services Main Menu: Maintenance panel.

Viewing and modifying the SMTP variables for email and texting

You can view and modify existing SMTP variable settings for email and texting.

Procedure

To view and update the SMTP variables for email and texting:

1. From the Policy Services Main Menu: Maintenance panel, select option **3** (**Notification lists, directory entries management**), and press Enter.
   The Notification Lists, Directory Entries Management panel is displayed.

```
   Help
------------------------------------------------------------------------------
REORG/MAINTENANCE   Notification Lists, Directory Entries Management
Option ===>


Select an option, and press Enter.

 1 - Create directory entry
 2 - Manage directory entries
 3 - Create a new notification list
 4 - Manage notification lists
 5 - View/Update SMTP variables for e-mail/texting
 6 - View/Update TSO JCL job card for TSO-send
```

Figure 47: Notification Lists, Directory Entries Management panel

2. Select option **5** (**View/Update SMTP variables for e-mail/texting**), and press Enter.
   The Locale Selection panel is displayed.

```
  Help
------------------------------------------------------------
                              Locale Selection
Command ===>

Select one and only one locale. Press Enter to exit.

XCF Group Name . . . . . : FPQSRVT4


A: Row Actions: S - Select

A Locale name Locale Description
  BSNGLOBL    Policy Services Global Locale
```

Figure 48: Locale Selection panel

3. Select the Locale and press Enter.
   The View/Update EMAIL SMTP Variables panel is displayed.

```
  Help
-------------------------------------------------------------------------
REORG/MAINTENANCE               View/Update EMAIL SMTP Variables
Command ===>

View/Update EMAIL SMTP variables. To exit View: End, Update: ENTER.

Locale: . : BSNGLOBL

SMTP address space name . . . SMTP        SYSOUT class . . . B

MVS system name . . . . . . . IMSMVS

From: . . . IMS_Tools@COMPANY.COM

Subject:    IMS Tools Autonomics Policy Notification

Greeting:   Data Base Team

Closing:    Thanks

JOB CARD
//EMAIL    JOB 'EMAIL',MSGCLASS=H,MSGLEVEL=(1,1),CLASS=A,
//     TIME=1440,REGION=1M
```

Figure 49: View/Update EMAIL SMTP Variables panel

4. Modify the EMAIL SMTP variables and press Enter.
   The View/Update TEXTING SMTP Variables panel is displayed.

```
  Help
-------------------------------------------------------------------------
REORG/MAINTENANCE               View/Update TEXTING SMTP Variables
Command ===>

View/Update TEXTING SMTP variables. To exit View press End, to exit Update
press Enter.

Locale: . : BSNGLOBL

SMTP address space name  . . . SMTP         SYSOUT class  . . . B

MVS system name  . . . . . . . IMSMVS

From: . . . IMS_Tools@COMPANY.COM

Subject:    IMS Tools Autonomics Policy Notification

Greeting:   Data Base Team

Closing:    Thanks

JOB CARD
//EMAIL    JOB 'TEXTING',MSGCLASS=H,MSGLEVEL=(1,1),CLASS=A,
//     TIME=1440,REGION=1M
```

Figure 50: View/Update TEXTING SMTP Variables panel

5. Modify the TEXTING SMTP variables and press Enter.
6. Press PF3 until you return to the Policy Services Main Menu: Maintenance panel.

Notifying users of phase 1 exception messages

Policy Services can notify users of the exception messages that are generated during phase 1 of a policy evaluation.

About this task

During phase 1 of a policy evaluation, Policy Services determines whether a specific process action, such as a reorganization, is required. Phase 1 exception messages are available to the IMS Tools product that issues the policy evaluation, and the IMS Tools product controls whether phase 1 exception messages appear in any report.

By default, phase 1 exception messages are not sent to the notification directory entries of the specified notification list.

> **Important:** The default is different for Autonomics Director. Phase 1 exception messages from policy evaluations issued by Autonomics Director are always sent to the users in the specified notification list.

If there is a phase 2 of a policy evaluation, the phase 2 exception messages are always sent to the notification directory entries of the specified notification list.

If you want Policy Services to send the phase 1 exception messages to the users that you have identified in a specified notification list, you can enable these notifications with the following procedure.

Procedure

To notify users of phase 1 exception messages:

1. Access the Policy Services user interface.
   The Policy Services Setup: Select XCF Group Name panel is displayed.

```
  Help
------------------------------------------------------------
               Policy Services Setup: Select XCF Group Name
Command ===>

Type the XCF group name, and press Enter.

* XCF group name . . . . .FPQSPLEX


Do you want to get the exception messages at phase 1 of policy evaluation?
If not sure, contact your system administrator. In the meantime, leave it
unchanged (U).

 * Enter Y or N or U . . . U



Do you want to perform RECON/LOCALE maintenance?

* Enter Y or N . . . . . .N
```

   Figure 51: Policy Services Setup: Select XCF Group Name panel

2. Enter Y in response to the question, "Do you want to get the exception messages at phase 1 of policy evaluation?"
   The following values are possible responses to this question:

   Y

   Exception messages generated during phase 1 of a policy evaluation are sent to the notification directory entries that are defined in the notification list.

   N

   Exception messages generated during phase 1 of a policy evaluation are not sent to the notification directory entries that are defined in the notification list. N is the default.

   U

   The current setting remains unchanged. If the option has not been set, it defaults to N.

Modifying policy actions

You can modify the actions implemented by policies.

About this task

Policies define the mapping of both a rule exception and a severity level to a resulting action. For more information about actions, see “What is an action?” on page 30.

The resulting action for each rule exception can be modified. Different actions are acceptable for different rules.

> **Remember:** All Policy Services user interface panels provide field-specific and panel-specific help information when you press Help (PF1).

Procedure

To modify actions related to rules, complete the following steps:

1. In the Policy Services Main Menu: Maintenance panel, select option **1** (**Policies management**), and press Enter.
   The Policies Management panel is displayed.
2. In the Policies Management panel, select option **1** (**Manage policies**), and press Enter.
   The Manage Policies panel is displayed.
3. Type the U row action (Update) to select a policy that you want to modify actions for, and press Enter.
   The Policy Resource Types Selection panel is displayed.
4. Press Enter.
   If you have already created notification lists, the Policy Notification Lists Selection panel is displayed.

   Otherwise, the Policy Rules Selection panel is displayed; go to step "6" on page 76.
5. Press Enter.
   The Policy Rules Selection panel is displayed.
6. Type the S row action (Select) on a rule that is related to the actions you want to modify, and press Enter.
   The Select Thresholds And Actions panel is displayed, as shown in the following example.

```
  Commands  Help
------------------------------------------------------------------------------
REORG/OPERATION                   Select Thresholds And Actio Row 1 to 3 of 3

Select a threshold and press Enter to be prompted to choose an action-level to
be used when the rule condition evaluates to true. When finished press Enter
to choose rule-threshold notification lists. Press End to eliminate all
threshold selections.
Locale  . . : BSNGLOBL  Policy name  . . : SYS.DBDTYPE.FFDBALL
Locale  . . : BSNGLOBL  Rule name  . . . : IBM.IX_CICA_SPLIT.10
Description : CI or CA splits in an index primary data set

A: Row Actions: S - Select Threshold   U - Unselect
   Status:      S - Selected   O - Part of original policy. (Update only)

A   S  Threshold      Action        Level         Onmissing
_   O  LOW            MESSAGE       WARNING       SKIPEVAL
_   O  MED            MESSAGE       SEVERE        SKIPEVAL
_   O  HIGH           INDEXBLD      CRITICAL      SKIPEVAL
****************************** Bottom of data ********************************
```

Figure 52: Select Thresholds And Actions panel

In this example, the action for LOW threshold and the action for MED threshold are the same: MESSAGE.

The action for HIGH threshold is INDEXBLD.

The following steps describe the procedure to modify the action for HIGH threshold from INDEXBLD to REORG.

7. Type the S row action (Select Threshold) on a threshold that you want to modify actions for, and press Enter.
   The Action-Level Pairs Selection pop-up window is displayed.

```
  Commands  Help
------------------------------------------------------------------------------
REORG/OPERATION                   Select Thresholds And Actio Row 1 to 3 of 3

Select a threshold and press Enter to be prompted to choose an action-level to
be used when the rule condition evaluates to true. When finished press Enter
to choose rule-threshold notification lists. Press End to eliminate all
threshold sel +-------------------------------------------------------------+
Locale  . . : |   Help                                                      |
Locale  . . : | ----------------------------------------------------------  |
Description : |                                              Row 1 to 3 of 3 |
              |                                                             |
A: Row Action | Select Action-level for:                                    |
   Status:    | Threshold  : HIGH                                           |
              | A: S - Select                                               |
A   S  Thresh | S: S - Selected.                                            |
    O  LOW    |    O - Pre-selected from original policy. (Update only).    |
    O  MED    |                                                             |
S   O  HIGH   | For field help, place the cursor on the field and press F1.  |
************* |                                                             |
              | A S Action       Level        Threshold     Onmissing       |
              | _ O MESSAGE_____ WARNING      LOW           SKIPEVAL____    |
              | _ O MESSAGE_____ SEVERE       MED           SKIPEVAL____    |
              | _   INDEXBLD____ CRITICAL     ____________  SKIPEVAL____    |
              | ********************** Bottom of data ********************** |
              +-------------------------------------------------------------+
```

Figure 53: Action-Level Pairs Selection pop-up window

8. Type the S row action (Select) on a threshold that you want to modify actions for, and type a new action name in the **Action** field. Acceptable actions depend on the rule.

```
S   O  HIGH   | For field help, place the cursor on the field and press F1.  |
************* |                                                             |
              | A S Action       Level        Threshold     Onmissing       |
              | _ O MESSAGE_____ WARNING      LOW           SKIPEVAL____    |
              | _ O MESSAGE_____ SEVERE       MED           SKIPEVAL____    |
              | S   REORG_______ CRITICAL     ____________  SKIPEVAL____    |
              | ********************** Bottom of data ********************** |
```

Figure 54: Modifying an action

To display a list of acceptable actions, press Help (PF1) on the **Action** field.

```
              | A S Action       Level        Threshold     Onmissing       |
              | _ O MESSAGE_____ WARNING      LOW           SKIPEVAL____    |
              | _ +-----------------------------------------------------+   |
              | _ | Enter an action for this exception level. Acceptable |   |
              | **| actions are MESSAGE, REORG, and INDEXBLD.           |*** |
              |   +-----------------------------------------------------+   |
              |                                                             |
              | Command ===> _____________________________________________  |
```

Figure 55: Displaying a list of acceptable actions

9. Press Enter.
   The Select Thresholds And Actions panel is displayed.

   Confirm that the action for the selected threshold has been updated.

```
  Commands  Help
------------------------------------------------------------------------------
REORG/OPERATION                    Select Thresholds And Actio Row 1 to 3 of 3

Select a threshold and press Enter to be prompted to choose an action-level to
be used when the rule condition evaluates to true. When finished press Enter
to choose rule-threshold notification lists. Press End to eliminate all
threshold selections.
Locale  . . : BSNGLOBL  Policy name  . . : SYS.DBDTYPE.FFDBALL
Locale  . . : BSNGLOBL  Rule name  . . . : IBM.IX_CICA_SPLIT.10
Description : CI or CA splits in an index primary data set

A: Row Actions: S - Select Threshold   U - Unselect
   Status:      S - Selected   O - Part of original policy. (Update only)

A   S  Threshold      Action        Level         Onmissing
_   O  LOW            MESSAGE       WARNING       SKIPEVAL
_   O  MED            MESSAGE       SEVERE        SKIPEVAL
_   S  HIGH           REORG         CRITICAL      SKIPEVAL
****************************** Bottom of data ********************************
```

Figure 56: Select Thresholds And Actions panel (Action for HIGH threshold is updated)

10. Press Enter.
    The Select Rule Notification Lists panel is displayed.
11. Press Enter.
    The Policy Rules Selection panel is displayed.
12. When you have completed all modifications to rules, press Enter.
    The Confirmation pop-up window is displayed.

```
+-----------------------------------------------+
|                 Confirmation                  |
|                                               |
| Confirm you want to commit the changes.       |
|                                               |
|                                               |
| Do you want to commit the changes             |
| for policy: SYS.DBDTYPE.FFDBALL               |
|                                               |
|                 Y  (Y/N)                      |
| Command ===> _________________________________|
+-----------------------------------------------+
```

Figure 57: Confirmation pop-up window

13. To commit all changes, type Y (Yes) and press Enter.
    The Policies Management panel is displayed.
14. Press PF3 to return to the Policy Services Main Menu: Maintenance panel.

What to do next

Each rule has an exception class, and some rules have the same exception class. For example, rule IBM.IX_CICA_SPLIT.10 and rule IBM.IX_CICA_SPLIT.11 have the same exception class of EXCESSIVE_INDEX_CI_OR_CA_SPLITS.

If a policy selects rules that have the same exception class, these rules must have the same actions defined for each exception level. Therefore, if you modify an action for a rule, all other selected rules that have the same exception class must be modified similarly to synchronize the action.

Otherwise, when committing the changes (step “13” on page 78), an error message is issued and the commit is suspended until the rules of the same exception class have the same actions defined.

For more information about rules and their exception classes, see the following pages:

For REORG domain: “Domain REORG exceptions” on page 338

For RECOVERY domain: “Domain RECOVERY exceptions” on page 358

Creating a new policy from executable BSNGLOBL policy and copying to a new locale

You can create and customize a new policy modeled after an executable SYS. policy, and copy the policy from the generic global locale (BSNGLOBL) to a new locale.

About this task

To provide policies for your own locale, you must create policies modeled after the SYS policy templates that were created from the IBM. policy templates provided by IBM.

To customize a policy for your own locale, you must copy the SYS policy template to the new locale and rename the policy.

Procedure

To create and customize a new policy modeled after an executable SYS. policy, and copy the policy from the generic global locale (BSNGLOBL) to a new locale, complete the following steps:

1. In the Policy Services Main Menu: Maintenance panel, select option **1** (**Policies management**), and press Enter.
   The Policies Management panel is displayed.
2. In the Policies Management panel, select option **1** (**Manage policies**), and press Enter.
   The Manage Policies panel is displayed.

```
  Commands  View  Help
------------------------------------------------------------------------------
REORG/MAINTENANCE                       Manage Policies       Row 1 to 9 of 9
Command ===>

Select a row action or a command from the commands menu. Press End to exit.
Resource types selected:     (Active logic: OR)
HDAM HIDAM PHDAM PHIDAM HISAM SHISAM

A: Row Actions: V - View    U - Update   D - Delete
                N - Create new policy modeled after policy in selected row.
S: Status     : V - Viewed  U - Updated  D - Deleted
                N - New, created from a model  M - Used as a model

A S Locale   Policy Name          Description
    BSNGLOBL IBM.DBDTYPE.DEDB     DEDB policy
    BSNGLOBL IBM.DBDTYPE.FFDB     Full-function database policy
    BSNGLOBL IBM.DBDTYPE.HDAM     HDAM database policy
    BSNGLOBL IBM.DBDTYPE.HDDB     HD database policy
    BSNGLOBL IBM.DBDTYPE.HIDAM    HIDAM database policy
    BSNGLOBL IBM.DBDTYPE.HISAM    HISAM database policy
    BSNGLOBL IBM.DBDTYPE.INDEX    Index policy for non-partitioned index
****************************** Bottom of data ********************************
```

Figure 58: Manage Policies panel

3. Type the `N` row action (Create new policy modeled after policy in selected row) in the row of an executable SYS. policy (for this example, SYS.DBDTYPE.FFDB), and press Enter.
   The Policy Resource Types Selection panel is displayed.
4. In the **Policy name** field, type in the new policy name (for example, LOC1.DBDTYPE.FFDB).
5. In the **Description** field, type in the description for the new policy.
6. Change the Resource Type selection if necessary.
7. Clear the **Locale name** field, and press Enter.
   The Locale Selection panel is displayed.

```
  Help
──────────────────────────────────────────────────────────────────────────────
                                Locale Selection               Row 1 to 7 of 7
Command ===>
Choose a valid locale.
Select one and only one locale. Press Enter to exit.

XCF Group Name . . . . . : PSSSPLEX


A: Row Actions: S - Select

A Locale name Locale Description
  BSNGLOBL    BSNGLOBL
  MYRECON1    MYRECON1
  MYRECON2    MYRECON2
  MYRECON3    MYRECON3
  MYRECON4    MYRECON4
  MYRECON5    MYRECON5
              ____________________________________________________
****************************** Bottom of data ********************************
```

Figure 59: Locale Selection panel

8. Type the S row action (Select) to select a locale (for example, MYRECON2), and press Enter.
   The Policy Notification Lists Selection panel is displayed.
9. Type the S row action (Select) to select one or more notification lists for this policy, and press Enter.
   The Policy Rules Selection panel is displayed.

   Rules that have been associated with the original template policy are marked with an O status (Preselected from original policy).

   You can select (S row action) one of these preselected rules, press Enter, and change the association of threshold sets to severity levels. Press Enter again to associate notification lists to each threshold set.

   You can also select (S row action) a new rule that you want to add to the new policy. When you press Enter, you can then change the association of threshold sets to severity levels. Press Enter again to associate notification lists to each threshold set.
10. After all modifications to rules have been made, press Enter.
    The Confirmation window is displayed.

```
                Confirmation
Command ===>

Confirm you want to commit the changes. End
to exit.


Do you want to commit the changes
for policy: LOC1.DBDTYPE.FFDB

                Y  (Y/N)
```

Figure 60: Confirmation window

11. To commit all changes, type Y (Yes) and press Enter.
    The Manage Policies panel is displayed.
12. Press PF3 until you return to the Policy Services Main Menu: Maintenance panel.

Creating a new policy

You can create new policies not based on an existing template.

About this task

The following summary outlines the sequence of steps required to build a new policy:

1. Enter new policy name.

2. Enter policy description.
3. Select supported resource types.
4. Select locales where this policy applies.
5. Select notification lists that represent the destinations that the summary and exception messages are sent to.

   Important: If you select notification lists for a rule in step “6” on page 81, the exception messages are sent to those destinations instead.

6. Select rules that apply to this policy.
   - Associate threshold sets with action-level pairs.
   - If the notification lists for the exception messages are different than the notification lists for the policy summary messages defined in step “5” on page 81, select notification lists at the action-level-threshold set that represent the destinations that the exception messages are sent to.

     Important: If you specify lists at the action-level-threshold sets, you must provide all required lists, including the notification list specified for the summary notification, if applicable.
     For example, if notification LIST01 contains BOB, LARRY, and MARY; and notification LIST06 contains SAM, BETTY, LADBA, SFDBA and GUS:
     - If you define LIST01 in step “5” on page 81 and you only want that list to apply to all rules, do not specify any notification lists in step “6” on page 81. The resulting summary message is sent to BOB, LARRY and MARY.
     - If you define LIST06 for a given rule and do not include LIST01, the entries in LIST01 are not included when sending the rule exception message for that rule. The resulting exception message is sent to SAM, BETTY, LADBA, SFDBA and GUS.
     - If you want to include the entries in LIST01 along with LIST06 for a given rule, include LIST01 along with LIST06 in step “6” on page 81. If one or more lists are specified on the rule, the rule exception message is sent to the entries in these lists only. The resulting exception message is sent to BOB, LARRY, MARY, SAM, BETTY, LADBA, SFDBA and GUS.
     - If no lists are specified or if LIST01 is specified in step “6” on page 81 for the rule, the rule exception message is sent to the entries in the notification list specified in step “5” on page 81. The resulting exception message is sent to BOB, LARRY, and MARY.

7. Optional: Use the View/Update row action to update selected rules to change the rule threshold values.
8. Confirm all changes for this new policy.

Procedure

To create a new policy, complete the following steps:

1. In the Policy Services Main Menu: Maintenance panel, select option **1** (**Policies management**), and press Enter.
   The Policies Management panel is displayed.
2. In the Policies Management panel, select option **2** (**Create a new policy**), and press Enter.
   The Policy Resource Types Selection panel is displayed.
3. In the **Policy name** field, type in the new policy name (for example, LOC1.DBDTYPE.FFDB).
4. In the **Description** field, type in the description for the new policy.
5. Change the Resource Type selection if necessary.
6. Clear the **Locale name** field, and press Enter.
   The Locale Selection panel is displayed.

```
  Help
------------------------------------------------------------------------------
                               Locale Selection               Row 1 to 7 of 7
Command ===>
Choose a valid locale.
Select one and only one locale. Press Enter to exit.

XCF Group Name . . . . . : PSSSPLEX


A: Row Actions: S - Select

A Locale name Locale Description
  BSNGLOBL    BSNGLOBL
  MYRECON1    MYRECON1
  MYRECON2    MYRECON2
  MYRECON3    MYRECON3
  MYRECON4    MYRECON4
  MYRECON5    MYRECON5
              ____________________________________________________
******************************* Bottom of data ********************************
```

Figure 61: Locale Selection panel

7. Type the S row action (Select) to select a locale (for example, MYRECON1), and press Enter.
   The Policy Notification Lists Selection panel is displayed.
8. Type the S row action (Select) to select one or more notification lists for this policy and all rule thresholds, and press Enter.
   The Policy Rules Selection panel is displayed.

   For a new policy, there are no rules that have been preselected from an existing template.
9. Type the S row action (Select) on a rule that you want to add to this new policy, and press Enter.
   The Select Thresholds And Actions panel is displayed.
10. Associate specific threshold sets with action-level pairs.
11. After associating threshold sets with action-level pairs, press Enter. The Select Rule Notification Lists panel is displayed. Associate notification lists with the rule if notifications other than those specified in step “8” on page 82 are required.
    The Select Rule Notification Lists panel is displayed.
12. Associate notification lists with the action-level-threshold sets.
    For example:

```
  Help
------------------------------------------------------------------------------
REORG/MAINTENANCE                 Select Rule Notification lis Row 1 to 5 of 5

This is an optional step.
Select thresholds to be assigned notification lists. Then press Enter.
When finished press Enter to go back to the Rule Selection panel.
Pressing End will eliminate all notification lists selection.
Locale  . . : MYRECON1  Policy name  . . : NEW.HIDAM.POLICY
Locale  . . : MYRECON1  Rule name  . . . : IBM.AVG_DBREC_LEN.10
Description : Average length of database records

A: Row Actions: S - Select  U - Unselect
S: Status:      S - Selected.
                O - Pre-selected from original policy. (Update only).

A S Threshold    Action       Level        LC Notification List
  S LOW          MESSAGE      WARNING      G: SANJOSE
  S MED          MESSAGE      SEVERE       G: OMAHADBA
  S HIGH         MESSAGE      CRITICAL     G: LISTDBA
                                           G: OMAHADBA
                                           G: SANJOSE
******************************* Bottom of data ********************************
```

Figure 62: Select Rule Notification Lists panel

13. Press Enter when complete with the notification list task.
    The Policy Rules Selection panel is displayed.
14. Continue with the same sequence of steps to add more rules to the new policy.

15. Optional: Use the View/Update row action to update selected rules to change rule exception message text and threshold values.
16. After all modifications to rules have been made, press Enter.
    The Confirmation window is displayed.

```
                Confirmation
Command ===>

Confirm you want to commit the changes. End
to exit.


Do you want to commit the changes
for policy: NEW.HIDAM.POLICY

                Y  (Y/N)
```

Figure 63: Confirmation window

17. To commit all changes, type Y (Yes) and press Enter.
    The Policies Management panel is displayed.
18. Press PF3 to return to the Policy Services Main Menu: Maintenance panel.

Promoting a maintenance environment to an operation environment

In this task, you promote the selected Repository Level (Maintenance or History) to become the active Operation Level for all new connections by Policy Services clients.

About this task

By using the Promote function, you can:

- Promote a maintenance environment level to an operation level, where you might have done one or more of the following items:
  - Applied IBM® maintenance service (APARs)
  - Imported Policy Services items that had been previously exported
  - Applied custom updates or additions
- Promote a history level to an operation level.
  This type of promote action allows you to return to a previous operation level if the current operation level is faulty or experiencing problems

> **Tip:** By using the Policy Verification Utility, you can verify a policy created or modified in a maintenance environment before promoting it to an operation environment. For details, see "Policy Verification Utility" on page 130.

Procedure

To promote a maintenance environment to an operation environment, complete the following steps:

1. In the Policy Services Main Menu: Maintenance panel, select option **7** (**Domain and environment management**), and press Enter.
   The Domain and Environment Management panel is displayed.

```
  Help
--------------------------------------------------------------------------------
REORG/MAINTENANCE   Domain and Environment Management          Row 1 to 1 of 1
Command ===>

You are in environment . : INSTALL1


Type a row action, then press Enter.

A: Row Actions: A - View audit information
                C - Create new Maintenance environment
                L - List domain environments
                P - Promote Maintenance environment to Operation
                T - Validate all policies in Maintenance environment

A   Domain Name   Oper-name  Maint-name
    REORG         INSTALL1
****************************** Bottom of data ********************************
```

Figure 64: Domain and Environment Management panel

2. Type the P row action (Promote Maintenance environment to Operation) in the REORG row, and press Enter.
   The Promote Environment window is displayed.

```
                     Promote Environment
Command ===>

Environment INSTALL1 of domain REORG  will be promoted
to Operation.

Then press Enter to Continue

* Promote this Environment?  . . N  (Y/N)
```

Figure 65: Promote Environment window

3. Type Y (Yes) and press Enter.
   The Promote Maintenance to Operation panel is displayed.

```
  Help
--------------------------------------------------------------------------------
REORG/MAINTENANCE     Promote Maintenance to Operation


Note: When the Maintenance environment (name = namennnn) is successfully
promoted, your connection is changed from the Maintenance environment (name =
namennnn) to the new Operation environment (name = namennnn, name inherited
from the maintenance environment).

Update the description of the environment to be promoted to Operation.
Then press Enter to continue. The current Operation environment will
become a History environment.

Description  . . . INITIAL INSTALLATION OF POLICY SERVICES
```

Figure 66: Promote Maintenance to Operation panel

4. Enter a description for the new operation environment, and press Enter.
   The Domain and Environment Management panel is displayed.

```
  Help
-------------------------------------------------------------------------------
REORG/OPERATION     Domain and Environment Management          Row 1 to 1 of 1
Command ===>
Environment 00000001 successfully promoted.

You are in environment . : INSTALL1

Type a row action, then press Enter.

A: Row Actions: A - View audit information
                C - Create new Maintenance environment
                L - List domain environments
                P - Promote Maintenance environment to Operation
                T - Validate all policies in Maintenance environment

A   Domain Name   Oper-name  Maint-name
    REORG         INSTALL1
****************************** Bottom of data ******************************
```

Figure 67: Domain and Environment Management panel

The initial maintenance environment (000000001) is now promoted to an initial operation environment (000000002).

There is no longer an existing maintenance environment.

Because there was no existing operation environment, no history level was created.

5. You can type the L row action (List domain environments) on the domain row, and press Enter.
   The List Domain Environments panel is displayed.
6. In the List Domain Environments panel, type the V row action (View environment), and press Enter.
   The View Environment Information panel is displayed.

```
  Help
-------------------------------------------------------------------------------
REORG/OPERATION     View Environment Information               Row 1 to 1 of 1
Command ===>


Environment  . . : INSTALL1  Status . . : OPERATION


Created  . : 2026/02/18  Updated  . : 2026/02/18


Description  . . : INITIAL INSTALLATION OF POLICY SERVICES


Environment Description History
INITIAL INSTALLATION OF POLICY SERVICES
****************************** Bottom of data ******************************
```

Figure 68: View Environment Information panel

7. Press End (PF3) until you return to the Policy Services Main Menu.
   The Policy Services Main Menu has now become the main menu for the operation environment (Policy Services Main Menu: Operation).

Creating a new maintenance environment

If a new maintenance package that contains new policies and rules is provided by an APAR, you need to install the new package from a maintenance environment.

You can create a new maintenance environment after promoting the former maintenance environment to the current operation environment.

There are two methods to create a maintenance environment. Whichever method you use, you can create one of the following three types of maintenance environment:

- Null maintenance environment
- Maintenance environment created from the current operation environment
- Maintenance environment created from a history level

Topics:

- "Method 1: Creating a maintenance environment by using the Select Environment panel" on page 86
- "Method 2: Creating a maintenance environment by using the Domain and Environment Management panel" on page 87

Method 1: Creating a maintenance environment by using the Select Environment panel

You can create a new maintenance environment from the Select Environment panel.

Procedure

1. Invoke the Policy Services client interface.
2. Type the XCF group name, select a domain, and press Enter.
   For details, see "Starting the Policy Services user interface" on page 49.
3. In the Policy Services Setup: Select Environment panel, select option **1** (**Maintenance**), and press Enter.
   The Create Maintenance Environment panel is displayed.

```
  Help
------------------------------------------------------------------------------
REORG/MAINTENANCE     Create Maintenance Environment          Row 1 to 2 of 2

Type an environment description, and an environment name
and either (a) select an existing
environment to be copied into the new maintenance environment and
press Enter, or (b) press Enter without a row action to create a new
empty maintenance environment.

Enter a name and description for the new maintenance environment:

Environment name    ________
Description . . . . ____________________________________________________



A: Row Action: S - Select environment to be copied

A   Env-name  Status               Created     Last Update  Description
    ENV1      HISTORY              2026/01/10  2026/01/10   TEST
    ENV2      OPERATION            2026/01/10  2026/01/10   TEST
******************************* Bottom of data ********************************
```

4. Type the environment name and the description for the new maintenance environment. The environment name must be unique in a domain.
5. Take one of the following actions:
   - If you want to create a new maintenance environment from the current operation environment, type the S row action (Select environment to be copied) on the environment whose status is OPERATION, and press Enter.
   - If you want to create a new maintenance environment from a history level, type the S row action (Select environment to be copied) on the environment whose status is HISTORY, and press Enter.
   - If you want to create a null maintenance environment, just press Enter. Then, when a confirmation window is displayed, type Y (Yes) and press Enter.

```
              Create Maintenance Environment

An empty maintenance is about to be created. Do you intend
to create an empty maintenance environment?

Please make a choice below.

* Do you wish to
continue? . . . . . Y  (Y/N)
```

If you selected to create a new maintenance environment from the current operation environment or a history level, the following message is displayed:

```
Environment env_name successfully created.
```

If you selected to create a null maintenance environment, the following message is displayed:

```
Environment env_name successfully created. This environment is empty.
```

6. Press Enter to go to the Policy Services main menu.
   You are in the new maintenance environment.

Method 2: Creating a maintenance environment by using the Domain and Environment Management panel

You can create a new maintenance environment from the Domain and Environment Management panel.

Procedure

1. Invoke the Policy Services client interface.
2. Type the XCF group name, select a domain, and press Enter.
   For details, see “Starting the Policy Services user interface” on page 49.
3. In the Policy Services Setup: Select Environment panel, select option **2** (**Operation**), and press Enter.
4. In the Locale Selection panel, type the S row action (Select) on the row of the appropriate locale, and press Enter.
5. In the Policy Services Main Menu, select option **7** (**Domain and environment management**), and press Enter.
   The Domain and Environment Management panel is displayed.

```
  Help
------------------------------------------------------------------------------
REORG/OPERATION       Domain and Environment Management        Row 1 to 1 of 1

You are in environment  . : ENV2


Type a row action, then press Enter.

A: Row Actions: A - View audit information
                C - Create new Maintenance environment
                L - List domain environments
                P - Promote Maintenance environment to Operation
                T - Validate all policies in Maintenance environment

A   Domain Name   Oper-name  Maint-name
    REORG         ENV2
****************************** Bottom of data ********************************
```

6. Type the C row action (Create new Maintenance environment) on the row of the operation environment.
   A confirmation window is displayed.

```
              Create Maintenance Environment

If a Maintenance environment is created from the Operation
environment, ensure that any updates being made to the
Operation environment are completed before creating the
new Maintenance environment.
```

7. Press Enter to continue.
   The Create Maintenance Environment panel is displayed.

```
  Help
------------------------------------------------------------------------------
REORG/MAINTENANCE     Create Maintenance Environment           Row 1 to 2 of 2

Type an environment description, and an environment name
and either (a) select an existing
environment to be copied into the new maintenance environment and
press Enter, or (b) press Enter without a row action to create a new
empty maintenance environment.

Enter a name and description for the new maintenance environment:

Environment name    ________
Description . . . . ____________________________________________________



A: Row Action: S - Select environment to be copied

A   Env-name  Status               Created     Last Update  Description
    ENV1      HISTORY              2026/01/10  2026/01/10   TEST
    ENV2      OPERATION            2026/01/10  2026/01/10   TEST
****************************** Bottom of data ********************************
```

8. Type the environment name and the description for the new maintenance environment. The environment name must be unique in a domain.
9. Take one of the following actions:
   - If you want to create a new maintenance environment from the current operation environment, type the S row action (Select environment to be copied) on the environment whose status is OPERATION, and press Enter.
   - If you want to create a new maintenance environment from a history level, type the S row action (Select environment to be copied) on the environment whose status is HISTORY, and press Enter.
   - If you want to create a null maintenance environment, just press Enter. Then, when a confirmation window is displayed, type Y (Yes) and press Enter.

     ```
                  Create Maintenance Environment

     An empty maintenance is about to be created. Do you intend
     to create an empty maintenance environment?

     Please make a choice below.

     * Do you wish to
     continue? . . . . . Y  (Y/N)
     ```

   If you selected to create a new maintenance environment from the current operation environment or a history level, the following message is displayed:

   ```
   Environment env_name successfully created.
   ```

   If you selected to create a null maintenance environment, the following message is displayed:

   ```
   Environment env_name successfully created. This environment is empty.
   ```

10. Press Enter to go back to the Domain and Environment Management panel.
11. Press End (PF3).
    The Confirm Maintenance Environment window is displayed.

```
                        Confirm Maintenance Environment


Domain . . . . . . . . . . . . . . . . . . . . : REORG
Current maintenance environment  . . . . . : ENV3
Description:
TEST

Select to continue with the current Maintenance environment,
or to delete it and create a new Maintenance environment.
Then press Enter.

* Select . .    1. Continue with current Maintenance environment
                2. Delete current and create new Maintenance environment
```

12. Select option **1** (**Continue with current Maintenance environment**), and press Enter to go to Policy Services main menu.
    You are in the new maintenance environment.

Guidelines for exporting and importing

The following guidelines are important to understand before you perform export and import tasks.

Exporting BSNGLOBL policies

If the policies being exported contain only BSNGLOBL policies, only BSNGLOBL rules and notification lists ever apply to these BSNGLOBL policies (that is, BSNGLOBL policies can only reference BSNGLOBL rules and notification lists).

If the import of a BSNGLOBL member is selectable, you can perform the following tasks:

- Import all the BSNGLOBL rules as BSNGLOBL rules
- Import all the BSNGLOBL policies as BSNGLOBL policies
- Import all the BSNGLOBL notification lists as BSNGLOBL notification lists
- Import all directory entries
- Re-import the BSNGLOBL rules, policies and notification lists from BSNGLOBL to locale-specific policies, rules, and notification lists

BSNGLOBL rules must be exported:

- With the BSNGLOBL policy package, or
- Must be in another package that is to be imported at the same time, or
- Must exist in the locale that you import the BSNGLOBL policies to.

BSNGLOBL notification lists must be exported:

- With the BSNGLOBL policy package, or
- Must be in another package that is to be imported at the same time, or
- Must exist in the locale that you import the BSNGLOBL policies to.

The directory entries that are included in a notification list are not automatically exported with the policy. It is recommended that all directory entries be exported if you are exporting all or selected notification lists.

Even though directory entries are not locale-specific, the notification lists are only valid if you export the directory entries:

- With the BSNGLOBL policy package, or
- Must be in another package that is to be imported at the same time, or
- Must exist in the locale that you import the BSNGLOBL policies to.

Exporting locale-specific policies

If the policies being exported contain locale-specific policies, both BSNGLOBL and the same locale-specific rules and notification lists can apply to these locale-specific policies (that is, locale-specific policies can reference BSNGLOBL and the same locale-specific rules and notification lists).

Locale-specific, BSNGLOBL, or both rules must be exported:

- With the locale-specific policy package, or
- Must be in another package that is to be imported at the same time, or
- Must exist in the locale that you import the locale-specific policies to.

Locale-specific, BSNGLOBL, or both notification lists must be exported:

- With the locale-specific policy package, or
- Must be in another package that is to be imported at the same time, or
- Must exist in the locale that you import the locale-specific policies to.

The directory entries that are included in a notification list are not automatically exported with the policy. It is recommended that all directory entries be exported if you are exporting all or selected notification lists.

Even though the directory entries are not locale-specific, the notification lists are only valid if you export the directory entries:

- With the locale-specific policy package, or
- Must be in another package that is to be imported at the same time, or
- Must exist in the locale that you import the locale-specific policies to.

Notes about the selectable option

Another consideration at export time is to decide whether the selective option should be set:

- If the changes for all policy templates, rules templates, rule thresholds, notification lists, and directory entries have been made for each locale (locale-specific, BSNGLOBL, or both) and the export package is a single locale package, then set the selectable option to NO to force the complete package to be imported at the importing locale.
- If the changes for all policy templates, rules templates, rule thresholds, notification lists, and directory entries have been made for all locales (locale-specific, BSNGLOBL, or both) and the export package is to be used at all locales, then set the selectable option to YES to allow the locations the ability to select non-locale-specific (BSNGLOBL and directory entries) items as well as locale-specific items from the package to be imported at each of the unique importing locales.

When exporting, you might want to export with the selectable option set until you are familiar with the export and import process. This option allows you to selectively import the items.

Using Policy Services utilities

Policy Services provides useful utilities called the *Sensor Data Extractor*, the *Statistics Data Import Utility*, the *History Data Summarization Utility*, and the *Policy Verification Utility*.

Topics:

- "Sensor Data Extractor" on page 91
- "Statistics Data Import Utility" on page 107
- "History Data Summarization Utility" on page 124
- "Policy Verification Utility" on page 130

Sensor Data Extractor

The Sensor Data Extractor extracts sensor data from the IMS Tools Knowledge Base (IMS Tools KB) Sensor Data repository, the historical sensor data set, or both, and generates various types of reports.

Topics:

- "Sensor Data Extractor overview" on page 91
- "Running the Sensor Data Extractor" on page 92
- "EXEC and DD statements for the Sensor Data Extractor" on page 93
- "Control statements for the Sensor Data Extractor" on page 94
- "Output from the Sensor Data Extractor" on page 99
- "JCL examples for the Sensor Data Extractor" on page 106

Sensor Data Extractor overview

The Sensor Data Extractor extracts sensor data from the IMS Tools KB Sensor Data repository, the historical sensor data set, or both, and generates various types of reports.

The Sensor Data Extractor can read not only the latest sensor data but also old sensor data for the specified database, partition, or area. It then generates the Sensor Data History report in three formats: long, short, and CSV.

The Sensor Data Extractor supports sensor data of both REORG and RECOVERY domains and of all database types.

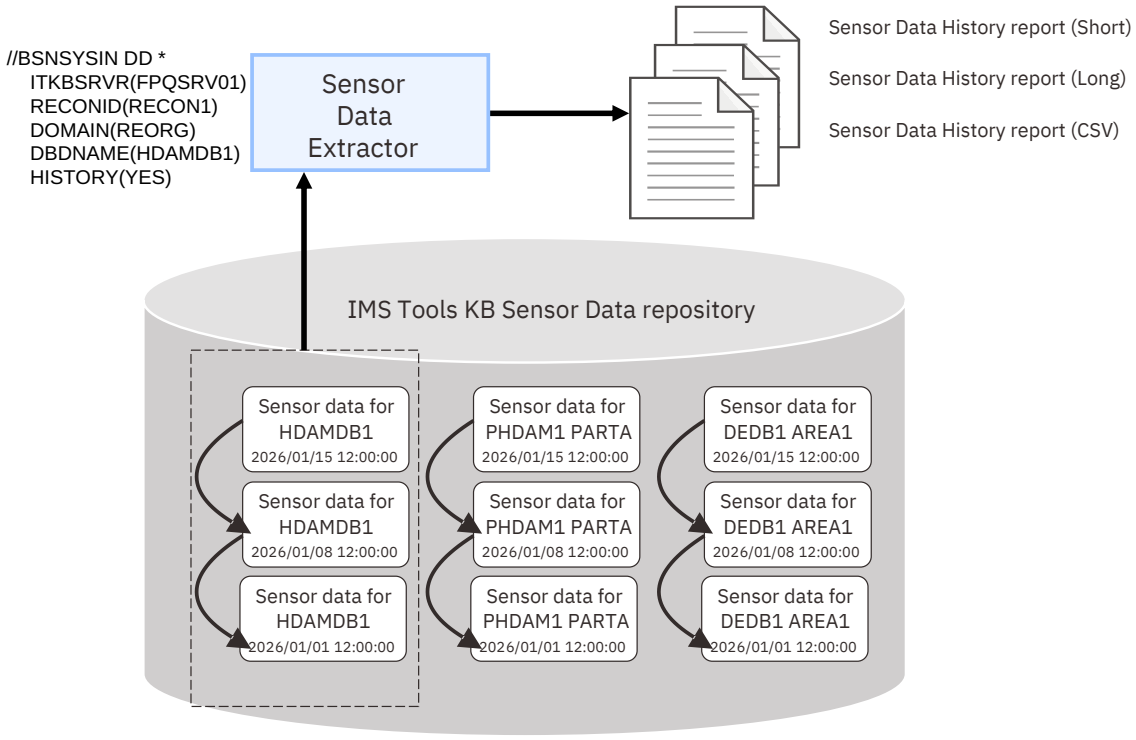


Figure 69: Extracting sensor data and generating Sensor Data History reports by using the Sensor Data Extractor

Running the Sensor Data Extractor

The Sensor Data Extractor runs as a standard z/OS® batch job. To extract sensor data from the IMS Tools KB Sensor Data repository and to report the extracted sensor data, code the Sensor Data Extractor JCL and run the job.

Procedure

1. Write the EXEC and DD statements.
   For the format of the EXEC statement and the list of DD statements, see "EXEC and DD statements for the Sensor Data Extractor" on page 93.
2. Code the control statements in the BSNSYSIN data set.
   For the syntax of the control statements, see "Control statements for the Sensor Data Extractor" on page 94.

   The following figure shows a JCL example for the Sensor Data Extractor:

   Figure 70: JCL example for the Sensor Data Extractor

```
//BSNUTIL0 JOB  CLASS=A
//PGM1     EXEC PGM=BSNUTIL0,PARM='FUNC=EXTRACT_SENSOR'
//STEPLIB  DD DISP=SHR,DSN=ITB.SHKTLOAD
//BSNUJRNL DD SYSOUT=*
//BSNURPRT DD SYSOUT=*
//BSNSYSIN DD *
  ITKBSRVR(FPQSRV01)
  RECONID(RECON1)
  DOMAIN(REORG)
  DBDNAME(HDAMDB1)
  HISTORY(YES)
/*
```

3. Run the Sensor Data Extractor job step to generate a report. Ensure that the return code is 0.

For examples of the Sensor Data History report, see “Sensor Data History report (Short type)” on page 99, “Sensor Data History report (Long type)” on page 102, and “Sensor Data History report (CSV type)” on page 105.

EXEC and DD statements for the Sensor Data Extractor

You must specify an EXEC statement and DD statements that define the input and output data sets in your JCL.

In this topic:

- “EXEC statement” on page 93
- “Summary of DD statements” on page 93
- “DD statements for input” on page 93
- “DD statements for output” on page 93

EXEC statement

The EXEC statement must be in the following format:

```
//STEP EXEC PGM=BSNUTIL0,PARM='FUNC=EXTRACT_SENSOR'
```

The EXEC statement in the batch JCL contains one keyword specification in the PARM field: `FUNC=`.

FUNC

Identifies which Policy Services utility is to be invoked.
To invoke the Sensor Data Extractor, specify either `'EXTRACT_SENSOR'` or `'EXTS'`.

Summary of DD statements

DD statements of the Sensor Data Extractor determine the input and output data sets and specify how to run the Sensor Data Extractor.

The following table summarizes the DD statements for the Sensor Data Extractor.

Table 9: DD statements for the Sensor Data Extractor

DD name	Use	Format	Can be dynamically allocated?	Required or optional?
STEPLIB	Input	RECFM=U	No	Required
BSNSYSIN	Input	RECFM=FB,LRECL=80	No	Required
BSNUJRNL	Output	RECFM=FBA,LRECL=133	Yes	Optional
BSNURPRT	Output	RECFM=FBA,LRECL=133	Yes	Optional

DD statements for input

The following input DD statements are used for the Sensor Data Extractor.

STEPLIB

This DD statement is required. It specifies the load module library of IMS Tools Base (SHKTLOAD).

BSNSYSIN

This DD statement is required. It specifies the input control statement that controls the Sensor Data Extractor functions.
The BSNSYSIN DD statement can be coded as a standard SYSIN file, a sequential data set, or a PDS member. LRECL=80 is required for the DCB of this data set.

For details about coding the BSNSYSIN DD statement, see “Control statements for the Sensor Data Extractor” on page 94.

DD statements for output

The following output DD statements are used for the Sensor Data Extractor.

BSNUJRNL

This DD statement is optional. It specifies the processing log output data set, which stores processing messages that are issued by the Sensor Data Extractor.
If you do not specify this DD statement, the Sensor Data Extractor dynamically allocates the data set by using SYSOUT=*.

BSNURPRT

This DD statement is required if you specify REPORT_TYPE(SHORT) in the control statement. This DD statement specifies the Sensor Data History report for REPORT_TYPE(SHORT).
If you specify REPORT_TYPE(SHORT) and do not specify this DD statement, the Sensor Data Extractor dynamically allocates the data set by using SYSOUT=*.

Control statements for the Sensor Data Extractor

The control statement for the Sensor Data Extractor controls the functions of the Sensor Data Extractor.

The control statement must be specified in the BSNSYSIN data set. This control statement data set generally resides in the input stream. However, it can also be defined as a sequential data set or as a member of a partitioned data set. It must contain 80-byte, fixed-length records. The block size, if coded, must be a multiple of 80.

The control statement must be coded in columns 1 - 72. Columns 73 - 80 are regarded as comments and ignored.

In this topic:

- "Format of the control statement" on page 94
- "Summary of keywords" on page 94
- "Description of keywords" on page 95

Format of the control statement

The control statement includes a set of keywords, parameters, and comments that are specified in the BSNSYSIN data set.

Keywords

A keyword defines an option for the Sensor Data Extractor. Keywords can be specified in any order, and any two adjacent keywords must be separated by a blank or a comma. Each keyword has one or more associated parameters.

Parameters

A parameter defines a value for the associated keyword. Some keywords require only one parameter and others require one or more parameters. Parameters must be character or numeric values.
A keyword and the associated parameters are separated by parentheses. If two or more parameters are specified, any two adjacent parameters must be separated by a blank or a comma. For example,

```
keyword(parameter)
 keyword(parameter1,parameter2,parameter3)
 keyword(parameter1 parameter2 parameter3)
```

Comments

You can include comments in the BSNSYSIN data set by marking a line with an asterisk (*) in column 1. The Sensor Data Extractor ignores the comment line when analyzing the control statement in the BSNSYSIN data set.

Summary of keywords

The following table summarizes the keywords of the control statement for the Sensor Data Extractor.

Table 10: Keywords for the Sensor Data Extractor

Keyword	Required or optional?	Default	Description
AREANAME	Required if the database is a DEDB	N/A	Specifies an area name if the database is a DEDB.
CAGRP	Required if the DBDNAME keyword is not specified	N/A	Specifies a change accumulation (CA) group name.

Keyword	Required or optional?	Default	Description
DATAFROM	Optional	REPOSITORY	Specifies where to extract sensor data from.
DBDNAME	Required if the CAGRP keyword is not specified	N/A	Specifies a database name.
DOMAIN	Required	N/A	Specifies a policy domain.
DSN_CSV	Required if REPORT_TYPE(CSV) is specified	N/A	Specifies a data set name for a CSV report.
DSN_LONG	Required if REPORT_TYPE(LONG) is specified	N/A	Specifies a data set name for a LONG report.
GENERATION	Optional	5	Specifies how many generations of sensor data are to be extracted.
HISTORY	Optional	YES	Specifies whether to extract historical sensor data.
ITKBSRVR	Required	N/A	Specifies a name of the IMS Tools KB server XCF group.
LASTDATE	Optional	N/A	Specifies the last date of historical sensor data to be extracted.
PARTNAME	Required if the database is a HALDB	N/A	Specifies a partition name if the database is a HALDB.
RECONID	Required	N/A	Specifies a RECON ID.
REPORT_TYPE	Optional	SHORT	Specifies report types to be generated.

Description of keywords

The following keywords are available for the control statement.

AREANAME

This keyword specifies a DEDB area name. The sensor data of the specified DEDB area is extracted. AREANAME is a required keyword if the database specified by the DBDNAME keyword is a DEDB.

Format:

area_name

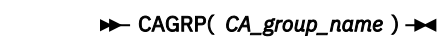
Specify a 1- to 8-character DEDB area name. There is no default.

CAGRP

This keyword specifies a CA group name. The sensor data of the specified CA group is extracted. CAGRP is a required keyword if you do not specify the DBDNAME keyword.

The CAGRP keyword can be specified only if you specify DOMAIN(RECOVERY) and do not specify the DBDNAME keyword.

Format:



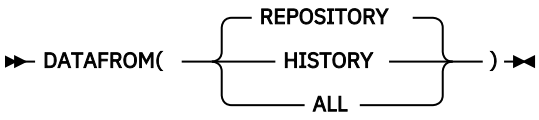
CA_group_name

Specify a 1- to 8-character CA group name. There is no default.

DATAFROM

This keyword specifies where to extract sensor data from.
DATAFROM is an optional keyword.

Format:



REPOSITORY

Extracts sensor data from the IMS Tools KB sensor data repository. This is the default.

HISTORY

Extracts sensor data from the historical sensor data sets.

ALL

Extracts sensor data from both the IMS Tools KB sensor data repository and the historical sensor data sets.

DBDNAME

This keyword specifies a database name. The sensor data of the specified database is extracted. DBDNAME is a required keyword if you do not specify the CAGRP keyword. The DBDNAME keyword cannot be specified with the CAGRP keyword.

Format:

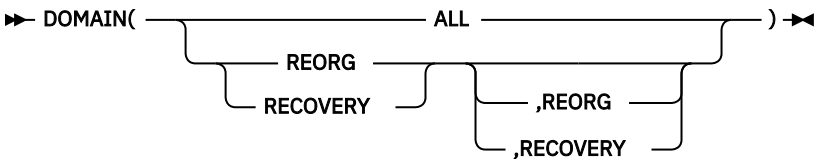
dbd_name

Specify a 1- to 8-character DBD name. There is no default.

DOMAIN

This keyword specifies a policy domain. It represents which type of sensor data is to be extracted. DOMAIN is a required keyword.

Format:



REORG

Extracts sensor data that is associated with the REORG domain. The sensor data is collected by the DB Sensor of IMS Database Solution Pack for z/OS®, IMS Database Utility Solution for z/OS®, or IMS Fast Path Solution Pack for z/OS®.

RECOVERY

Extracts sensor data that is associated with the RECOVERY domain. The sensor data is collected by the DB Sensor of IMS Recovery Solution Pack for z/OS®.

ALL

Extracts sensor data that is associated with all policy domains.

There is no default.

DSN_CSV

This keyword specifies the name of the data set in which the Sensor Data History Report of CSV type is to be generated.
The data set is dynamically allocated with DISP=NEW, RECFM=VB, LRECL=32756, and BLKSIZE=32760. You cannot specify an existing data set.

DSN_CSV is a required keyword if you specify REPORT_TYPE(CSV).

Format:

data_set_name

Specify a 1- to 44-character data set name. There is no default.

DSN_LONG

This keyword specifies the name of the data set in which a Sensor Data History report of Long type is to be generated.
The data set is dynamically allocated with DISP=NEW, RECFM=VBA, LRECL=32756, and BLKSIZE=32760.
You cannot specify an existing data set.

DSN_LONG is a required keyword if you specify REPORT_TYPE(LONG).

Format:

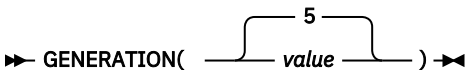
data_set_name

Specify a 1- to 44-character data set name. There is no default.

GENERATION

This keyword specifies how many generations of sensor data are to be extracted.
This keyword is optional. The GENERATION keyword cannot be specified with the LASTDATE keyword.

Format:



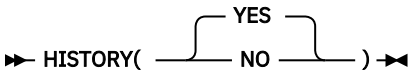
value

Specify a value in the range of 1 to 999. If you specify GENERATION(3), sensor data of the three most recent generations is to be extracted and reported. The default is GENERATION(5).

HISTORY

This keyword specifies whether to extract not only the latest sensor data but also old sensor data.
This keyword is optional.

Format:



YES

Extracts not only the latest sensor data but also old sensor data. This is the default.

NO

Extracts the latest sensor data only. If you specify HISTORY(NO), GENERATION and LASTDATE keywords will be ignored.

ITKBSRVR

This keyword specifies the name of the IMS Tools KB server XCF group. The sensor data is extracted from the IMS Tools KB sensor data repository, which is managed by the IMS Tools KB server.
This keyword is required.

Format:

server_name

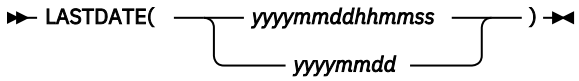
Specify a 1- to 8-character IMS Tools KB server XCF group name. There is no default.

LASTDATE

This keyword specifies the last date of sensor data that is to be extracted and reported by the Sensor Data Extractor.
This keyword is optional.

The LASTDATE keyword cannot be specified with the GENERATION keyword.

Format:



yyyymmddhhmmss

yyyymmdd

Specify a value that represents the last date.
If you specify LASTDATE(20260101123000), the last date will be January 1, 2026, 12:30:00.

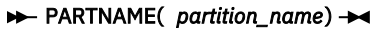
If you specify LASTDATE(20251231), the last date will be December 31, 2025, 00:00:00.

There is no default.

PARTNAME

This keyword specifies a HALDB partition name. The sensor data of the specified HALDB partition is extracted.
PARTNAME is a required keyword if the database specified by the DBDNAME keyword is a HALDB.

Format:



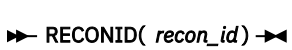
partition_name

Specify a 1- to 7-character HALDB partition name. There is no default.

RECONID

This keyword specifies a RECON ID that is associated with the RECON1 data set name in the IMS Tools KB repository.
RECONID is a required keyword.

Format:



recon_id

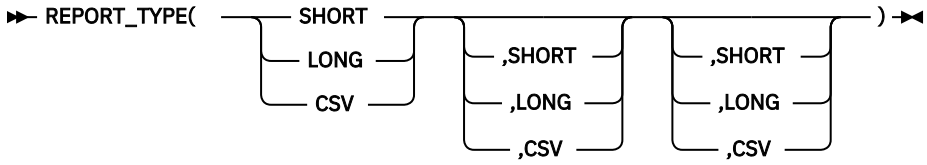
Specify a 1- to 8-character RECON ID. There is no default.

REPORT_TYPE

This keyword specifies which formats of reports you want to generate.
This keyword can specify up to three parameters. If you specify multiple parameters for this keyword, the Sensor Data Extractor generates multiple formats of reports.

REPORT_TYPE is an optional keyword.

Format:



SHORT

Generates a Sensor Data History report of up to five generations of sensor data. The report is written in the BSNURPRT data set or the SYSOUT stream. This is the default.

LONG

Generates a Sensor Data History report of up to 999 generations of sensor data. The report is written in the data set specified by the DSN_LONG keyword.

CSV

Generates a Sensor Data History Report of up to 999 generations of sensor data. The report is written in CSV format in the data set specified by the DSN_CSV keyword.
If you specify the CSV parameter, DOMAIN(ALL) or multiple parameters for the DOMAIN keyword cannot be specified.

Output from the Sensor Data Extractor

The Sensor Data Extractor generates a Journal Messages report and three types of Sensor Data History reports.

Topics:

- “Journal Messages report” on page 99
- “Sensor Data History report (Short type)” on page 99
- “Sensor Data History report (Long type)” on page 102
- “Sensor Data History report (CSV type)” on page 105

Journal Messages report

The Journal Messages report contains processing messages about the Sensor Data Extractor job. This report is generated in the BSNUJRNL data set.

Sample report

The following figure shows an example of the Journal Messages report:

```
Tools Base Policy Services - V1R8               Journal Messages                                    Sensor Data Extractor
5655-V93                                                                                            Date: 2026-02-20  Time: 00:55:36

2026-02-20 00:55:361 BSN8001I THE SENSOR DATA EXTRACTOR PROCESS HAS STARTED.
2026-02-20 00:55:361 BSN8031I THE FOLLOWING OPTIONS ARE USED FOR THE SENSOR DATA EXTRACTOR:
2026-02-20 00:55:361 BSN8031I  - ITKBSRVR     ... FPQSRV01
2026-02-20 00:55:361 BSN8031I  - RECONID      ... RECON1
2026-02-20 00:55:361 BSN8031I  - DOMAIN       ... REORG
2026-02-20 00:55:361 BSN8031I  - DBDNAME      ... HDAMVSAM
2026-02-20 00:55:361 BSN8031I  - DATAFROM     ... REPOSITORY
2026-02-20 00:55:361 BSN8031I  - REPORT_TYPE  ... SHORT
2026-02-20 00:55:361 BSN8031I  - HISTORY      ... YES
2026-02-20 00:55:361 BSN8031I  - GENERATION   ... 5
2026-02-20 00:55:362 BSN8040I SENSOR DATA FOR HDAMVSAM HAS BEEN EXTRACTED.
2026-02-20 00:55:362 BSN8040I  - DOMAIN=REORG, THE NUMBER OF EXTRACTED GENERATIONS IS 4
2026-02-20 00:55:362 BSN8041I SENSOR DATA HISTORY REPORT HAS BEEN GENERATED. REPORT_TYPE=SHORT.
2026-02-20 00:55:362 BSN8041I  - DOMAIN=REORG, THE NUMBER OF GENERATIONS TO BE REPORTED IS 4
2026-02-20 00:55:362 BSN8002I THE SENSOR DATA EXTRACTOR PROCESS HAS ENDED NORMALLY.
```

Figure 71: Journal Messages report (Sensor Data Extractor)

Sensor Data History report (Short type)

The Sensor Data History Report of Short type contains data element values of sensor data with their collected dates. This report is generated in the BSNURPRT data set.

This report contains the data element names, their values, and their collected dates. For the definitions of these data elements, see “Reference: Policy Services data elements” on page 142. The URL in the report header indicates the link to this topic on the web.

This report can contain up to five generations of sensor data. If more than five generations are extracted, only the five most recent generations are shown.

Sample report

The following figure shows an example of the Sensor Data History report of Short type. In this example, four generations of sensor data are reported.

```
Tools Base Policy Services - V1R8               Sensor Data History Report                                          Page:       1
5655-V93                                                                                                 Date: 2026-02-20  Time: 21:51:27

Description of each data element can be referred to from the following URL:
https://www.ibm.com/docs/en/SSS8US_1.8.0/aiips/topics/aiips_policy-dataelement.html

Database Statistics (DBD: HDAMVSAM, DB Type: HDAM)

============================================================
Data elements related to root segments
============================================================

Data Element Name        2026-01-31 00:51:01  2026-01-15 21:43:30  2026-01-05 21:48:27  2026-01-02 04:22:43
------------------------ -------------------  -------------------  -------------------  -------------------
DB_NUM_ROOT                          212,242              208,080              204,000              200,000
DB_NUM_SYNONYM                        87,755               83,576               79,596               75,805
DB_PCT_NUM_SYNONYM                       41%                  40%                  39%                  37%
DB_NUM_ROOT_NOHOME                    15,573               14,831               14,124               13,451
DB_PCT_NUM_ROOT_NOHOME                    7%                   7%                   6%                   6%
DB_NUM_ROOT_OVFL                      3,000                2,000                1,000                    0
DB_PCT_NUM_ROOT_OVFL                      1%                   0%                   0%                   0%
DB_FLAG_SENSOR_HOME                        Y                    Y                    Y                    Y
DB_FLAG_SENSOR_DBINFO                   n/a                  n/a                  n/a                  n/a
DB_AVG_LEN_SYNONYM_CHAIN               2.73                 2.70                 2.65                 2.50


============================================================
Data elements related to randomizing parameter
============================================================

Data Element Name        2026-01-31 00:51:01  2026-01-15 21:43:30  2026-01-05 21:48:27  2026-01-02 04:22:43
------------------------ -------------------  -------------------  -------------------  -------------------
DB_BYTES_SEG_RAA                73,624,950           70,119,000           66,780,000           63,600,000
DB_PCT_BYTES_OVFL                        9%                   6%                   3%                   0%
DB_NUM_RAP                          192,000              192,000              192,000              192,000
DB_NUM_UNUSED_RAP                    58,136               61,195               64,415               67,805
DB_PCT_NUM_UNUSED_RAP                    30%                  31%                  33%                  35%


============================================================
Data elements related to database records
============================================================

Data Element Name        2026-01-31 00:51:01  2026-01-15 21:43:30  2026-01-05 21:48:27  2026-01-02 04:22:43
------------------------ -------------------  -------------------  -------------------  -------------------
DB_AVG_DBREC_LENGTH                1,751.78             1,701.28             1,650.78             1,600.28
DB_ESTIMATED_DBREC_IO                  4.57                 4.48                 4.39                 4.30
DB_ESTIMATED_ROOT_IO                   1.16                 1.14                 1.12                 1.10


============================================================
Data elements related to event dates
============================================================

Data Element Name        2026-01-31 00:51:01  2026-01-15 21:43:30  2026-01-05 21:48:27  2026-01-02 04:22:43
------------------------ -------------------  -------------------  -------------------  -------------------
DB_DAYS_SINCE_LAST_REORG                n/a                  n/a                  n/a                  n/a
```

Figure 72: Sensor Data History report (Short type) - Part 1 of 2

```
Tools Base Policy Services - V1R8              Sensor Data History Report                                          Page:       2
5655-V93                                                                                                 Date: 2026-02-20  Time: 21:51:27

Data Set Statistics (DBD: HDAMVSAM, DB Type: HDAM, DSG: 01, DD name: HDAMVSD1)

=========================================================
Data elements related to database data set space
=========================================================

Data Element Name        2026-01-31 00:51:01  2026-01-15 21:43:30  2026-01-05 21:48:27  2026-01-02 04:22:43
------------------------ -------------------  -------------------  -------------------  -------------------
DB_FLAG_SMS                                N                    N                    N                    N
DB_MAX_EXT_DS                            251                  251                  251                  251
DB_MAX_EXT_VOL                           123                  123                  123                  123
DB_AVAIL_EXT_LESS_100                      Y                    Y                    Y                    Y
DB_AVAIL_EXT_LIMIT          VOL_FREE_EXTENTS     VOL_FREE_EXTENTS     VOL_FREE_EXTENTS     VOL_FREE_EXTENTS
DB_NUM_AVAIL_EXT                          85                   86                   87                   88
DB_NUM_EXT                                 5                    4                    3                    2
DB_RBA_HIGH_USED               107,421,674          104,292,887          101,255,230           98,306,048
DB_RBA_HIGH_ALLOC              217,701,680          209,328,538          201,277,440          193,536,000
DB_NUM_VOL                                 1                    1                    1                    1
DB_NUM_UNUSED_VOL                          0                    0                    0                    0
DB_NUM_UNUSED_VOL_SER                      0                    0                    0                    0
DB_NUM_UNUSED_VOL_CAND                     0                    0                    0                    0
DB_FLAG_SPACE_TYPE                         C                    C                    C                    C
DB_NUM_PRI_SPACE                         300                  300                  300                  300
DB_NUM_SEC_SPACE                         150                  150                  150                  150
DB_UNUSED_BYTES               89,629,670           91,458,846           93,325,353           95,229,952
DB_PCT_UNUSED_BYTES                      41%                  43%                  46%                  49%
DB_MAX_DS_SIZE                            4G                   4G                   4G                   4G
DB_PCT_OF_MAX_DS_SIZE                     5%                   4%                   4%                   4%
DB_NUM_DBDS_BLOCKS                    55,570               52,923               50,402               48,001
DB_BLOCK_SIZE                          2,048                2,048                2,048                2,048


=========================================================
Data elements related to segments in a data set group
=========================================================

Data Element Name        2026-01-31 00:51:01  2026-01-15 21:43:30  2026-01-05 21:48:27  2026-01-02 04:22:43
------------------------ -------------------  -------------------  -------------------  -------------------
DB_NUM_SEG                           231,525              220,500              210,000              200,000
DB_NUM_VLSEG                         115,763              110,250              105,000              100,000
DB_NUM_VLSEG_SPLIT                     6,655                6,050                5,500                5,000
DB_PCT_NUM_VLSEG_SPLIT                    5%                   5%                   5%                   5%
DB_BYTES_SEG                  73,624,950           70,119,000           66,780,000           63,600,000
DB_PCT_BYTES_SEG                         68%                  67%                  65%                  64%


=========================================================
Data elements related to pointers in a data set group
=========================================================

Data Element Name        2026-01-31 00:51:01  2026-01-15 21:43:30  2026-01-05 21:48:27  2026-01-02 04:22:43
------------------------ -------------------  -------------------  -------------------  -------------------
DB_NUM_PTR                            87,755               83,576               79,596               75,805
DB_NUM_PTR_DIFF_BLK                   17,525               14,604               12,170               10,141
DB_PCT_NUM_PTR_DIFF_BLK                  19%                  17%                  15%                  13%


=========================================================
Data elements related to free space in a data set group
=========================================================

Data Element Name        2026-01-31 00:51:01  2026-01-15 21:43:30  2026-01-05 21:48:27  2026-01-02 04:22:43
------------------------ -------------------  -------------------  -------------------  -------------------
DB_NUM_FSE                           105,453               81,117               62,397               47,997
DB_NUM_FSE_MIN                        28,107               29,586               31,143               32,782
DB_NUM_FSE_MAX                        23,899               26,554               29,504               32,782
DB_AVG_NUM_FSE                          1.89                 1.53                 1.23                 0.99
DB_AVG_NUM_NOREUSE_FSE                  1.39                 0.97                 0.62                 0.31
DB_PCT_NUM_NOREUSE_FSE                   n/a                  n/a                  n/a                  n/a
DB_BYTES_FREE_SPACE           28,596,835           30,101,931           31,686,243           33,353,940
DB_PCT_BYTES_FREE_SPACE                  26%                  28%                  31%                  33%
DB_BYTES_UNIDENTIFIED                     0                    0                    0                    0
DB_NUM_UNIDENTIFIED                       0                    0                    0                    0
DB_AVG_NUM_UNIDENTIFIED                   0                    0                    0                    0
DB_PCT_NUM_FRAGD_FSE                    18%                  15%                  12%                   9%
DB_AVG_NUM_FRAGD_FSE                   0.24                 0.21                 0.18                 0.15
```

Figure 73: Sensor Data History report (Short type) - Part 2 of 2

Report field descriptions

The Sensor Data History report (Short type) shows the following fields:

Description of each data element can be referred to from the following URL:

This URL links to the web version of the topic in “Reference: Policy Services data elements” on page 142. You can refer to the description of each data element from the subtopics of this page.

Database Statistics | Partition Statistics | Area Statistics

This part shows a list of sensor data elements of the non-HALDB database level, HALDB partition level, or DEDB area level.

DBD

Shows the name of the database.

Partition

Shows the name of the HALDB partition. This field is displayed only for HALDB.

Area

Shows the name of the DEDB area. This field is displayed only for DEDB.

DB type

Shows the type of the database.

Data Set Statistics

This part shows a list of sensor data elements of the data set group level.

DBD

Shows the name of the database.

Partition

Shows the name of the HALDB partition. This field is displayed only for HALDB.

Area

Shows the name of the DEDB area. This field is displayed only for DEDB.

DB type

Shows the type of the database.

DSG

Shows the ID of the data set group.

DD name

Shows the DD name of the data set.

Data elements related to ...

This title is enclosed by double lines and shows a classification of the listed data elements. The title corresponds to the reference topic title of this guide.

Data Element Name

This column shows the names of data elements.

yyyy-mm-dd hh:mm:ss

The date and time indicates when the data elements were stored in the IMS Tools KB Sensor Data repository by DB Sensor. The date and time is shown in local time.
This column shows the value of each data element at the indicated point of time. If a certain data element is not stored in the repository, `'n/a'` is shown.

Sensor Data History report (Long type)

The Sensor Data History report of Long type contains data element values of sensor data with their collected dates. This report is generated in the data set that is specified by the DSN_LONG keyword.

This report contains the data element names, their values, and their collected dates. For the definitions of these data elements, see “Reference: Policy Services data elements” on page 142. The URL in the report header indicates the link to this topic on the web.

This report can contain up to 999 generations of sensor data. If more than 999 generations are extracted, only the 999 most recent generations are shown.

Sample report

The following figure shows an example of the Sensor Data History report of Long type. In this example, six generations of sensor data are reported.

```
Tools Base Policy Services - V1R8               Sensor Data History Report                                        Page:       1
5655-V93                                                                                                 Date: 2026-02-20  Time: 06:42:11

Description of each data element can be referred from following URL:
https://www.ibm.com/docs/en/SSS8US_1.8.0/aiips/topics/aiips_policy-dataelement.html

Area Statistics (DBD: DEDBJN24, Area: DB24AR0, DB Type: DEDB)

============================================================
Data elements related to AREA definition
============================================================

Data Element Name        2026-01-31 00:00:00  2026-01-24 00:00:00  2026-01-17 00:00:00  2026-01-10 00:00:00  2026-01-03 00:00:00    Data Element Name        2025-12-24 00:00:00
------------------------ -------------------  -------------------  -------------------  -------------------  -------------------    ------------------------ -------------------
DB_AREADEF_CISIZE                      2,048                2,048                2,048                2,048                2,048    DB_AREADEF_CISIZE                      2,048
DB_AREADEF_UOW1                           24                   24                   24                   24                   24    DB_AREADEF_UOW1                           24
DB_AREADEF_UOW2                            4                    4                    4                    4                    4    DB_AREADEF_UOW2                            4
DB_AREADEF_ROOT1                       7,500                7,500                7,500                7,500                7,500    DB_AREADEF_ROOT1                       7,500
DB_AREADEF_ROOT2                       1,100                1,100                1,100                1,100                1,100    DB_AREADEF_ROOT2                       1,100
DB_AREADEF_NUM_SDEP_CIS                8,974                8,974                8,974                8,974                8,974    DB_AREADEF_NUM_SDEP_CIS                8,974
```

==========
Data elements related to free space in an area
==========

Data Element Name	2026-01-31 00:00:00	2026-01-24 00:00:00	2026-01-17 00:00:00	2026-01-10 00:00:00	2026-01-03 00:00:00	Data Element Name	2025-12-24 00:00:00
DB_PCT_BYTES_FS_RAA	64%	64%	64%	64%	64%	DB_PCT_BYTES_FS_RAA	64%
DB_PCT_BYTES_FS_DOVF	75%	77%	79%	81%	83%	DB_PCT_BYTES_FS_DOVF	83%
DB_PCT_BYTES_FS_IOVF	87%	88%	89%	90%	91%	DB_PCT_BYTES_FS_IOVF	91%
DB_PCT_BYTES_FS_SDEP	99%	99%	99%	99%	99%	DB_PCT_BYTES_FS_SDEP	99%

==========
Data elements related to overflow in an area
==========

Data Element Name	2026-01-31 00:00:00	2026-01-24 00:00:00	2026-01-17 00:00:00	2026-01-10 00:00:00	2026-01-03 00:00:00	Data Element Name	2025-12-24 00:00:00
DB_PCT_NUM_UOW_USE_DOVF	24%	22%	20%	18%	16%	DB_PCT_NUM_UOW_USE_DOVF	16%
DB_AVG_NUM_DOVFCI_BY_UOW	0.60	0.55	0.50	0.45	0.40	DB_AVG_NUM_DOVFCI_BY_UOW	0.40
DB_MAX_NUM_DOVFCI_BY_UOW	12	11	10	9	8	DB_MAX_NUM_DOVFCI_BY_UOW	8
DB_PCT_NUM_UOW_USE_IOVF	12%	11%	10%	9%	8%	DB_PCT_NUM_UOW_USE_IOVF	8%
DB_NUM_UOW_USE_IOVF	72	66	60	54	48	DB_NUM_UOW_USE_IOVF	48
DB_AVG_NUM_IOVFCI_BY_UOW	0.12	0.11	0.10	0.09	0.08	DB_AVG_NUM_IOVFCI_BY_UOW	0.08
DB_MIN_NUM_IOVFCI_BY_UOW	12	11	10	9	8	DB_MIN_NUM_IOVFCI_BY_UOW	8
DB_PCT_NUM_IOVFCI_USED	12%	11%	10%	9%	8%	DB_PCT_NUM_IOVFCI_USED	8%
DB_PCT_NUM_RAPCI_OVFL	24%	22%	20%	18%	16%	DB_PCT_NUM_RAPCI_OVFL	16%

==========
Data elements related to segment occurrences in an area
==========

Data Element Name	2026-01-31 00:00:00	2026-01-24 00:00:00	2026-01-17 00:00:00	2026-01-10 00:00:00	2026-01-03 00:00:00	Data Element Name	2025-12-24 00:00:00
DB_NUM_SEG	1,795,862	1,710,344	1,628,899	1,551,332	1,477,459	DB_NUM_SEG	1,477,459

==========
Data elements related to database records in an area
==========

Data Element Name	2026-01-31 00:00:00	2026-01-24 00:00:00	2026-01-17 00:00:00	2026-01-10 00:00:00	2026-01-03 00:00:00	Data Element Name	2025-12-24 00:00:00
DB_NUM_ROOT	142,581	138,428	134,396	130,481	126,680	DB_NUM_ROOT	126,680
DB_AVG_DBREC_LENGTH	1,174.95	1,151.91	1,129.32	1,107.17	1,085.46	DB_AVG_DBREC_LENGTH	1,085.46
DB_MAX_DBREC_LENGTH	4,925	4,477	4,070	3,700	3,363	DB_MAX_DBREC_LENGTH	3,363
DB_MIN_DBREC_LENGTH	668	642	617	593	570	DB_MIN_DBREC_LENGTH	570
DB_PCT_NUM_DBREC_IOVF	12%	11%	10%	9%	8%	DB_PCT_NUM_DBREC_IOVF	8%

==========
Data elements related to synonym in an area
==========

Data Element Name	2026-01-31 00:00:00	2026-01-24 00:00:00	2026-01-17 00:00:00	2026-01-10 00:00:00	2026-01-03 00:00:00	Data Element Name	2025-12-24 00:00:00
DB_AVG_LEN_SYNONYM_CHAIN	0.24	0.22	0.20	0.18	0.16	DB_AVG_LEN_SYNONYM_CHAIN	0.16
DB_MAX_LEN_SYNONYM_CHAIN	13	12	11	10	9	DB_MAX_LEN_SYNONYM_CHAIN	9

==========
Data elements related to physical I/O in an area
==========

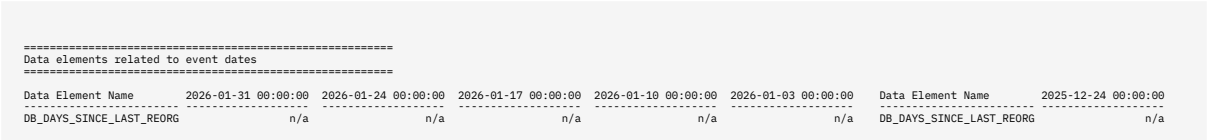
Data Element Name	2026-01-31 00:00:00	2026-01-24 00:00:00	2026-01-17 00:00:00	2026-01-10 00:00:00	2026-01-03 00:00:00	Data Element Name	2025-12-24 00:00:00
DB_AVG_DBREC_IO	1.48	1.44	1.40	1.36	1.32	DB_AVG_DBREC_IO	1.32
DB_ESTIMATED_DBREC_IO	1.60	1.55	1.50	1.45	1.40	DB_ESTIMATED_DBREC_IO	1.40
DB_MAX_DBREC_IO	13	12	11	10	9	DB_MAX_DBREC_IO	9
DB_AVG_ROOT_IO	1.24	1.22	1.20	1.18	1.16	DB_AVG_ROOT_IO	1.16
DB_ESTIMATED_ROOT_IO	1.36	1.33	1.30	1.27	1.24	DB_ESTIMATED_ROOT_IO	1.24
DB_MAX_ROOT_IO	13	12	11	10	9	DB_MAX_ROOT_IO	9

==========
Data elements related to UOW statistics information
==========

Data Element Name	2026-01-31 00:00:00	2026-01-24 00:00:00	2026-01-17 00:00:00	2026-01-10 00:00:00	2026-01-03 00:00:00	Data Element Name	2025-12-24 00:00:00
DB_FLAG_UOW_DATA	N	N	N	N	N	DB_FLAG_UOW_DATA	N
DB_FLAG_UOW_GROUP_DATA	N	N	N	N	N	DB_FLAG_UOW_GROUP_DATA	N
DB_NUM_UOW_GROUPS	n/a	n/a	n/a	n/a	n/a	DB_NUM_UOW_GROUPS	n/a

==========
Data elements related to repository group information
==========

Data Element Name	2026-01-31 00:00:00	2026-01-24 00:00:00	2026-01-17 00:00:00	2026-01-10 00:00:00	2026-01-03 00:00:00	Data Element Name	2025-12-24 00:00:00
DB_SENSOR_DATA_GROUP_ID	n/a	n/a	n/a	n/a	n/a	DB_SENSOR_DATA_GROUP_ID	n/a



```
============================================================
Data elements related to event dates
============================================================

Data Element Name        2026-01-31 00:00:00  2026-01-24 00:00:00  2026-01-17 00:00:00  2026-01-10 00:00:00  2026-01-03 00:00:00    Data Element Name        2025-12-24 00:00:00
------------------------ -------------------  -------------------  -------------------  -------------------  -------------------    ------------------------ -------------------
DB_DAYS_SINCE_LAST_REORG                  n/a                  n/a                  n/a                  n/a                  n/a    DB_DAYS_SINCE_LAST_REORG                  n/a
```

Figure 74: Sensor Data History report (Long type)

Report field descriptions

The Sensor Data History report (Long type) shows the following fields:

Description of each data element can be referred to from the following URL:

This URL links to the web version of the topic in “Reference: Policy Services data elements” on page 142. You can refer to the description of each data element from the subtopics of this page.

Database Statistics | Partition Statistics | Area Statistics

This part shows a list of sensor data elements of the non-HALDB database level, HALDB partition level, or DEDB area level.

DBD

Shows the name of the database.

Partition

Shows the name of the HALDB partition. This field is displayed only for HALDB.

Area

Shows the name of the DEDB area. This field is displayed only for DEDB.

DB type

Shows the type of the database.

Data Set Statistics

This part shows a list of sensor data elements of the data set group level.

DBD

Shows the name of the database.

Partition

Shows the name of the HALDB partition. This field is displayed only for HALDB.

Area

Shows the name of the DEDB area. This field is displayed only for DEDB.

DB type

Shows the type of the database.

DSG

Shows the ID of the data set group.

DD name

Shows the DD name of the data set.

Data elements related to ...

This title is enclosed by double lines and shows a classification of the listed data elements. The title corresponds to the reference topic title of this guide.

Data element name

This column shows the names of data elements.
For readability, this column is repeated after every five generations (every five *yyyy-mm-dd hh:mm:ss* columns) of sensor data.

yyyy-mm-dd hh:mm:ss

The date and time indicates when the data elements were stored in the IMS Tools KB Sensor Data repository by DB Sensor. The date and time is shown in local time.
This column shows the value of each data element at the indicated point of time. If a certain data element is not stored in the repository, `'n/a'` is shown.

Sensor Data History report (CSV type)

The Sensor Data History report of CSV type contains a list of data element values of sensor data with their collected dates. This report is in CSV (comma-separated values) format and generated in the data set that is specified by the DSN_CSV keyword.

This report contains data element names, their values, and their collected dates. For the definitions of these data elements, see “Reference: Policy Services data elements” on page 142.

This report can contain up to 999 generations of sensor data. If more than 999 generations are extracted, only the 999 most recent generations are shown.

Sample report

The following figure shows an example of the Sensor Data History report of CSV type. In this example, four generations of sensor data are reported.

```
#1001=DB_NUM_ROOT
#1002=DB_NUM_SYNONYM
#1003=DB_PCT_NUM_SYNONYM
#1004=DB_NUM_ROOT_NOHOME
#1005=DB_PCT_NUM_ROOT_NOHOME
#1006=DB_NUM_ROOT_OVFL
#1007=DB_PCT_NUM_ROOT_OVFL
#1008=DB_BYTES_SEG_RAA
#1009=DB_PCT_BYTES_OVFL
#1010=DB_NUM_RAP
#1011=DB_NUM_UNUSED_RAP
#1012=DB_PCT_NUM_UNUSED_RAP
#1013=DB_AVG_DBREC_LENGTH
#1020=DB_FLAG_SMS
        :
        :
#Timestamp,DBD,PARTAREA,DSG,1001,1002,1003,1004,1005,1006,1007,1008,1009,1010,1011,1012,1013,1020,1022,1023,1024,1025,1026,1027,1028  ....
2026-01-31T00:51:01-04:00,HDAMVSAM,,0,212242,87755,41,15573,7,3000,1,73624950,9,192000,58136,30,1751.78,,,
```

If the data record is for sensor data of a database or an area level, *dsg_number* shows '0'.
If the data record is for sensor data of a data set group level, *dsg_number* shows the DSG number.

value_n

Shows the data element value of *number_n* that is indicated in the header record. If *value_n* shows nothing, it means that the data element *number_n* is not applicable for the sensor data record or that the data element for the sensor data record is not stored in the IMS Tools KB repository.

JCL examples for the Sensor Data Extractor

Use these JCL examples to code JCL statements for the Sensor Data Extractor.

In this topic:

- "Example 1: Extracting latest sensor data from all domains to generate a Short type report" on page 106
- "Example 2: Extracting sensor data of multiple generations to generate a Short type report" on page 106
- "Example 3: Extracting sensor data of a specific date and later to generate a Long type report" on page 107
- "Example 4: Generating all types of reports" on page 107

Example 1: Extracting latest sensor data from all domains to generate a Short type report

The following figure shows example JCL for extracting the latest non-HALDB sensor data from all policy domains.

Figure 76: Example 1: Extracting latest sensor data from all domains

```
//PGM1     EXEC PGM=BSNUTIL0,PARM='FUNC=EXTRACT_SENSOR'
//STEPLIB  DD DISP=SHR,DSN=ITB.SHKTLOAD
//BSNUJRNL DD SYSOUT=*
//BSNURPRT DD SYSOUT=*
//BSNSYSIN DD *
  ITKBSRVR(FPQSRV01)
  RECONID(RECON1)
  DOMAIN(ALL)
  DBDNAME(HDAMVSAM)
  HISTORY(NO)
/*
```

In this example, sensor data of both REORG and RECOVERY domains are extracted and reported because DOMAIN(ALL) is specified.

The latest sensor data is extracted and reported because HISTORY(NO) is specified.

The Sensor Data History report of Short type is generated in the BSNURPRT data set because REPORT_TYPE(SHORT) (default value) is assumed.

Example 2: Extracting sensor data of multiple generations to generate a Short type report

The following figure shows example JCL for extracting three generations of HALDB sensor data.

Figure 77: Example 2: Extracting multiple generations of sensor data

```
//PGM1     EXEC PGM=BSNUTIL0,PARM='FUNC=EXTRACT_SENSOR'
//STEPLIB  DD DISP=SHR,DSN=ITB.SHKTLOAD
//BSNUJRNL DD SYSOUT=*
//BSNURPRT DD SYSOUT=*
//BSNSYSIN DD *
  ITKBSRVR(FPQSRV01)
  RECONID(RECON1)
  DOMAIN(REORG)
  DBDNAME(PHIO0100)
  PARTNAME(PHIO01A)
  GENERATION(3)
/*
```

In this example, sensor data of REORG domain is extracted and reported because DOMAIN(REORG) is specified.

The sensor data of three most recent generations is extracted and reported because HISTORY(YES) (default) is assumed and GENERATION(3) is specified.

The Sensor Data History report of Short type is generated in the BSNURPRT data set because REPORT_TYPE(SHORT) (default value) is assumed.

Example 3: Extracting sensor data of a specific date and later to generate a Long type report

The following figure shows example JCL for extracting DEDB sensor data of a specific date and later to generate a Sensor Data History Report of Long type.

Figure 78: Example 3: Extracting sensor data of a specific date and later to generate a Long type report

```
//PGM1     EXEC PGM=BSNUTIL0,PARM='FUNC=EXTRACT_SENSOR'
//STEPLIB  DD DISP=SHR,DSN=ITB.SHKTLOAD
//BSNUJRNL DD SYSOUT=*
//BSNSYSIN DD *
  ITKBSRVR(FPQSRV01)
  RECONID(RECON1)
  DOMAIN(REORG)
  DBDNAME(DEDBJN24)
  AREANAME(DB24AR0)
  LASTDATE(20260101)
  REPORT_TYPE(LONG)
  DSN_LONG(ITB.REPORT.LONG)
/*
```

In this example, sensor data of REORG domain is extracted and reported because DOMAIN(REORG) is specified.

Sensor data of all generations, which was collected on January 1st, 2026 and later, is extracted and reported because HISTORY(YES) (default) is assumed and LASTDATE(20260101) is specified.

A Sensor Data History report of Long type is generated in the data set named ITB.REPORT.LONG because REPORT_TYPE(LONG) and DSN_LONG(ITB.REPORT.LONG) are specified.

Example 4: Generating all types of reports

The following figure shows example JCL for extracting non-HALDB sensor data and generating all types of Sensor Data History reports.

Figure 79: Example 4: Generating all types of reports

```
//PGM1     EXEC PGM=BSNUTIL0,PARM='FUNC=EXTRACT_SENSOR'
//STEPLIB  DD DISP=SHR,DSN=ITB.SHKTLOAD
//BSNUJRNL DD SYSOUT=*
//BSNURPRT DD SYSOUT=*
//BSNSYSIN DD *
  ITKBSRVR(FPQSRV01)
  RECONID(RECON1)
  DOMAIN(REORG)
  DBDNAME(HDAMVSAM)
  GENERATION(999)
  REPORT_TYPE(SHORT,LONG,CSV)
  DSN_LONG(ITB.REPORT.LONG)
  DSN_CSV(ITB_REPORT.CSV)
/*
```

In this example, sensor data of REORG domain is extracted and reported because DOMAIN(REORG) is specified.

Sensor data of 999 generations (or all generations if less than 999 generations are stored in the repository) is extracted and reported because HISTORY(YES) (default) is assumed and GENERATION(999) is specified.

Short, Long, and CSV types of Sensor Data History reports are generated because REPORT_TYPE(SHORT,LONG,CSV) is specified.

A Sensor Data History Report of Long type is generated in the data set named ITB.REPORT.LONG because DSN_LONG(ITB.REPORT.LONG) is specified.

A Sensor Data History Report of CSV type is generated in the data set named ITB.REPORT.CSV because DSN_LONG(ITB.REPORT.CSV) is specified.

Statistics Data Import Utility

The Statistics Data Import Utility imports sensor data from CSV-formatted files and stores the imported data in a sequential data set called the *historical sensor data set*. The Statistics Data Import Utility also stores the import information in the IMS Tools Knowledge Base (IMS Tools KB) Sensor Data repository.

Topics:

- "Statistics Data Import Utility overview" on page 108

- “Running the Statistics Data Import Utility” on page 109
- “EXEC and DD statements for the Statistics Data Import Utility” on page 109
- “Control statements for the Statistics Data Import Utility” on page 111
- “Input CSV-formatted data sets for the Statistics Data Import Utility” on page 115
- “Alias definition table for the Statistics Data Import Utility” on page 117
- “Output from the Statistics Data Import Utility” on page 117
- “JCL examples for the Statistics Data Import Utility” on page 122

Statistics Data Import Utility overview

The Statistics Data Import Utility imports sensor data from CSV-formatted files and stores the imported data in a sequential data set called the *historical sensor data set*. The Statistics Data Import Utility also stores catalog information about the imported sensor data (*utility history data*) in the IMS Tools Knowledge Base (IMS Tools KB) Sensor Data repository.

Before importing sensor data, you need to prepare CSV files that contain information about the database sensor data that you want to import.

The imported sensor data can be referred to by the IMS Tools products that support imported sensor data.

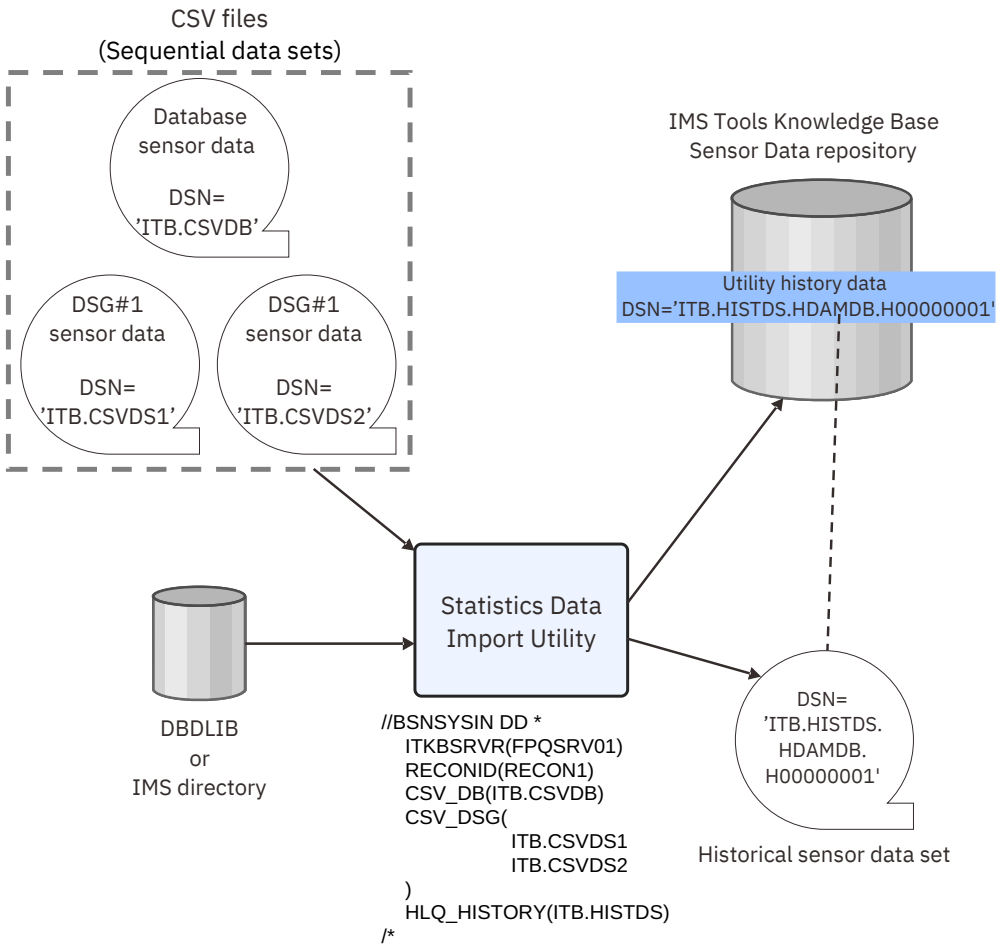


Figure 80: Importing sensor data by using the Statistics Data Import Utility

Running the Statistics Data Import Utility

The Statistics Data Import Utility runs as a standard z/OS® batch job. To import sensor data to a historical sensor data set, prepare CSV-formatted data sets to be imported, code the Statistics Data Import Utility JCL, and run the job.

Procedure

1. Prepare CSV-formatted data sets that contain information about sensor data for a database, a partition, an area, or a database data set.
   For the format of the CSV data set, see "Input CSV-formatted data sets for the Statistics Data Import Utility" on page 115.
2. Write the JCL EXEC and DD statements.
   For the format of the EXEC statement and the list of DD statements, see "EXEC and DD statements for the Statistics Data Import Utility" on page 109.
3. Code the control statements in the BSNSYSIN data set.
   For the syntax of the control statements, see "Control statements for the Statistics Data Import Utility" on page 111.

   The following figure shows a JCL example for the Statistics Data Import Utility:

   Figure 81: JCL example for the Statistics Data Import Utility

```
//BSNUTIL0 JOB  CLASS=A
//PGM1     EXEC PGM=BSNUTIL0,PARM='FUNC=IMPORT_STATS'
//STEPLIB  DD DISP=SHR,DSN=ITB.SHKTLOAD
//IMS      DD DISP=SHR,DSN=IMS.DBDLIB
//BSNUJRNL DD SYSOUT=*
//BSNURPRT DD SYSOUT=*
//BSNSYSIN DD *
  ITKBSRVR(FPQSRV01)
  RECONID(RECON1)
  CSV_DB(ITB.CSV.HDAMDB1.DB)
  CSV_DSG(
           ITB.CSV.HDAMDB1.DSG01
           ITB.CSV.HDAMDB1.DSG02
  )
  HLQ_HISTORY(ITB.HISTORY)
/*
```

4. Run the Statistics Data Import Utility job step to import sensor data. Ensure that the return code is 0.
   You can view the Imported Sensor Data report to check the details of the import results. For an example of the Imported Sensor Data report, see "Imported Sensor Data report" on page 119.

EXEC and DD statements for the Statistics Data Import Utility

You must specify an EXEC statement and DD statements that define the input and output data sets in your JCL.

In this topic:

- "EXEC statement" on page 109
- "Summary of DD statements" on page 110
- "DD statements for input" on page 110
- "DD statements for output" on page 110

EXEC statement

The EXEC statement must be in the following format:

```
//STEP EXEC PGM=BSNUTIL0,PARM='FUNC=IMPORT_STATS'
```

The EXEC statement in the batch JCL contains one keyword specification in the PARM field: `FUNC=`.

FUNC

Identifies which Policy Services utility is to be invoked.
To invoke the Statistics Data Import Utility, specify either `'IMPORT_STATS'` or `'IMPS'`.

Summary of DD statements

DD statements for the Statistics Data Import Utility determine the input and output data sets and specify how to run the Statistics Data Import Utility.

The following table summarizes the DD statements for the Statistics Data Import Utility.

Table 11: DD statements for the Statistics Data Import Utility

DD name	Use	Format	Can be dynamically allocated?	Required or optional?
STEPLIB	Input	RECFM=U	No	Required
IMS	Input	RECFM=U	No	Required if the IMSCATHLQ keyword is not specified
BSNSYSIN	Input	RECFM=FB,LRECL=80	No	Required
BSNUJRNL	Output	RECFM=FBA,LRECL=133	Yes	Optional
BSNURPRT	Output	RECFM=FBA,LRECL=133	Yes	Optional

DD statements for input

The following input DD statements are used for the Statistics Data Import Utility.

STEPLIB

This DD statement is required. It specifies the following load module libraries:

- The IMS Tools Base library (SHKTLOAD). This library is required.
- The IMS Tools Base library (SGLXLOAD). This library is required if you specify the IMSCATHLQ keyword.
- The IMS load module library (SDFSRESL). This library is required if you specify the IMSCATHLQ keyword.

IMS

If you do not specify the IMSCATHLQ keyword, this DD statement is required. It specifies the library that contains the DBD. The DBD name is described in the input CSV data set.
If you specify the IMSCATHLQ keyword, the IMS DD statement is not required; the IMS directory is used instead of the DBD library.

BSNSYSIN

This DD statement is required. It specifies the input control statement that controls the Statistics Data Import Utility functions.
The BSNSYSIN DD statement can be coded as a standard SYSIN file, a sequential data set, or a PDS member. LRECL=80 is required for the DCB of this data set.

For details about coding the BSNSYSIN DD statement, see “Control statements for the Statistics Data Import Utility” on page 111.

DD statements for output

The following output DD statements are used for the Statistics Data Import Utility.

BSNUJRNL

This DD statement is optional. It specifies the processing log output data set, which stores processing messages that are issued by the Statistics Data Import Utility.
If you do not specify this DD statement, the Statistics Data Import Utility dynamically allocates the data set by using SYSOUT=*.

BSNURPRT

This DD statement is optional. It specifies the report output data set, which stores the Imported Sensor Data report.
If you do not specify this DD statement, the Statistics Data Import Utility dynamically allocates the data set by using SYSOUT=*.

Control statements for the Statistics Data Import Utility

The control statement for the Statistics Data Import Utility controls the functions of the Statistics Data Import Utility.

The control statement must be specified in the BSNSYSIN data set. This control statement data set generally resides in the input stream. However, it can also be defined as a sequential data set or as a member of a partitioned data set. It must contain 80-byte, fixed-length records. The block size, if coded, must be a multiple of 80.

The control statement must be coded in columns 1 - 72. Columns 73 - 80 are regarded as comments and ignored.

In this topic:

- "Format of the control statement" on page 111
- "Summary of keywords" on page 111
- "Description of keywords" on page 112

Format of the control statement

The control statement includes a set of keywords, parameters, and comments that are specified in the BSNSYSIN data set.

Keywords

A keyword defines an option for the Statistics Data Import Utility. Keywords can be specified in any order, and any two adjacent keywords must be separated by a blank or a comma. Each keyword has one or more associated parameters.

Parameters

A parameter defines a value for the associated keyword. Some keywords require only one parameter and others require one or more parameters. Parameters must be character or numeric values.
A keyword and the associated parameters are separated by parentheses. If two or more parameters are specified, any two adjacent parameters must be separated by a blank or a comma. For example,

```
keyword(parameter)
keyword(parameter1,parameter2,parameter3)
keyword(parameter1 parameter2 parameter3)
```

Comments

You can include comments in the BSNSYSIN data set by marking a line with an asterisk (*) in column 1. The Statistics Data Import Utility ignores the comment line when analyzing the control statement in the BSNSYSIN data set.

Summary of keywords

The following table summarizes the keywords of the control statement for the Statistics Data Import Utility.

Table 12: Keywords for the Statistics Data Import Utility

Keyword	Required or optional?	Default	Description
CATALIAS	Optional	N/A	Specifies the 4-character alphanumeric alias prefix that is used to address the catalog database.
CSV_AREA	Optional	N/A	Specifies the name of a data set that contains CSV-formatted sensor data for a DEDB area.
CSV_DB	Optional	N/A	Specifies the name of a data set that contains CSV-formatted sensor data for a database.
CSV_DSG	Optional	N/A	Specifies the names of the data sets that contain CSV-formatted sensor data for database data sets.
DSN_ALIASDEF	Optional	N/A	Specifies the name of a data set that contains the alias definition table.

Keyword	Required or optional?	Default	Description
HLQ_CSVSET	Optional	N/A	Specifies the data set high level qualifier for a set of CSV-formatted sensor data sets for one or more databases, partitions, and areas.
HLQ_HISTORY	Required	N/A	Specifies the data set high level qualifier for the historical sensor data set.
IMSCATHLQ	Optional	N/A	Specifies the data set high level qualifier for the bootstrap data set of the IMS directory.
INPUT_FORMAT	Optional	CSV	Specifies the format of the input sensor data to be imported.
ITKBSRVR	Required	N/A	Specifies the name of the IMS Tools KB server XCF group.
RECONID	Required	N/A	Specifies a RECON ID.

Description of keywords

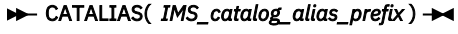
The following keywords are available for the control statement.

> **Note:** For the format of the input CSV-formatted sensor data, see "Input CSV-formatted data sets for the Statistics Data Import Utility" on page 115.

CATALIAS

This keyword specifies the alias prefix of the IMS catalog. When specified, sensor data for the aliased IMS catalog is imported.
CATALIAS is an optional keyword. When specified, you must also specify the IMSCATHLQ keyword.

Format:



IMS_catalog_alias_prefix

Specify a 4-character alphanumeric alias prefix of the IMS catalog. If this keyword is omitted, CATALIAS=DFSC is used.

CSV_AREA

This keyword specifies the name of a data set that contains CSV-formatted sensor data for a DEDB area. You can specify only one data set name.
CSV_AREA is an optional keyword. The CSV_AREA keyword cannot be specified with either the CSV_DB keyword or the CSV_DSG keyword.

Format:

data_set_name

Specify a 1- to 44-character data set name. There is no default.

CSV_DB

This keyword specifies the name of a data set that contains CSV-formatted sensor data for a full-function database. You can specify only one data set name.
CSV_DB is an optional keyword. The CSV_DB keyword cannot be specified with the CSV_AREA keyword.

Format:

data_set_name

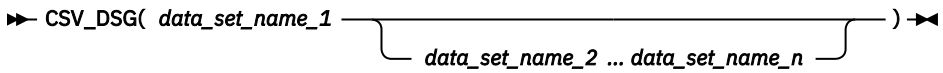
Specify a 1- to 44-character data set name. There is no default.

CSV_DSG

This keyword specifies the names of the data sets that contain CSV-formatted sensor data for database data sets.
You can specify up to 10 data sets. Each data set must contain sensor data for a different database data set.

CSV_DSG is an optional keyword. The CSV_DSG keyword cannot be specified with the CSV_AREA keyword.

Format:



data_set_name_n

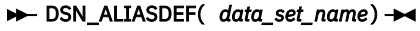
Specify a 1- to 44-character data set name. There is no default.
You can specify up to 10 data set names. Each data set must contain sensor data for a different database data set.

DSN_ALIASDEF

This keyword specifies the name of a data set that contains the alias definition table. By defining aliases of data element names in the alias definition table, you can use those aliases as column names in the input CSV-formatted data sets.
For the format of the alias definition table, see "Alias definition table for the Statistics Data Import Utility" on page 117.

DSN_ALIASDEF is an optional keyword.

Format:



data_set_name

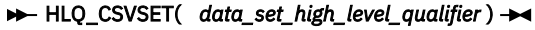
Specify a 1- to 44-character data set name. There is no default.

HLQ_CSVSET

This keyword specifies the data set high level qualifier for a set of CSV-formatted sensor data sets for one or more databases, partitions, or areas.
HLQ_CSVSET is an optional keyword. The HLQ_CSVSEST keyword cannot be specified with the CSV_DB keyword, the CSV_DSG keyword, or the CSV_AREA keyword.

By using the HLQ_CSVSET keyword, you can import multiple databases, HALDB partitions, and DEDB areas in a single job step.

Format:



data_set_high_level_qualifier

Specify a 1- to 17-character high level qualifier of the CSV-formatted sensor data sets. There is no default.

The names of the CSV-formatted data sets must follow the following rule:

Table 13: CSV-formatted data set names

Database type	Sensor data for a database or an area	Sensor data for a database data set
Full-function database (non-HALDB)	*hlq.dbdname*	*hlq.dbdname.string*
Full-function database (HALDB)	*hlq.dbdname.partname*	*hlq.dbdname.partname.string*
Fast Path database (DEDB)	*hlq.dbdname.areaname*	Not applicable

where:
hlq is the high level qualifier specified by the HLQ_CSVSET keyword.
dbdname is the DBD name.
partname is the HALDB partition name.
areaname is the DEDB area name.

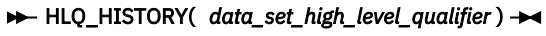
string is any qualifier.

If the DBD member specified by the *dbdname* qualifier does not exist in the DBD library, the relevant CSV-formatted data set is not processed.

HLQ_HISTORY

This keyword specifies the data set high level qualifier of the historical sensor data set.
HLQ_HISTORY is a required keyword.

Format:



data_set_high_level_qualifier

Specify a 1- to 17-character high level qualifier of the output (historical) sensor data set. There is no default.

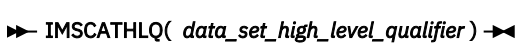
The Statistics Data Import Utility determines the name of the historical sensor data set by using the high level qualifier specified by the HLQ_HISTORY keyword and the name of the DBD, the partition, or the area to be imported.

IMSCATHLQ

This keyword specifies the data set high level qualifier for the bootstrap data set of the IMS directory.
IMSCATHLQ is an optional keyword.

If you specify the IMSCATHLQ keyword, you must enable the IMS catalog and the IMS management of ACBs.

Format:



data_set_high_level_qualifier

Specify a 1- to 37-character high level qualifier for the bootstrap data set of the IMS directory. There is no default.
The Statistics Data Import Utility reads database definitions from the IMS directory instead of the DBD library by using IMS Tools Catalog Interface.

If you specify the IMSCATHLQ keyword, you must add the following libraries to the STEPLIB DD statement:

- The IMS Tools Base library (SGLXLOAD)
- The IMS load module library (SDFSRESL)

INPUT_FORMAT

This keyword specifies the format of input sensor data.
INPUT_FORMAT is an optional keyword.

Format:

CSV

Indicates that the input sensor data is a CSV-formatted data set. This is the default.

ITKBSRVR

This keyword specifies the name of the IMS Tools KB server XCF group. The Statistics Data Import Utility stores catalog information about the imported sensor data (utility history data) in the IMS Tools KB Sensor Data repository, which is managed by the IMS Tools KB server.
ITKBSRVR is a required keyword.

Format:

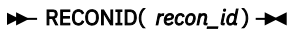
server_name

Specify a 1- to 8-character IMS Tools KB server XCF group name. There is no default.

RECONID

This keyword specifies the RECON ID that is associated with the RECON1 data set name in the IMS Tools KB repository.
RECONID is a required keyword.

Format:



recon_id

Specify a 1- to 8-character RECON ID. There is no default.

Input CSV-formatted data sets for the Statistics Data Import Utility

The Statistics Data Import Utility obtains sensor data to be imported from CSV-formatted data sets.

The CSV-formatted data sets must follow the following rules:

- The data set organization is physical sequential (PS), and the record format (RECFM) is VB.
- Each data value is separated by a comma.
- The first line is must be a header that includes a list of column names. There is no rule on the order of the columns. Column names are case-insensitive.
- Sensor data values of specific dates (Run Date) are placed under the header, starting from the second line. The data must be sorted in descending order of the Run Date column.

The following figure shows an example of a CSV-formatted data set.

```
DBD Name,Partition Name,DSG ID,Run Date,Request Type,Executions,DB_NUM_EXT,DB_RBA_HIGH_USED, ...
HDAMDB1,,1,2026/1/31,D,1,5,107421674,217701680,4,5,231525,115763,6655,5
HDAMDB1,,1,2026/1/15,D,1,4,104292887,209328538,4,4,220500,110250,6050,5
HDAMDB1,,1,2026/1/5,D,1,3,101255230,201277440,4,4,210000,105000,5500,5
HDAMDB1,,1,2026/1/2,D,1,2,98306048,193536000,4,4,200000,100000,5000,5
```

Summary of column names

Column names of a CSV-formatted data set determine the types of data values that are included in each column.

The following table summarizes the column names of a CSV-formatted data set.

Table 14: Column names of a CSV-formatted data set

Column name	Required or optional?	Description
DBD Name	Required	Specifies a database name.
Area Name	Required if the database is a DEDB	Specifies a DEDB area name.
Partition Name	Required if the database is a HALDB	Specifies a HALDB partition name.
DSG ID	Required if the sensor data is for a data set	Specifies a data set group ID.
Run Date	Required	Specifies the date when sensor data was collected.
Request Type	Optional	Specifies a request summary type.
Executions	Optional	Specifies the number of executions.
(data element name)	Required	Specifies a data element name. At least one data element is required.

Description of column names

The following column names are available for a CSV-formatted data set.

DBD Name

The DBD Name column specifies a database name.

The DBD Name column is required.

The database names in the DBD Name column must be the same on all lines and in all input CSV-formatted data sets.

Area Name

The Area Name column specifies a DEDB area name. The Area Name is required if the database is a DEDB.
If the value in the Area Name column is blank or null, the database is considered as a non-DEDB.

The area names in the Area Name column must be the same on all lines and in all input CSV-formatted data sets.

Partition Name

The Partition Name column specifies a HALDB partition name. The Partition Name is required if the database is a HALDB.
If the value in the Partition Name column is blank or null, the database is considered as a non-HALDB.

The partition names in the Partition Name column must be the same on all lines and in all input CSV-formatted data sets.

DSG ID

The DSG ID column specifies a data set group ID. Specify a data set group ID in the range of 1 to 10.
The DSG ID column is required if the CSV-formatted data set contains sensor data for a database data set specified by the CSV_DSG keyword.

If the DSG ID column is not defined, or if the value in the DSG ID column is 0, blank, or null, the Statistics Data Import Utility assumes that the sensor data in the CSV-formatted data set has been collected from a database or a DEDB area.

The values in the DSG ID column must be the same on all lines and in all input CSV-formatted data sets specified by the CSV_DSG keyword.

Run Date

The Run Date column specifies the date when the sensor data was collected. The Run Date column is required.
The format of the date is either *yyyy/mm/dd* (year/month/day) or *yyyy/mm* (year/month). The format must be the same on all lines and in all input CSV-formatted data sets. The dates in the Run Date column must be sorted in descending order.

If the Request Type column is not defined, or if the value of the Request Type column is `D`, the format of the date must be *yyyy/mm/dd*.

If the value of the Request Type column is `M`, the format of the date must be *yyyy/mm*.

Request Type

The Request Type column specifies the request summary type of the sensor data. The Request Type column is optional.
If the sensor data is a summary of a single day, specify `D`. If the sensor data is a summary of a single month, specify `M`.

If the sensor data is not a summary of multiple sensor job runs, do not define the Request Type column, or leave the column blank or null.

The values in the Request Type column must be the same on all lines and in all input CSV-formatted data sets.

Executions

The Executions column specifies the number of database sensor jobs that were run to collect sensor data if the sensor data was summarized. The Executions column is optional.
This column is applicable only if the Request Type column is either `D` or `M`.

(data element name)

This column specifies the data element name on the first line and the individual sensor data on subsequent lines. At least one data element name is required.
Individual sensor data is the data element value that was collected on the date specified by the Run Date column.

If 'null' is specified for the data element value, the value is considered as missing and is not imported to the historical sensor data set.

Alias definition table for the Statistics Data Import Utility

By creating the alias definition table, you can optionally use aliases for data element column names in the CSV-formatted sensor data set.

After creating the alias definition table, you need to specify the data set that contains the table by using the DSN_ALIASDEF keyword in the utility control statement.

An alias definition table must be created in a sequential data set. The DCB for the data set must indicate 80-byte, fixed-length records (RECFM=FB,LRECL=80). The block size, if coded, must be a multiple of 80.

Alias definitions must be coded in columns 1 - 72. Columns 73 - 80 are regarded as comments and ignored.

The following figure shows an example of an alias definition table:

```
*
*    Aliases of data elements for HDAM database
*
DB_NUM_ROOT        , Number of Root Segments
DB_NUM_SYNONYM     , Synonyms
DB_AVG_DBREC_LENGTH, Average Record Length
```

Each line must be in the following format:

data_element_name*,*alias_name

Specify a data element name, followed by a comma and the alias. Any number of blanks are allowed before and after the comma. Each alias must be unique within the alias definition table.

You can include comments in the alias definition table by marking a line with an asterisk (*) or a number sign (#) in column 1.

The following figure shows an example of using aliases for data element column names in a CSV-formatted data set:

```
DBD Name,Run Date,Request Type,Executions,Number of Root Segments,Synonyms,Average Record Length
HDAMDB1,2026/1/15,D,1,208,10,36.66
HDAMDB1,2026/1/5,D,1,112,5,16.21
HDAMDB1,2026/1/1,D,1,54,2,13.28
```

Output from the Statistics Data Import Utility

The Statistics Data Import Utility generates a Journal Messages report, a Process Summary report, a Data Element List report, and an Imported Sensor Data report.

Topics:

- “Journal Messages report” on page 117
- “Process Summary report” on page 118
- “Data Element List report” on page 119
- “Imported Sensor Data report” on page 119

Journal Messages report

The Journal Messages report contains processing messages about the Statistics Data Import Utility job. This report is generated in the BSNUJRNL data set.

Sample report

The following figure shows an example of the Journal Messages report:

```
Tools Base Policy Services - V1R8               Journal Messages                                Statistics Data Import Utility
5655-V93                                                                                        Date: 2026-02-20  Time: 22:29:46


2026-02-20 22:29:464 BSN8001I THE STATISTICS DATA IMPORT UTILITY PROCESS HAS STARTED.
2026-02-20 22:29:464 BSN8031I THE FOLLOWING OPTIONS ARE USED FOR THE STATISTICS DATA IMPORT UTILITY:
2026-02-20 22:29:464 BSN8031I  - ITKBSRVR     ... FPQSRV01
2026-02-20 22:29:464 BSN8031I  - RECONID      ... RECON1
2026-02-20 22:29:464 BSN8031I  - INPUT_FORMAT ... CSV
2026-02-20 22:29:464 BSN8031I  - CSV_DB       ... ITB.CSV.HDAMDB1.DB
2026-02-20 22:29:464 BSN8031I  - CSV_DSG      ... ITB.CSV.HDAMDB1.DSG01
2026-02-20 22:29:464 BSN8031I                     ITB.CSV.HDAMDB1.DSG02
2026-02-20 22:29:464 BSN8031I  - HLQ_HISTORY  ... ITB_HISTORY
2026-02-20 22:29:469 BSN8028I UTILITY HISTORY DATA WAS ADDED TO SENSOR DATA REPOSITORY.
2026-02-20 22:29:469 BSN8029I HISTORICAL SENSOR DATA SET WAS GENERATED.
2026-02-20 22:29:469 BSN8002I THE STATISTICS DATA IMPORT UTILITY PROCESS HAS ENDED NORMALLY.
```

Figure 82: Journal Messages report (Statistics Data Import Utility)

Process Summary report

The Process Summary report contains the summary of import processing by the Statistics Data Import Utility. This report is generated in the BSNURPRT data set only if the HLQ_CSVSET keyword was specified.

Sample report

The following figure shows an example of the Process Summary report:

```
Tools Base Policy Services - V1R8               Process Summary Report                                                  Page:       1
5655-V93                                                                                                Date: 2026-02-20  Time: 19:58:33

DBD name  Partname  CSV file names                                 Historical sensor data set name               Result   Detail page
--------  --------  ---------------------------------------------  --------------------------------------------  -------  -----------
HDAMDB1             ITB.CSV.HDAMDB1                                ITB.HISTORY.HDAMDB1.H0000001                  Success            1
                    ITB.CSV.HDAMDB1.DSG01

PHIDAM1   PARTA     ITB.CSV.PHIDAM1.PARTA                          ITB.HISTORY.PHIDAM1.PARTA.H0000001            Success            2
                    ITB.CSV.PHIDAM1.PARTA.DSG01
                    ITB.CSV.PHIDAM1.PARTA.DSG02

PHIDAM1   PARTB     ITB.CSV.PHIDAM1.PARTB.DSG01                    ITB.HISTORY.PHIDAM1.PARTB.H0000001            Success            3
```

Figure 83: Process Summary report

Report field descriptions

The Process Summary report shows the following fields:

DBD name

Shows the name of the database whose sensor data was imported.

Partname

Shows the name of the HALDB partition or the name of the DEDB area whose sensor data was imported. This field is blank if the database is neither a HALDB nor a DEDB.

CSV file names

Shows the names of the input CSV-formatted data sets that contain sensor data of the associated database, partition, or area.

Historical sensor data set name

Shows the name of the historical sensor data set in which the imported sensor data is stored.

Result

Shows the processing result for the database, the partition, or the area.

Success

Indicates that the import processing completed successfully.

Failure

Indicates that the import processing failed.

Skip

Indicates that the import processing was skipped due to a previous error.

Detail page

Shows the page number of the page in the Imported Sensor Data report that contains detailed information about this database, partition, or area.

Data Element List report

The Data Element List report contains a list of data elements for all databases, partitions, and DEDB areas that were imported by the Statistics Data Import Utility. This report is generated in the BSNURPRT data set only if the HLQ_CSVSET keyword was specified.

Sample report

The following figure shows an example of the Data Element List report:

```
Tools Base Policy Services - V1R8               Data Element List Report                                          Page:       1
5655-V93                                                                                                Date: 2026-02-20  Time: 19:58:33

IMS Tools uses data element names to process historical sensor data.
After historical sensor data is imported, aliases (column names in CSV files) are no longer used;
only data element names will be used.
Description of each data element can be referred to from the following URL:
https://www.ibm.com/docs/en/SSS8US_1.8.0/aiips/topics/aiips_policy-dataelement.html

The following historical sensor data was imported as data elements:

Column name in CSV file                     Data element name        Description of data element
------------------------------------------- ------------------------ ------------------------------------------------------------------
DB_DATABASE_TYPE                            DB_DATABASE_TYPE         The type of database organization.

Number of Root Segments                     DB_NUM_ROOT              The number of root segment occurrences in the database, the
                                                                     partition, or the area.
Synonyms                                    DB_NUM_SYNONYM           The number of synonyms for root segment occurrences not
                                                                     assigned to a unique root anchor point (RAP).
DB_NUM_ROOT_NOHOME                          DB_NUM_ROOT_NOHOME       The number of root segment occurrences that are not in the home
                                                                     block or CI that is specified by the randomizer.
DB_PCT_NUM_ROOT_NOHOME                      DB_PCT_NUM_ROOT_NOHOME   The percentage of root segment occurrences not in the home block
                                                                     against the total number of root segment occurrences.

Average Record Length                       DB_AVG_DBREC_LENGTH      The average length of database records in the database, the
                                                                     partition, or the area.
```

Figure 84: Data Element List report

Report field descriptions

The Data Element List report shows the following fields:

The following historical sensor data was imported as data elements:

This part shows a list of the data elements for all databases, partitions, and DEDB areas that were imported.

Column name in CSV file

Shows the column name used in the input CSV-formatted sensor data set.

Data element name

Shows the data element name in the historical sensor data set. The data element name is the same as, or related to, the column name in the CSV-formatted sensor data set that was imported.

Description of data element

Shows a description of the imported data element.

Imported Sensor Data report

The Imported Sensor Data report contains the summary of input data sets and output (imported) sensor data sets, and a list of the data elements that were imported. This report is generated for each database, HALDB partition, or DEDB area, and is stored in the BSNURPRT data set.

Sample report

The following figures show examples of the Imported Sensor Data report. The contents of the report vary depending on whether the HLQ_CSVSET keyword was specified.

```
Tools Base Policy Services - V1R8               Imported Sensor Data Report                                          Page:       1
5655-V93                                                                                                 Date: 2026-02-20  Time: 19:58:33

Summary of input data sets:

Category     Data set name                                 Format
------------ --------------------------------------------- ----------
DB           ITB.CSV.HDAMDB1.DB                            CSV
DSG 01       ITB.CSV.HDAMDB1.DSG01                         CSV
DSG 02       ITB.CSV.HDAMDB1.DSG02                         CSV


Summary of historical sensor data:

Data set name ........... ITB.HISTORY.HDAMDB1.H0000001
DBD name ................ HDAMDB1
Database type ........... HDAM
Request type ............ DAILY
Number of data points ... 33
Period .................. 2025-11-04 to 2025-12-03


Tools Base Policy Services - V1R8               Imported Sensor Data Report                                          Page:       2
5655-V93                                                                                                 Date: 2026-02-20  Time: 19:58:33

IMS Tools uses data element names to process historical sensor data.
After historical sensor data is imported, aliases (column names in CSV files) are no longer used;
only data element names will be used.
Description of each data element can be referred to from the following URL:
https://www.ibm.com/docs/en/SSS8US_1.8.0/aiips/topics/aiips_policy-dataelement.html

Imported data elements for database:

Column name in CSV file        Data element name        Description of data element
------------------------------ ------------------------ ---------------------------------------------------------------
DB_DATABASE_TYPE               DB_DATABASE_TYPE         The type of database organization.

DB_NUM_ROOT                    DB_NUM_ROOT              The number of root segment occurrences in the database, the
                                                        partition, or the area.
DB_FLAG_SENSOR_DBINFO          DB_FLAG_SENSOR_DBINFO    The indicator that shows whether the SENSOR_DBINFO option of
                                                        Database Sensor is specified or not.
DB_AVG_DBREC_LENGTH            DB_AVG_DBREC_LENGTH      The average length of database records in the database, the
                                                        partition, or the area.
DB_ESTIMATED_DBREC_IO          DB_ESTIMATED_DBREC_IO    The estimated number of I/Os that are required to retrieve an
                                                        entire database record.

Tools Base Policy Services - V1R8               Imported Sensor Data Report                                          Page:       3
5655-V93                                                                                                 Date: 2026-02-20  Time: 19:58:33

Imported data elements for data sets:

Column name in CSV file        Data element name        Description of data element
------------------------------ ------------------------ ---------------------------------------------------------------
DB_NUM_VOL                     DB_NUM_VOL               The number of DASD volumes that are used by the data set.

DB_NUM_EXT                     DB_NUM_EXT               The number of extents of the data set.

DB_RBA_HIGH_USED               DB_RBA_HIGH_USED         The highest value of the relative byte address that is used by
                                                        the data set. This value is shown in decimal format.
DB_NUM_ALLOCATED_BLOCKS        DB_NUM_ALLOCATED_BLOCKS  The number of blocks or CIs that are allocated for the data set.

DB_NUM_DBDS_BLOCKS             DB_NUM_DBDS_BLOCKS       The number of blocks or CIs that are used for the data set.

DB_PCT_NUM_CI_SPLIT            DB_PCT_NUM_CI_SPLIT      The percentage of split CIs against the total number of CIs.

DB_PCT_NUM_CA_SPLIT            DB_PCT_NUM_CA_SPLIT      The percentage of split CAs against the total number of CAs.

DB_NUM_CI_SPLIT                DB_NUM_CI_SPLIT          The number of split CIs (VSAM control interval) of VSAM KSDS.

DB_NUM_CA_SPLIT                DB_NUM_CA_SPLIT          The number of split CAs (VSAM control area) of VSAM KSDS.

DB_NUM_SEG                     DB_NUM_SEG               The number of segment occurrences in the data set.

DB_NUM_AVAIL_EXT               DB_NUM_AVAIL_EXT         The estimated number of remaining extents for the data set. This
                                                        value is collected when DB_AVAIL_EXT_LESS_100 is "Y".
DB_PCT_BYTES_FREE_SPACE        DB_PCT_BYTES_FREE_SPACE  The percentage of the bytes of total free spaces against the
                                                        total used bytes for the data set.
```

Figure 85: Imported Sensor Data report (If the HLQ_CSVSET keyword is not specified)

```
Tools Base Policy Services - V1R8               Imported Sensor Data Report                                          Page:       1
5655-V93                                                                                                 Date: 2026-02-20  Time: 19:58:33

Summary of input data sets:

Category     Data set name                                 Format
------------ --------------------------------------------- ----------
DB           ITB.CSV.HDAMDB1.DB                            CSV
DSG 01       ITB.CSV.HDAMDB1.DSG01                         CSV
DSG 02       ITB.CSV.HDAMDB1.DSG02                         CSV

Summary of historical sensor data:

Data set name ........... ITB.HISTORY.HDAMDB1.H0000001
DBD name ................ HDAMDB1
Database type ........... HDAM
Request type ............ DAILY
Number of data points ... 33
Period .................. 2025-11-04 to 2025-12-03

For this database, the following columns in the input CSV files have been imported:
 DB_DATABASE_TYPE                       DB_NUM_ROOT                                DB_FLAG_SENSOR_DBINFO
 DB_AVG_DBREC_LENGTH                    DB_ESTIMATED_DBREC_IO

For the associated data sets, the following columns in the input CSV files have been imported:

...
```

Figure 86: Imported Sensor Data report (If the HLQ_CSVSET keyword is specified)

Report field descriptions

The Imported Sensor Data report shows the following fields:

Summary of input data sets:

This part shows the summary of input sensor data sets that were imported.

Category

Shows the type of sensor data that is stored in the input data set. 'DB' means that the input data set contains sensor data for a database. 'AREA' means that the input data set contains sensor data for a DEDB area. 'DSG *nn*' means that the input data set contains sensor data for data set group *nn*.

Data set name

Shows the name of the input data set.

Format

Shows the format of the input data set.

Summary of historical sensor data:

This part shows the summary of the historical sensor data set.

Data set name

Shows the name of the historical sensor data set.

DBD name

Shows the name of the database whose sensor data was imported.

Partition name

Shows the name of the HALDB partition whose sensor data was imported. This field is displayed only when the database is a HALDB.

Area name

Shows the name of the DEDB area whose sensor data was imported. This field is displayed only when the database is a DEDB.

Database type

Shows the type of the database.

Request type

Shows the summary type of the sensor data.

Number of generations

Shows the number of generations of the sensor data that was imported.

Period

Shows the first date and the last date of the historical sensor data.

Imported data element for database:

Imported data element for data sets:

These parts show a list of the data elements for a database, a HALDB partition, or a DEDB area that were imported. These parts are displayed only if the HLQ_CSVSET keyword is not specified.

Column name in CSV file

Shows the column name in the CSV-formatted sensor data set.

Data element name

Shows the data element name in the historical sensor data set. The data element name is the same as, or related to, the column name in the CSV file that was imported.

Description of data element

Shows a description of the imported data element.

For this database, the following columns in the input CSV files have been imported:

For the associated data sets, the following columns in the input CSV files have been imported:

These parts show a list of the column names in the CSV-formatted sensor data sets for a database, a HALDB partition, or a DEDB area that were imported. These parts are displayed only if the HLQ_CSVSET keyword is specified.

For the data element names that are associated with these column names, see "Data Element List report" on page 119.

JCL examples for the Statistics Data Import Utility

Use these JCL examples to code JCL statements for the Statistics Data Import Utility.

In this topic:

- "Example 1: Importing sensor data from a database data set" on page 122
- "Example 2: Importing sensor data from a database and its data sets" on page 122
- "Example 3: Importing sensor data from multiple databases" on page 123

Example 1: Importing sensor data from a database data set

The following figure shows example JCL for importing sensor data of a database data set:

Figure 87: Example 1: Importing sensor data of a database data set

```
//BSNUTIL0 JOB  CLASS=A
//PGM1     EXEC PGM=BSNUTIL0,PARM='FUNC=IMPORT_STATS'
//STEPLIB  DD DISP=SHR,DSN=ITB.SHKTLOAD
//IMS      DD DISP=SHR,DSN=IMS.DBDLIB
//BSNUJRNL DD SYSOUT=*
//BSNURPRT DD SYSOUT=*
//BSNSYSIN DD *
  ITKBSRVR(FPQSRV01)
  RECONID(RECON1)
  INPUT_FORMAT(CSV)
  CSV_DSG(ITB.CSV.HDAMDB1.DSG01)
  HLQ_HISTORY(ITB.HISTORY)
/*
```

In this example, the sensor data for a database data set, which is written in the CSV-formatted data set `ITB.CSV.HDAMDB1.DSG01`, is imported.

The Statistics Data Import Utility generates the historical sensor data set. The high level qualifier of the data set name is `ITB.HISTORY`, and the low level qualifier is determined from the name of the database to be imported.

Example 2: Importing sensor data from a database and its data sets

The following figure shows example JCL for importing sensor data from a database and three data sets of the database.

Figure 88: Example 2: Importing sensor data from a database and data sets

```
//BSNUTIL0 JOB  CLASS=A
//PGM1     EXEC PGM=BSNUTIL0,PARM='FUNC=IMPORT_STATS'
//STEPLIB  DD DISP=SHR,DSN=ITB.SHKTLOAD
//IMS      DD DISP=SHR,DSN=IMS.DBDLIB
//BSNUJRNL DD SYSOUT=*
//BSNURPRT DD SYSOUT=*
//BSNSYSIN DD *
  ITKBSRVR(FPQSRV01)
  RECONID(RECON1)
  INPUT_FORMAT(CSV)
  CSV_DB(ITB.CSV.HDAMDB1.DB)
  CSV_DSG(
          ITB.CSV.HDAMDB1.DSG01
          ITB.CSV.HDAMDB1.DSG02
          ITB.CSV.HDAMDB1.DSG03
  )
  HLQ_HISTORY(ITB.HISTORY)
/*
```

In this example, the following sensor data is imported.

- The sensor data for a database, which is written in the CSV-formatted data set `ITB.CSV.HDAMDB1.DB`.
- The sensor data for a database data set, which is written in the CSV-formatted data set `ITB.CSV.HDAMDB1.DSG01`.
- The sensor data for a database data set, which is written in the CSV-formatted data set `ITB.CSV.HDAMDB1.DSG02`.
- The sensor data for a database data set, which is written in the CSV-formatted data set `ITB.CSV.HDAMDB1.DSG03`.

The Statistics Data Import Utility generates the historical sensor data set. The high level qualifier of the data set name is ITB.HISTORY, and the low level qualifier is determined from the name of the database to be imported.

Example 3: Importing sensor data from multiple databases

In this example, sensor data of an HDAM database and PHIDAM partitions is imported in a single job step.

This example assumes that the following data sets are created before the JCL is run.

Table 15: Data sets for example 3

Data set name	Description
ITB.ALIASDEF	Alias definition table
ITB.CSV.HDAMDB1	CSV-formatted sensor data set for an HDAM database (DBD name = HDAMDB1)
ITB.CSV.HDAMDB1.DSG01	CSV-formatted sensor data set for a database data set (DSG ID = 1) of an HDAM database (DBD name = HDAMDB1)
ITB.CSV.HDAMDB1.DSG02	CSV-formatted sensor data set for a database data set (DSG ID = 2) of an HDAM database (DBD name = HDAMDB1)
ITB.CSV.HDAMDB1.DSG03	CSV-formatted sensor data set for a database data set (DSG ID = 3) of an HDAM database (DBD name = HDAMDB1)
ITB.CSV.PHIDAM1.PARTA	CSV-formatted sensor data set for a PHIDAM database (DBD name = PHIDAM1, partition name = PARTA)
ITB.CSV.PHIDAM1.PARTA.DSG01	CSV-formatted sensor data set for a database data set (DSG ID = 1) of a PHIDAM database (DBD name = PHIDAM1, partition name = PARTA)
ITB.CSV.PHIDAM1.PARTA.DSG02	CSV-formatted sensor data set for a database data set (DSG ID = 2) of a PHIDAM database (DBD name = PHIDAM1, partition name = PARTA)
ITB.CSV.PHIDAM1.PARTB	CSV-formatted sensor data set for a PHIDAM database (DBD name = PHIDAM1, partition name = PARTB)
ITB.CSV.PHIDAM1.PARTB.DSG01	CSV-formatted sensor data set for a database data set (DSG ID = 1) of a PHIDAM database (DBD name = PHIDAM1, partition name = PARTB)
ITB.CSV.PHIDAM1.PARTB.DSG02	CSV-formatted sensor data set for a database data set (DSG ID = 2) of a PHIDAM database (DBD name = PHIDAM1, partition name = PARTB)

In the following example JCL, the alias definition table is specified to use aliases for the data element names in the CSV-formatted sensor data set.

Figure 89: Example 3: Importing sensor data from multiple databases

```
//BSNUTIL0 JOB  CLASS=A
//PGM1     EXEC PGM=BSNUTIL0,PARM='FUNC=IMPORT_STATS'
//STEPLIB  DD DISP=SHR,DSN=ITB.SHKTLOAD
//IMS      DD DISP=SHR,DSN=IMS.DBDLIB
//BSNUJRNL DD SYSOUT=*
//BSNURPRT DD SYSOUT=*
//BSNSYSIN DD *
  ITKBSRVR(FPQSRV01)
  RECONID(RECON1)
  DSN_ALIASDEF(ITB.ALIASDEF)
  HLQ_CSVSET(ITB.CSV)
  HLQ_HISTORY(ITB.HISTORY)
/*
```

In this example, all the CSV-formatted sensor data sets that match the naming convention specified by the HLQ_CSVSET keyword are imported.

Aliases of data element names are applied to all CSV-formatted sensor data sets because the alias definition table is specified by the DSN_ALIASDEF keyword.

The Statistics Data Import Utility generates historical sensor data sets for an HDAM database (DBD name = HDAMDB1) and PHIDAM partitions (DBD name = PHIDAM1, partition names = PARTA and PARTB). The high

level qualifier of the data set names is `ITB.HISTORY`, and the low level qualifiers are determined from the name of the database to be imported.

History Data Summarization Utility

The History Data Summarization Utility reads the catalog information about the imported sensor data (utility history data) from the IMS Tools Knowledge Base (IMS Tools KB) Sensor Data repository and reports the resources (databases, partitions, and areas) whose sensor data was imported to historical sensor data sets.

Topics:

- "History Data Summarization Utility overview" on page 124
- "Running the History Data Summarization Utility" on page 125
- "EXEC and DD statements for the History Data Summarization Utility" on page 126
- "Control statements for the History Data Summarization Utility" on page 127
- "Output from the History Data Summarization Utility" on page 128
- "JCL example for the History Data Summarization Utility" on page 129

History Data Summarization Utility overview

The History Data Summarization Utility reads the catalog information about the imported sensor data (utility history data) from the IMS Tools Knowledge Base (IMS Tools KB) Sensor Data repository. It then generates the History Data Summary report that contains a list of databases, partitions, and areas whose sensor data was imported to historical sensor data sets.

The History Data Summarization Utility does not read the contents of historical sensor data sets. If you want a report on data element values of a particular database, partition, or area in a historical sensor data set, run the Sensor Data Extractor with the DATAFROM(HISTORY) option. For more information about the DATAFROM keyword, see "Control statements for the Sensor Data Extractor" on page 94.

The following figure depicts how you can use the History Data Summarization Utility and the Sensor Data Extractor to obtain information about imported sensor data.

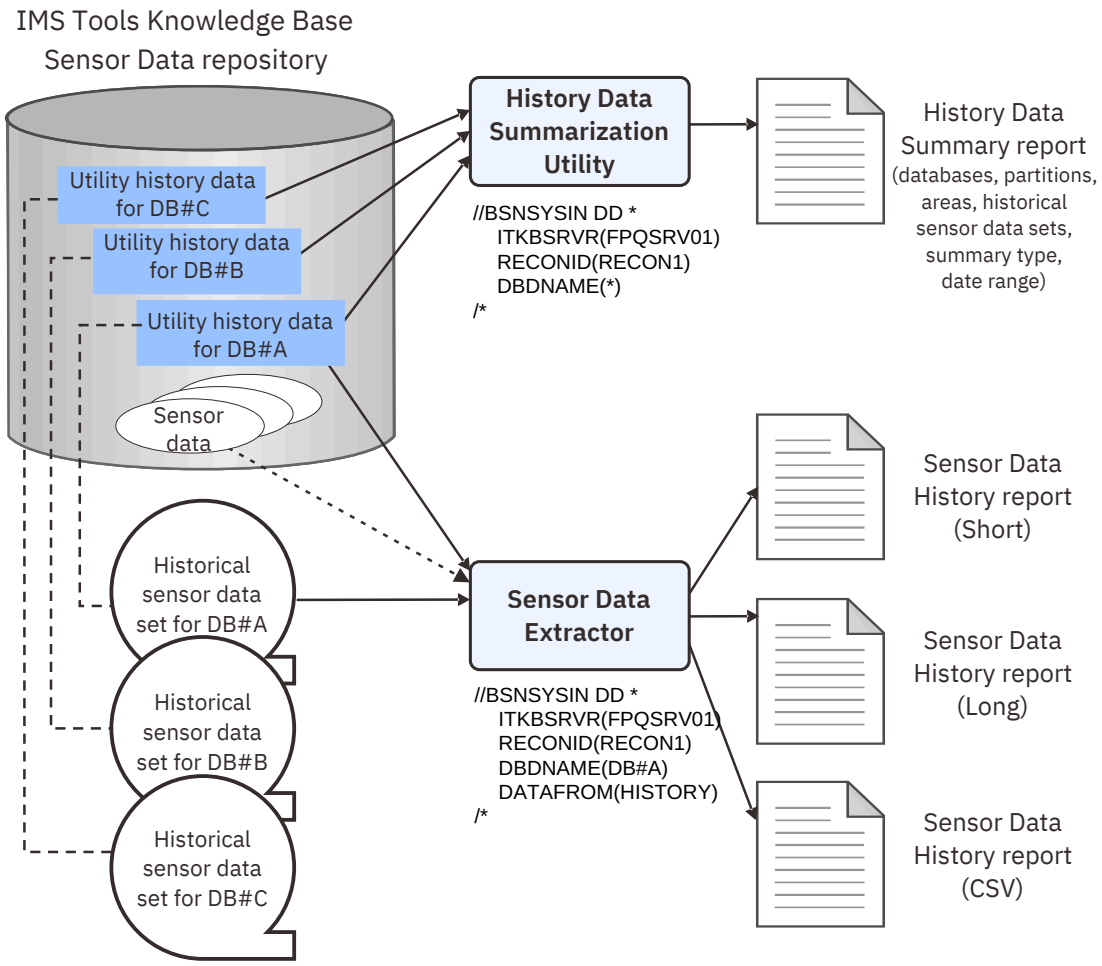


Figure 90: Reading imported sensor data by using the History Data Summarization Utility and the Sensor Data Extractor

Running the History Data Summarization Utility

The History Data Summarization Utility runs as a standard z/OS® batch job. To generate a History Data Summary report, which contains a list of databases, partitions, and areas whose sensor data was imported to historical sensor data sets, code the History Data Summarization Utility JCL and run the job.

Procedure

1. Write the EXEC and DD statements.
   For the format of the EXEC statement and the list of DD statements, see "EXEC and DD statements for the History Data Summarization Utility" on page 126.
2. Code the control statements in the BSNSYSIN data set.
   For the syntax of the control statements, see "Control statements for the History Data Summarization Utility" on page 127.

   The following figure shows a JCL example for the History Data Summarization Utility:

   Figure 91: JCL example for the History Data Summarization Utility

```
//BSNUTIL0 JOB  CLASS=A
//PGM1     EXEC PGM=BSNUTIL0,PARM='FUNC=SUMMARIZE_HISTORY'
//STEPLIB  DD DISP=SHR,DSN=ITB.SHKTLOAD
//BSNUJRNL DD SYSOUT=*
//BSNURPRT DD SYSOUT=*
//BSNSYSIN DD *
  ITKBSRVR(FPQSRV01)
  RECONID(RECON1)
  DBDNAME(*)
/*
```

3. Run the History Data Summarization Utility job step to generate a History Data Summary report. Ensure that the return code is 0.
   For an example of the History Data Summary report, see "History Data Summary report" on page 129.

EXEC and DD statements for the History Data Summarization Utility

You must specify an EXEC statement and DD statements that define the input and output data sets in your JCL.

In this topic:

- "EXEC statement" on page 126
- "Summary of DD statements" on page 126
- "DD statements for input" on page 126
- "DD statements for output" on page 126

EXEC statement

The EXEC statement must be in the following format:

```
//STEP EXEC PGM=BSNUTIL0,PARM='FUNC=SUMMARIZE_HISTORY'
```

The EXEC statement in the batch JCL contains one keyword specification in the PARM field: `FUNC=`.

FUNC

Identifies which Policy Services utility is to be invoked.
To invoke the History Data Summarization Utility, specify either `'SUMMARIZE_HISTORY'` or `'SUMH'`.

Summary of DD statements

DD statements for the History Data Summarization Utility determine the input and output data sets and specify how to run the History Data Summarization Utility.

The following table summarizes the DD statements for the History Data Summarization Utility.

Table 16: DD statements for the History Data Summarization Utility

DD name	Use	Format	Can be dynamically allocated?	Required or optional?
STEPLIB	Input	RECFM=U	No	Required
BSNSYSIN	Input	RECFM=FB,LRECL=80	No	Required
BSNUJRNL	Output	RECFM=FBA,LRECL=133	Yes	Optional
BSNURPRT	Output	RECFM=FBA,LRECL=133	Yes	Optional

DD statements for input

The following input DD statements are used for the History Data Summarization Utility.

STEPLIB

This DD statement is required. It specifies the load module library of IMS Tools Base (SHKTLOAD).

BSNSYSIN

This DD statement is required. It specifies the input control statement that controls the History Data Summarization Utility functions.
The BSNSYSIN DD statement can be coded as a standard SYSIN file, a sequential data set, or a PDS member. LRECL=80 is required for the DCB of this data set.

For details about coding the BSNSYSIN DD statement, see "Control statements for the History Data Summarization Utility" on page 127.

DD statements for output

The following output DD statements are used for the History Data Summarization Utility.

BSNUJRNL

This DD statement is optional. It specifies the processing log output data set, which stores processing messages that are issued by the History Data Summarization Utility.
If you do not specify this DD statement, the History Data Summarization Utility dynamically allocates the data set by using SYSOUT=*.

BSNURPRT

This DD statement is optional. It specifies the report output data set, which stores the History Data Summary report.
If you do not specify this DD statement, the History Data Summarization Utility dynamically allocates the data set by using SYSOUT=*.

Control statements for the History Data Summarization Utility

The control statement for the History Data Summarization Utility controls the functions of the History Data Summarization Utility.

The control statement must be specified in the BSNSYSIN data set. This control statement data set generally resides in the input stream. However, it can also be defined as a sequential data set or as a member of a partitioned data set. It must contain 80-byte, fixed-length records. The block size, if coded, must be a multiple of 80.

The control statement must be coded in columns 1 - 72. Columns 73 - 80 are regarded as comments and ignored.

In this topic:

- "Format of the control statement" on page 127
- "Summary of keywords" on page 127
- "Description of keywords" on page 128

Format of the control statement

The control statement includes a set of keywords, parameters, and comments that are specified in the BSNSYSIN data set.

Keywords

A keyword defines an option for the History Data Summarization Utility. Keywords can be specified in any order, and any two adjacent keywords must be separated by a blank or a comma. Each keyword has one or more associated parameters.

Parameters

A parameter defines a value for the associated keyword. Some keywords require only one parameter and others require one or more parameters. Parameters must be character or numeric values.
A keyword and the associated parameters are separated by parentheses. If two or more parameters are specified, any two adjacent parameters must be separated by a blank or a comma. For example,

```
keyword(parameter)
keyword(parameter1,parameter2,parameter3)
keyword(parameter1 parameter2 parameter3)
```

Comments

You can include comments in the BSNSYSIN data set by marking a line with an asterisk (*) in column 1. The History Data Summarization Utility ignores the comment line when analyzing the control statement in the BSNSYSIN data set.

Summary of keywords

The following table summarizes the keywords of the control statement for the History Data Summarization Utility.

Table 17: Keywords for the History Data Summarization Utility

Keyword	Required or optional?	Default	Description
DBDNAME	Optional	*	Specifies a database name.
ITKBSRVR	Required	N/A	Specifies the name of the IMS Tools KB server XCF group.

Keyword	Required or optional?	Default	Description
RECONID	Required	N/A	Specifies a RECON ID.

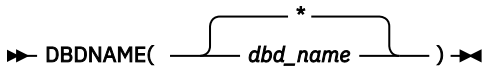
Description of keywords

The following keywords are available for the control statement.

DBDNAME

This keyword specifies a database name. Sensor data information about the specified database is reported in the History Summary Data report.
DBDNAME is an optional keyword.

Format:



dbd_name

Specify a 1- to 8-character DBD name.
You can use wildcard characters. An asterisk (*) matches zero or more characters, and a percent sign (%) matches any single character. Any number or combination of wildcard characters can be used.

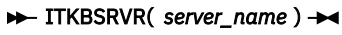
If you specify wildcard characters, the History Data Summarization Utility reads all the databases that match the specified wildcard pattern.

The default is DBDNAME(*). This means that all databases are specified.

ITKBSRVR

This keyword specifies the name of the IMS Tools KB server XCF group. The utility reads the catalog information about the imported sensor data (utility history data) in the IMS Tools KB Sensor Data repository, which is managed by the IMS Tools KB server.
ITKBSRVR is a required keyword.

Format:



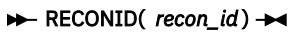
server_name

Specify a 1- to 8-character IMS Tools KB server XCF group name. There is no default.

RECONID

This keyword specifies the RECON ID that is associated with the RECON1 data set name in the IMS Tools KB repository.
RECONID is a required keyword.

Format:



recon_id

Specify a 1- to 8-character RECON ID. There is no default.

Output from the History Data Summarization Utility

The History Data Summarization Utility generates a Journal Messages report and an History Data Summary report.

Topics:

- "Journal Messages report" on page 128
- "History Data Summary report" on page 129

Journal Messages report

The Journal Messages report contains processing messages about the History Data Summarization Utility job. This report is generated in the BSNUJRNL data set.

Sample report

The following figure shows an example of the Journal Messages report:

```
Tools Base Policy Services - V1R8               Journal Messages                                History Data Summarization Util.
5655-V93                                                                                        Date: 2026-02-20  Time: 20:46:29

2026-02-20 20:46:294 BSN8001I THE HISTORY DATA SUMMARIZATION UTILITY PROCESS HAS STARTED.
2026-02-20 20:46:294 BSN8031I THE FOLLOWING OPTIONS ARE USED FOR THE HISTORY DATA SUMMARIZATION UTILITY:
2026-02-20 20:46:294 BSN8031I  - ITKBSRVR     ... FPQSRVDM
2026-02-20 20:46:294 BSN8031I  - RECONID      ... IEF3
2026-02-20 20:46:294 BSN8031I  - DBDNAME      ... *
2026-02-20 20:46:294 BSN8002I THE HISTORY DATA SUMMARIZATION UTILITY PROCESS HAS ENDED NORMALLY.
```

Figure 92: Journal Messages report (History Data Summarization Utility)

History Data Summary report

The History Data Summary report contains a summary of imported historical sensor data for each database, partition, and area. This report is generated in the BSNURPRT data set.

Sample report

The following figure shows an example of the History Data Summary report:

```
Tools Base Policy Services - V1R8               History Data Summary Report                                                Page:       1
5655-V93                                                                                        Date: 2026-02-20  Time: 01:36:07

DBD name  Part/Area  DB type  Historical sensor data set name               Start       End         Summary type
--------  ---------  -------  ---------------------------------------------  ----------  ----------  ------------
DEDBJN30  DB30AR0    DEDB     ITB.HISTORY.DEDBJN30.DB30AR0.H0000001          2025-11-04  2025-12-03  Daily
          DB30AR1              ITB.HISTORY.DEDBJN30.DB30AR1.H0000001          2025-11-04  2025-12-03  Daily
          DB30AR2              ITB.HISTORY.DEDBJN30.DB30AR2.H0000001          2025-11-04  2025-12-03  Daily
          DB30AR3              ITB.HISTORY.DEDBJN30.DB30AR3.H0000001          2025-11-04  2025-12-03  Daily
          DB30AR4              ITB.HISTORY.DEDBJN30.DB30AR4.H0000001          2025-11-04  2025-12-03  Daily
HDAMDB1              HDAM     ITB.HISTORY.HDAMDB1.H0000001                   2025-12-02  2025-12-03  Daily
                              ITB.HISTORY.HDAMDB1.H0000002                   2026-01-02  2026-01-03  Daily
                              ITB.HISTORY.HDAMDB1.H0000003                   2026-02-10  2026-03-30  Daily
HISMDB1              HISAM    ITB.HISTORY.HISMDB1.H0000001                   2025-12     2026-03     Monthly
PHIDAM1   PARTA      PHIDAM   ITB.HISTORY.PHIDAM1.PARTA.H0000001             2025-11-04  2026-03-03  Daily
          PARTB               ITB.HISTORY.PHIDAM1.PARTB.H0000001             2025-11-04  2026-03-03  Daily
```

Figure 93: History Data Summary report

Report field descriptions

The History Data Summary report shows the following fields:

DBD name

Shows the name of the database whose historical sensor data was imported.

Part/Area

Shows the name of the HALDB partition or the DEDB area whose historical sensor data was imported. This field is displayed only when the database is a HALDB or a DEDB.

DB type

Shows the type of the database.

Historical sensor data set name

Shows the name of the historical sensor data set.

Start

Shows the oldest sensor data collection date in the historical sensor data set.

End

Shows the latest sensor data collection date in the historical sensor data set.

Summary type

Shows the summary type of the sensor data.

JCL example for the History Data Summarization Utility

Use the following JCL example to code JCL statements for the History Data Summarization Utility.

Example: Summarizing information about imported historical sensor data for all databases

The following figure shows a JCL example for summarizing information about imported historical sensor data for all the databases:

Figure 94: Example: Summarizing information about imported historical sensor data for all databases

```
//BSNUTIL0 JOB CLASS=A
//PGM1     EXEC PGM=BSNUTIL0,PARM='FUNC=SUMMARIZE_HISTORY'
//STEPLIB  DD DISP=SHR,DSN=ITB.SHKTLOAD
//BSNUJRNL DD SYSOUT=*
//BSNURPRT DD SYSOUT=*
//BSNSYSIN DD *
  ITKBSRVR(FPQSRV01)
  RECONID(RECON1)
  DBDNAME(*)
/*
```

In this example, the DBDNAME keyword specifies an asterisk (*), which requests to report on all databases. Information about imported historical sensor data is collected for all the databases in the IMS Tools Knowledge Base server FPQSRV01 and the RECON ID RECON1 and written to the History Data Summary report.

Policy Verification Utility

The Policy Verification Utility verifies a policy created or modified in the maintenance environment. You can use this utility to verify your policy before promoting it to the operation environment.

Topics:

- "Policy Verification Utility overview" on page 130
- "Running the Policy Verification Utility" on page 131
- "EXEC and DD statements for the Policy Verification Utility" on page 132
- "Control statements for the Policy Verification Utility" on page 133
- "Output from the Policy Verification Utility" on page 136
- "JCL examples for the Policy Verification Utility" on page 140

Policy Verification Utility overview

The Policy Verification Utility verifies a policy created or modified in the maintenance environment. Use this utility to verify the policy before promoting the policy to the operation environment.

Policy Services uses a policy definition only in the operation environment to evaluate sensor data. The Policy Verification Utility can use the maintenance environment as well to evaluate sensor data. The Policy Verification Utility supports the policy of both REORG and RECOVERY domains.

The Policy Verification Utility does not create the sensor data reports. Sensor Data History report (Short type) contains data element values of sensor data. For details about Sensor Data History report (Short type), see "Sensor Data Extractor" on page 91.

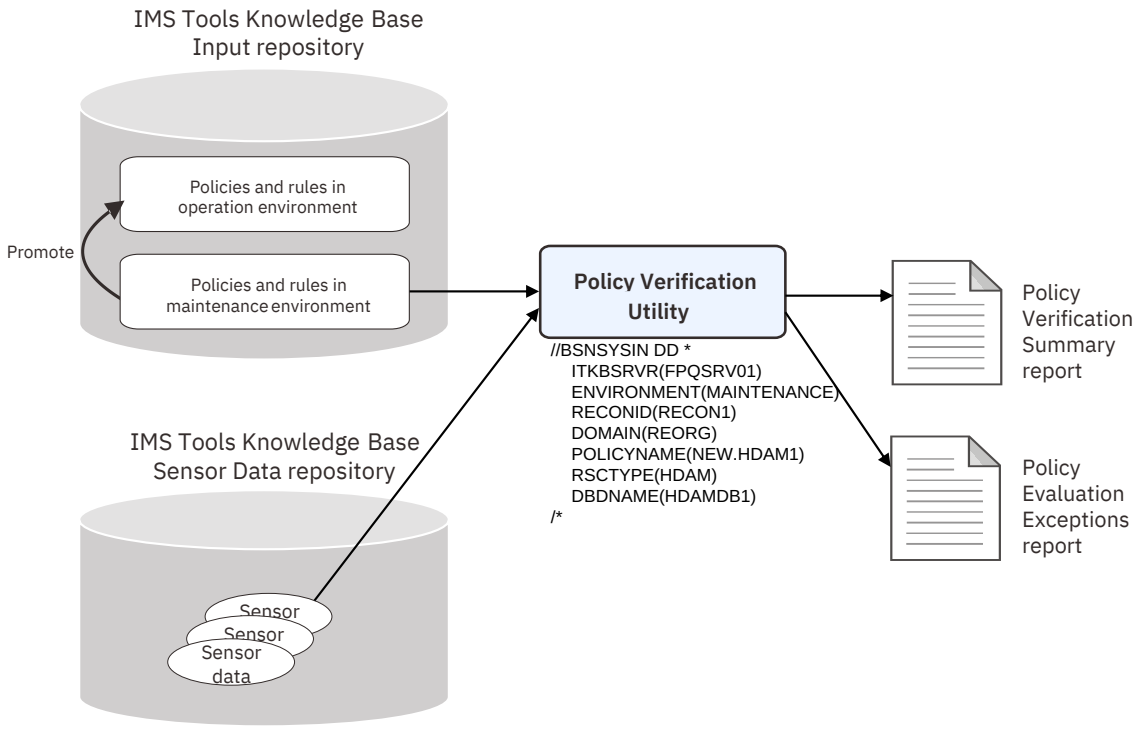


Figure 95: Verifying policy in the maintenance environment by using the Policy Verification Utility

Running the Policy Verification Utility

The Policy Verification Utility runs as a standard z/OS batch job. To verify a policy in the maintenance environment, code the Policy Verification Utility JCL and run the job.

Procedure

1. Write the EXEC and DD statements.
   For the format of the EXEC statement and the list of DD statements, see "EXEC and DD statements for the Policy Verification Utility" on page 132.
2. Code the control statements in the BSNSYSIN data set.
   For the syntax of the control statements, see "Control statements for the Policy Verification Utility" on page 133.

   The following figure shows a JCL example for the Policy Verification Utility:

   Figure 96: JCL example for the Policy Verification Utility

```
//BSNUTIL0 JOB  CLASS=A
//PGM1     EXEC PGM=BSNUTIL0,PARM='FUNC=VERIFY_POLICY'
//STEPLIB  DD DISP=SHR,DSN=ITB.SHKTLOAD
//BSNUJRNL DD SYSOUT=*
//BSNURPRT DD SYSOUT=*
//BSNJM01  DD SYSOUT=*
//BSNSYSIN DD *
  ITKBSRVR(FPQSRV01)
  ENVIRONMENT(MAINTENANCE)
  RECONID(RECON1)
  DOMAIN(REORG)
  POLICYNAME(NEW.HDAM1)
  RSCTYPE(HDAM)
  DBDNAME(HDAMDB1)
/*
```

3. Run the Policy Verification Utility job step to verify a policy. Ensure that the return code is 0.
   For examples of the Policy Verification Summary report, see "Policy Verification Summary report" on page 136.

For examples of the Policy Evaluation Exceptions report, see "Policy Evaluation Exceptions report" on page 137.

EXEC and DD statements for the Policy Verification Utility

You must specify an EXEC statement and DD statements that define the input and output data sets in your JCL.

In this topic:

- "EXEC statement" on page 132
- "Summary of DD statements" on page 132
- "DD statements for input" on page 132
- "DD statements for output" on page 132

EXEC statement

The EXEC statement must be in the following format:

```
//STEP EXEC PGM=BSNUTIL0,PARM='FUNC=VERIFY_POLICY'
```

The EXEC statement in the batch JCL contains one keyword specification in the PARM field: `FUNC=`.

FUNC

Identifies which Policy Services utility is to be invoked.
To invoke the Policy Verification Utility, specify either `'VERIFY_POLICY'` or `'VERP'`.

Summary of DD statements

DD statements of the Policy Verification Utility determine the input and output data sets and specify how to run the Policy Verification Utility.

The following table summarizes the DD statements for the Policy Verification Utility.

Table 18: DD statements for the Policy Verification Utility

DD name	Use	Format	Can be dynamically allocated?	Required or optional?
STEPLIB	Input	RECFM=U	No	Required
BSNSYSIN	Input	RECFM=FB,LRECL=80	No	Required
BSNUJRNL	Output	RECFM=FBA,LRECL=133	Yes	Optional
BSNURPRT	Output	RECFM=FBA,LRECL=133	Yes	Optional
BSNJM01	Output	RECFM=FBA,LRECL=134	Yes	Optional

DD statements for input

The following input DD statements are used for the Policy Verification Utility.

STEPLIB

This DD statement is required. It specifies the load module library of IMS Tools Base (SHKTLOAD).

BSNSYSIN

This DD statement is required. It specifies the input control statement that controls the Policy Verification Utility functions.
The BSNSYSIN DD statement can be coded as a standard SYSIN file, a sequential data set, or a PDS member. LRECL=80 is required for the DCB of this data set.

For details about coding the BSNSYSIN DD statement, see "Control statements for the Policy Verification Utility" on page 133.

DD statements for output

The following output DD statements are used for the Policy Verification Utility.

BSNUJRNL

This DD statement is optional. It specifies the processing log output data set, which stores processing messages that are issued by the Policy Verification Utility.
If you do not specify this DD statement, the Policy Verification Utility dynamically allocates the data set by using SYSOUT=*.

BSNURPRT

This DD statement is optional. It specifies the evaluation report output data set, which stores the Policy Verification Summary report and the Policy Evaluation Exceptions report that are created by the Policy Verification Utility.
If you do not specify this DD statement, the Policy Verification Utility dynamically allocates the data set by using SYSOUT=*.

BSNJM01

This DD statement is optional. See “Reference: Policy Services journal reports” on page 184.
If you do not specify this DD statement, Policy Services might allocate the data set by using SYSOUT=*. In this case, however, not all journal messages will be issued. It is recommended that you specify the BSNJM01 DD statement.

Control statements for the Policy Verification Utility

The control statement for the Policy Verification Utility controls the functions of the Policy Verification Utility.

The control statement must be specified in the BSNSYSIN data set. This control statement data set generally resides in the input stream. However, it can also be defined as a sequential data set or as a member of a partitioned data set. It must contain 80-byte, fixed-length records. The block size, if coded, must be a multiple of 80.

The control statement must be coded in columns 1 - 72. Columns 73 - 80 are regarded as comments and ignored.

In this topic:

- “Format of the control statement” on page 133
- “Summary of keywords” on page 133
- “Description of keywords” on page 134

Format of the control statement

The control statement includes a set of keywords, parameters, and comments that are specified in the BSNSYSIN data set.

Keywords

A keyword defines an option for the Policy Verification Utility. Keywords can be specified in any order, and any two adjacent keywords must be separated by a blank or a comma. Each keyword has one or more associated parameters.

Parameters

A parameter defines a value for the associated keyword. Some keywords require only one parameter and others require one or more parameters. Parameters must be character or numeric values.
A keyword and the associated parameters are separated by parentheses. If two or more parameters are specified, any two adjacent parameters must be separated by a blank or a comma. For example,

```
keyword(parameter)
 keyword(parameter1,parameter2,parameter3)
 keyword(parameter1 parameter2 parameter3)
```

Comments

You can include comments in the BSNSYSIN data set by marking a line with an asterisk (*) in column 1. The Policy Verification Utility ignores the comment line when analyzing the control statement in the BSNSYSIN data set.

Summary of keywords

The following table summarizes the keywords of the control statement for the Policy Verification Utility.

Table 19: Keywords for the Policy Verification Utility			
Keyword	**Required or optional?**	**Default**	**Description**
AREANAME	Required if the database is a DEDB	N/A	Specifies an area name if the database is a DEDB.
CAGRP	Required if the DBDNAME keyword is not specified	N/A	Specifies a change accumulation (CA) group name.
DBDNAME	Required if the CAGRP keyword is not specified	N/A	Specifies a database name.
DOMAIN	Required	N/A	Specifies a policy domain.
ENVIRONMENT	Optional	MAINTENANCE	Specifies an environment name.
ITKBSRVR	Required	N/A	Specifies a name of the IMS Tools KB server XCF group.
PARTNAME	Required if the database is a HALDB	N/A	Specifies a partition name if the database is a HALDB.
POLICYNAME	Required	N/A	Specifies a policy name.
RECONID	Required	N/A	Specifies a RECON ID.
RSCTYPE	Required	N/A	Specifies a resource type.

Description of keywords

The following keywords are available for the control statement.

AREANAME

This keyword specifies a DEDB area name. The sensor data of the specified DEDB area is evaluated. AREANAME is a required keyword if the database specified by the DBDNAME keyword is a DEDB.

Format:

area_name

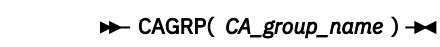
Specify a 1- to 8-character DEDB area name. There is no default.

CAGRP

This keyword specifies a CA group name. The sensor data of the specified CA group is evaluated. CAGRP is a required keyword if you do not specify the DBDNAME keyword.

The CAGRP keyword can be specified only if you specify DOMAIN(RECOVERY) and do not specify the DBDNAME keyword.

Format:



CA_group_name

Specify a 1- to 8-character CA group name. There is no default.

DBDNAME

This keyword specifies a database name. The sensor data of the specified database is evaluated. DBDNAME is a required keyword if you do not specify the CAGRP keyword. The DBDNAME keyword cannot be specified with the CAGRP keyword.

Format:

dbd_name

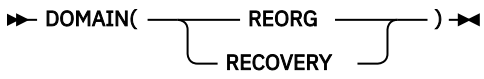
Specify a 1- to 8-character DBD name. There is no default.

DOMAIN

This keyword specifies a policy domain. It represents which type of sensor data is to be evaluated.

DOMAIN is a required keyword.

Format:



REORG

Verifies policy and sensor data that is associated with the REORG domain. The sensor data is collected by the DB Sensor of IMS Database Solution Pack for z/OS®, IMS Database Utility Solution for z/OS®, or IMS Fast Path Solution Pack for z/OS®.

RECOVERY

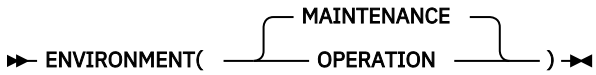
Verifies policy and sensor data that is associated with the RECOVERY domain. The sensor data is collected by the DB Sensor of IMS Recovery Solution Pack for z/OS®.

There is no default.

ENVIRONMENT

This keyword specifies an environment name. It represents the environment in which the policy resides.
ENVIRONMENT is an optional keyword.

Format:



MAINTENANCE

Indicates that the policy resides in the maintenance environment. This is the default.

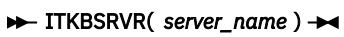
OPERATION

Indicates that the policy resides in the operation environment.

ITKBSRVR

This keyword specifies the name of the IMS Tools KB server XCF group. The policy definition is read from the IMS Tools KB input repository and the sensor data is extracted from the IMS Tools KB sensor data repository, which are managed by the IMS Tools KB server.
This keyword is required.

Format:



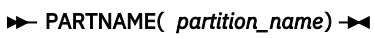
server_name

Specify a 1- to 8-character IMS Tools KB server XCF group name. There is no default.

PARTNAME

This keyword specifies a HALDB partition name. The sensor data of the specified HALDB partition is evaluated.
PARTNAME is a required keyword if the database specified by the DBDNAME keyword is a HALDB.

Format:



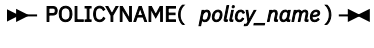
partition_name

Specify a 1- to 7-character HALDB partition name. There is no default.

POLICYNAME

This keyword specifies a policy name. The Policy Verification Utility verifies the specified policy definition.
POLICYNAME is a required keyword.

Format:



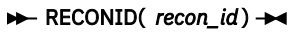
policy_name

Specify a 1- to 20-character policy name. There is no default.

RECONID

This keyword specifies a RECON ID that is associated with the RECON1 data set name in the IMS Tools KB repository.
RECONID is a required keyword.

Format:



recon_id

Specify a 1- to 8-character RECON ID. There is no default.

RSCTYPE

This keyword specifies a resource type. It represents which resource type of policy and sensor data is to be used.
RSCTYPE is a required keyword.

Format:

resource_type

Specify a 1- to 8-character resource type. There is no default.
Specify CAGRP if the resource type is change accumulation group.

Specify HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM, DEDB, INDEX, or PSINDEX for the resource type of the database.

Output from the Policy Verification Utility

The Policy Verification Utility generates a Journal Messages report, a Policy Verification Summary report, a Policy Evaluation Exceptions report, and a Policy Services Journal report.

Topics:

- "Journal Messages report" on page 136
- "Policy Verification Summary report" on page 136
- "Policy Evaluation Exceptions report" on page 137
- "Policy Services Journal report" on page 138

Journal Messages report

The Journal Messages report contains processing messages about the Policy Verification Utility job. This report is generated in the BSNUJRNL data set.

Sample report

The following figure shows an example of the Journal Messages report:

```
Tools Base Policy Services - V1R8               Journal Messages                              Policy Verification Utility
5655-V93                                                                                      Date: 2026-02-20  Time: 01:06:17

2026-02-20 01:06:172 BSN8001I THE POLICY VERIFICATION UTILITY PROCESS HAS STARTED.
2026-02-20 01:06:173 BSN8031I THE FOLLOWING OPTIONS ARE USED FOR THE SENSOR DATA ARCHIVER:
2026-02-20 01:06:173 BSN8031I  - ITKBSRVR     ... FPQSRV01
2026-02-20 01:06:173 BSN8031I  - RECONID      ... RECON1
2026-02-20 01:06:173 BSN8031I  - DOMAIN       ... REORG
2026-02-20 01:06:173 BSN8031I  - ENVIRONMENT  ... MAINTENANCE
2026-02-20 01:06:173 BSN8031I  - POLICYNAME   ... NEW.HDAM1
2026-02-20 01:06:173 BSN8031I  - RSCTYPE      ... HDAM
2026-02-20 01:06:173 BSN8031I  - DBDNAME      ... HDAMDB1
2026-02-20 01:06:175 BSN8002I THE POLICY VERIFICATION UTILITY PROCESS HAS ENDED NORMALLY.
```

Figure 97: Journal Messages report (Policy Verification Utility)

Policy Verification Summary report

The Policy Verification Summary report contains the summary of verification processing messages by the Policy Verification Utility job. This report is generated in the BSNURPRT data set.

Sample report

The following figure shows an example of the Policy Verification Summary report:

```
Tools Base Policy Services - V1R8               Policy Verification Summary report                              Page:       1
5655-V93                                                                                  Date: 2026-02-20  Time: 01:06:17

Summary of policy verification:


  ITKBSRVR ..... FPQSRV01
  ENVIRONMENT .. MAINTENANCE
  RECONID ...... RECON1
  DOMAIN ....... REORG
  POLICYNAME ... NEW.HDAM1
  DBDNAME ...... HDAMDB1

  RESULT ....... Exceptions were detected
```

Figure 98: Policy Verification Summary report

Report field descriptions

The Policy Verification Summary report shows the following fields:

ITKBSRVR

Shows the name of the IMS Tools KB server XCF group.

RECONID

Shows the name of the RECON ID.

DOMAIN

Shows the name of the policy domain.

ENVIRONMENT

Shows the name of the environment in which the policy resides.

POLICYNAME

Shows the name of the policy.

DBDNAME

Shows the name of the database.

RESULT

Shows the verification result for the policy.

No exceptions were detected

Indicates that no exceptions are detected as the result of policy evaluation.

Exceptions were detected

Indicates that exceptions are detected as the result of policy evaluation. The Policy Evaluation Exceptions report contains the detailed exception messages.

Policy Evaluation Exceptions report

The Policy Evaluation Exceptions report contains the detailed exception messages by the Policy Verification Utility job. This report is generated in the BSNURPRT data set.

Sample report

The following figure shows an example of the Policy Evaluation Exceptions report:

```
Tools Base Policy Services - V1R8               Policy Evaluation Exceptions report                          Page:       2
5655-V93                                                                                    Date: 2026-02-20  Time: 01:06:17

Summary Messages
------------------------------------------------------------------------------------------------------------------------------
BBE2905I HDAMDB1  IN RECONID=RECON1    HAS CRITICAL EXCEPTION IN THE REORG DOMAIN.  USER ACTION IS REQUIRED.


Exceptions
------------------------------------------------------------------------------------------------------------------------------
POLICY NAME=NEW.HDAM1             LOCALE=RECON1

RULE NAME=G:IBM.RAP_SYNONYMS.10/HIGH           RULE EXCEPTION LEVEL=CRITICAL
 DATA ELEMENT DEFINITION
  The percentage of synonyms compared to the total number of root segment occurrences.
 DATA ELEMENT NAME........ VALUE...................     THRESHOLD.............
  DB_PCT_NUM_SYNONYM                                33 >=  30

POLICY NAME=NEW.HDAM1             LOCALE=RECON1

RULE NAME=G:IBM.RAP_SYNONYMS.10/MED            RULE EXCEPTION LEVEL=SEVERE
 DATA ELEMENT DEFINITION
  The percentage of synonyms compared to the total number of root segment occurrences.
 DATA ELEMENT NAME........ VALUE...................     THRESHOLD.............
  DB_PCT_NUM_SYNONYM                                33 >=  20

POLICY NAME=NEW.HDAM1             LOCALE=RECON1

RULE NAME=G:IBM.RAP_SYNONYMS.10/LOW            RULE EXCEPTION LEVEL=WARNING
 DATA ELEMENT DEFINITION
  The percentage of synonyms compared to the total number of root segment occurrences.
 DATA ELEMENT NAME........ VALUE...................     THRESHOLD.............
  DB_PCT_NUM_SYNONYM                                33 >=  10
```

Figure 99: Policy Evaluation Exceptions report

Report field descriptions

The Policy Evaluation Exceptions report shows the following fields:

Summary Messages

This part shows the summary exception messages.

Exceptions

This part shows the details of exceptions.

POLICY NAME

Shows the name of the policy.

LOCALE

Shows the name of the RECON ID.

RULE NAME

Shows the name of the rule that detected the exception.

RULE EXCEPTION LEVEL

Shows the exception level: CRITICAL, SEVERE, or WARNING.

DATA ELEMENT DEFINITION

Shows a description of the data element.

DATA ELEMENT NAME

Shows the name of the data element.

VALUE

Shows the value of the sensor data.

THERESHOLD

Shows the threshold of the rule.

Policy Services Journal report

The Policy Services Journal report contains the status of policy template, policy streams, rule templates, notification list, directory entry processing, the creating and promoting of environments, policy validation, and evaluation of policy and sensor data during certain processing.

The environment ID, the policy streams, the rule templates, and notification list in the maintenance environment can be verified in this report.

Sample report

The following figure shows an example of the environment ID:

```
IMS POLICY SERVICES V0180 (5655-V93
POLICY LOOK-UP REPORT                                  Run Time: 02/20/2026 01:06
LEVEL:00000004, ENVIRONMENT ID:REORG002, LOCALE:IFB8RCNS, RACF USER ID:user_id
```

Figure 100: Example of environment ID

ENVIRONMENT ID

Shows the environment name used by the Policy Verification Utility.

The following figure shows an example of the policy streams and the rule templates:

```
*******************************************************************************
****   POLICY STREAM BUILD FROM RULE STREAM
*******************************************************************************

POLICY(
   VERSION(1)
   DOMAIN_REF(REORG)
   NAME(NEW.HDAM1)
   ORIGINAL_NAME(IBM.DBDTYPE.HDAM)
   ANNOTATION(CRITICAL EXCEPTION AND EMAIL OF FFDB)
   ACTION(ACTION_REF(REORG)
          EXCEPTION_CLASS(GROWING_DBDS_WITH_FREE_SPACES)
          EXCEPTION_LEVEL(CRITICAL))
   ACTION(ACTION_REF(REORG)
          EXCEPTION_CLASS(FRAGMENTED_FREE_SPACES)
          EXCEPTION_LEVEL(CRITICAL))
   ACTION(ACTION_REF(REORG)
          EXCEPTION_CLASS(EXCESSIVE_SLACK_BYTES)
          EXCEPTION_LEVEL(CRITICAL))
   ACTION(ACTION_REF(REORG)
          EXCEPTION_CLASS(EXCESSIVE_VL_SPLIT_SEGMENTS)
          EXCEPTION_LEVEL(CRITICAL))
   ACTION(ACTION_REF(REORG)
          EXCEPTION_CLASS(EXCESSIVE_CI_OR_CA_SPLITS)
          EXCEPTION_LEVEL(CRITICAL))
   ACTION(ACTION_REF(REORG)
          EXCEPTION_CLASS(EXCESSIVE_HISAM_DELETE_SEGM)
          EXCEPTION_LEVEL(CRITICAL))
   ACTION(ACTION_REF(REORG)
          EXCEPTION_CLASS(DAYS_PASSED_SINCE_LAST_REORG)
          EXCEPTION_LEVEL(CRITICAL))
   ACTION(ACTION_REF(INDEXBLD)
          EXCEPTION_CLASS(EXCESSIVE_INDEX_CI_OR_CA_SPLITS)
          EXCEPTION_LEVEL(CRITICAL))
   ACTION(ACTION_REF(REORG)
          EXCEPTION_CLASS(DEDB_NEEDS_TO_BE_REORGANIZED)
          EXCEPTION_LEVEL(CRITICAL))
   ACTION(ACTION_REF(EXTENDIOVF)
          EXCEPTION_CLASS(DEDB_IOVF_NEEDS_TO_BE_EXTENDED)
          EXCEPTION_LEVEL(CRITICAL))
   ACTION(ACTION_REF(EXTENDSDEP)
          EXCEPTION_CLASS(DEDB_SDEP_NEEDS_TO_BE_EXTENDED)
          EXCEPTION_LEVEL(CRITICAL))
   ACTION(ACTION_REF(MESSAGE)
          EXCEPTION_CLASS(*)
          EXCEPTION_LEVEL(*))
   NTFYLIST_REF(G:EMAIL-LIST)
   RESOURCE_REF(HDAM)
   RULE(
     RULE_EXP(
       VERSION(1)
       NAME(G:IBM.AVG_DBREC_LEN.10/HIGH)
       ANNOTATION(Average length of database records)
       RESOURCE_REF(HDAM)
       RESOURCE_REF(HIDAM)
       RESOURCE_REF(PHDAM)
       RESOURCE_REF(PHIDAM)
       RESOURCE_REF(HISAM)
       RESOURCE_REF(SHISAM)
       CONDITION(
             OR(
               IF(DB_AVG_DBREC_LENGTH,GE,
                 85899345920
               )
             )
       )
       EXCEPTION(
         EXCEPTION_CLASS(AVERAGE_DB_RECORD_LENGTH)
         EXCEPTION_LEVEL(WARNING)
         EXCEPTION_MESSAGE(
        The average length of database records in %RESOURCE% has reached or exceeded a threshold)
       )
     )
     EXCEPTION_LEVEL(CRITICAL)
     ONMISSING(*,SKIPEVAL)
)
```

Figure 101: Example of a policy stream build from a sample Policy Services Journal report

For details, see "Policy Decision Making report" on page 189.

JCL examples for the Policy Verification Utility

Use the following JCL example to code JCL statements for the Policy Verification Utility.

Example: Verifying a policy in the maintenance environment

The following figure shows a JCL example for verifying a policy in the maintenance environment:

Figure 102: Example: Verifying a policy in the maintenance environment

```
//BSNUTIL0 JOB  CLASS=A
//PGM1     EXEC PGM=BSNUTIL0,PARM='FUNC=VERIFY_POLICY'
//STEPLIB  DD DISP=SHR,DSN=ITB.SHKTLOAD
//BSNUJRNL DD SYSOUT=*
//BSNURPRT DD SYSOUT=*
//BSNJM01  DD SYSOUT=*
//BSNSYSIN DD *
  ITKBSRVR(FPQSRV01)
  ENVIRONMENT(MAINTENANCE)
  RECONID(RECON1)
  DOMAIN(REORG)
  POLICYNAME(NEW.HDAM1)
  RSCTYPE(HDAM)
  DBDNAME(HDAMDB1)
/*
```

In this example, NEW.HDAM1 policy in the maintenance environment of the FPQSRV01 server is evaluated using the sensor data of HDAMDB1, which is an HDAM database.

The Policy Verification Utility generates the Policy Verification Summary report and the Policy Evaluation Exceptions report. The verified policy and rules are shown in the Policy Services Journal report.

Reference: Policy Services data elements

The data element information provided in the following reference topics can help you analyze the state of a database.

Topics:

- "Data elements for full-function databases" on page 142
- "Data elements for Fast Path databases" on page 166
- "Recovery-related data elements" on page 181
- "IMS Tools event-related data elements" on page 183

Data elements for full-function databases

Data elements for full-function databases are used to analyze the status of full-function databases.

Topics:

- "Overview of data elements for full-function databases" on page 142
- "Data elements related to database attributes" on page 147
- "Data elements related to data set attributes" on page 148
- "Data elements related to runtime options" on page 148
- "Data elements related to database data set space" on page 149
- "Data elements related to data set CI/CA splits" on page 156
- "Data elements related to index" on page 157
- "Data elements related to root segments" on page 157
- "Data elements related to randomizing parameter" on page 158
- "Data elements related to database records" on page 159
- "Data elements related to segments in a data set group" on page 160
- "Data elements related to pointers in a data set group" on page 161
- "Data elements related to free space in a data set group" on page 162
- "Data elements related to segment occurrence count" on page 163

Overview of data elements for full-function databases

Data elements for full-function databases are collected by FF DB Sensor and can be stored and used by IMS Tools that support sensor data processing.

Data element categories

Data elements for full-function databases are grouped into four categories. The following table summarizes the categories and the data elements collected as sensor data for full-function databases.

Table 20: Categories of data elements for full-function databases		
Category	**Description**	**Data elements**
Category 1	IMS database attributes, data set attributes, runtime options, and data set space statistics	"Data elements related to database attributes" on page 147 "Data elements related to data set attributes" on page 148 "Data elements related to runtime options" on page 148 "Data elements related to database data set space" on page 149 "Data elements related to data set CI/CA splits" on page 156 "Data elements related to index" on page 157
Category 2	IMS database statistics and data set free space statistics	"Data elements related to root segments" on page 157 (Category 2) "Data elements related to randomizing parameter" on page 158 "Data elements related to database records" on page 159 "Data elements related to segments in a data set group" on page 160 "Data elements related to pointers in a data set group" on page 161 "Data elements related to free space in a data set group" on page 162
Category 3	Root segment distribution statistics	"Data elements related to root segments" on page 157 (Category 3)
Category 4	Segment occurrence count statistics	"Data elements related to segment occurrence count" on page 163

IMS Tools products and functions for collecting sensor data

You can run FF DB Sensor as a stand-alone job or as an integrated process within the following IMS Tools products:

- IMS High Performance Image Copy
- IMS High Performance Pointer Checker
- IMS Database Reorganization Expert
- IMS Online Reorganization Facility

The data element categories that can be collected depend on the run mode (stand-alone or integrated) and on the runtime options that you specify.

Availability of data element categories by IMS Tools product or function

The following table shows, for each IMS Tools product or function, the data element categories that can be collected.

Table 21: Full-function database: Data element categories available with each IMS Tools product or function					
IMS Tools product or function	**Category 1**	**Categories 1 and 2**	**Categories 1, 2, and 3**	**Categories 1, 2, and 4**	**All categories**
FF Stand-alone DB Sensor	Supported	Supported	Supported	Supported	Supported

IMS Tools product or function	Category 1	Categories 1 and 2	Categories 1, 2, and 3	Categories 1, 2, and 4	All categories
IMS HP Image Copy	N/A	Supported	Supported	N/A	N/A
IMS HP Pointer Checker	N/A	Supported	Supported	N/A	N/A
IMS Database Reorganization Expert	N/A	Supported	Supported	N/A	N/A
IMS Online Reorganization Facility	N/A	Supported	Supported	N/A	N/A

Utility control statements for collecting sensor data

To collect sensor data, you must specify utility control statements that correspond to the data element categories that you want to collect.

The required control statements vary by IMS Tools product or function.

> **Note:** The TOSIXCFGRP keyword specifies that the sensor data is collected from an online database. For considerations that apply when collecting sensor data from an online database, see the topic "Considerations for collecting sensor data from full-function databases" in the *IMS Solution Packs Data Sensor User's Guide*.

FF Stand-alone DB Sensor

FF Stand-alone DB Sensor always collects category 1. The following keywords are used for collecting other data element categories:

- SENSOR_DBINFO: Controls category 2. The default is SENSOR_DBINFO=YES.
- SENSOR_HOME: Controls category 3. The default is SENSOR_HOME=YES.
- SEGMENT_STAT: Controls category 4. The default is SEGMENT_STAT=NO.

These control statements must be specified for the GLOBAL command in the BBESIN DD.

For parameter descriptions, see the topic "GLOBAL command keywords for FF Stand-alone DB Sensor" in the *IMS Solution Packs Data Sensor User's Guide*.

The following table summarizes the utility control statements that are used to collect specific data element categories when you run FF DB Sensor as a stand-alone job.

Table 22: FF Stand-alone DB Sensor: Categories and utility control statements

Collected data element categories	Utility control statements
– Category 1: IMS database attributes, data set attributes, runtime options, and data set space statistics	`SENSOR_DBINFO=NO, SENSOR_HOME=NO`
– Category 1: IMS database attributes, data set attributes, runtime options, and data set space statistics – Category 2: IMS database statistics and data set free space statistics	`SENSOR_DBINFO=YES, SENSOR_HOME=NO`

Collected data element categories	Utility control statements
– Category 1: IMS database attributes, data set attributes, runtime options, and data set space statistics – Category 2: IMS database statistics and data set free space statistics – Category 3: Root segment distribution statistics	`SENSOR_DBINFO=YES, SENSOR_HOME=YES`
– Category 1: IMS database attributes, data set attributes, runtime options, and data set space statistics – Category 2: IMS database statistics and data set free space statistics – Category 4: Segment occurrence count statistics	`SENSOR_DBINFO=YES, SENSOR_HOME=NO, SEGMENT_STAT=YES`
– Category 1: IMS database attributes, data set attributes, runtime options, and data set space statistics – Category 2: IMS database statistics and data set free space statistics – Category 3: Root segment distribution statistics – Category 4: Segment occurrence count statistics	`SENSOR_DBINFO=YES, SENSOR_HOME=YES, SEGMENT_STAT=YES`

IMS High Performance Image Copy

The following keywords are used for collecting sensor data:

- SENSOR: Controls sensor data collection. SENSOR=Y must be specified. Categories 1 and 2 are always collected when SENSOR=Y. The default is SENSOR=N.
- SENSOR_HOME: Controls category 3. The default is SENSOR_HOME=Y.

These utility control statements must be specified for the GLOBAL statement in ICEIN DD of an Image Copy job.

For parameter descriptions, see the topic "ICEIN control statement keywords" in the *IMS High Performance Image Copy User's Guide*.

The following table summarizes the utility control statements that are used to collect specific data element categories with IMS HP Image Copy.

Table 23: IMS HP Image Copy: Categories and utility control statements

Collected data element categories	Utility control statements
– Category 1: IMS database attributes, data set attributes, runtime options, and data set space statistics – Category 2: IMS database statistics and data set free space statistics	`SENSOR=Y, SENSOR_HOME=N`
– Category 1: IMS database attributes, data set attributes, runtime options, and data set space statistics – Category 2: IMS database statistics and data set free space statistics – Category 3: Root segment distribution statistics	`SENSOR=Y, SENSOR_HOME=Y`

IMS High Performance Pointer Checker

The following keywords are used for collecting sensor data:

- SENSOR: Controls sensor data collection. SENSOR=YES must be specified. Categories 1 and 2 are always collected when SENSOR=YES. The default is SENSOR=NO.
- SENSOR_HOME: Controls category 3. The default is SENSOR_HOME=YES.

These utility control statements must be specified for the PROC statement in PROCCTL DD of an HDPC job.

For parameter descriptions, see the topic "PROC statement" in the *IMS High Performance Pointer Checker User's Guide*.

The following table summarizes the utility control statements that are used to collect specific data element categories with IMS HP Pointer Checker.

Table 24: IMS HP Pointer Checker: Categories and utility control statements

Collected data element categories	Utility control statements
– Category 1: IMS database attributes, data set attributes, runtime options, and data set space statistics – Category 2: IMS database statistics and data set free space statistics	`SENSOR=YES, SENSOR_HOME=NO`
– Category 1: IMS database attributes, data set attributes, runtime options, and data set space statistics – Category 2: IMS database statistics and data set free space statistics – Category 3: Root segment distribution statistics	`SENSOR=YES, SENSOR_HOME=YES`

IMS Database Reorganization Expert

The following keywords are used for collecting sensor data:

- CONDREORG in (REORG) block: Controls conditional reorganization and sensor data collection. CONDREORG=YES must be specified. Categories 1 and 2 are always collected when CONDREORG=YES. The default is CONDREORG=NO.

  > **Note:** The DIAGONLY and REORGDIAG suboptions are optional. Specify CONDREORG=YES,DIAGONLY to collect sensor data without database reorganization.

- SENSOR_HOME in (CONDREORG) block: Controls category 3. The default is SENSOR_HOME=YES.

These utility control statements must be specified for the (REORG) and (CONDREORG) blocks in HPSIN DD of a Smart Reorg job.

For parameter descriptions, see the topics "Control statements for the Smart Reorg Driver" and "Control statements for the Conditional Reorganization Support Service" in the *IMS Database Reorganization Expert User's Guide*.

The following table summarizes the utility control statements that are used to collect specific data element categories with IMS Database Reorganization Expert.

Table 25: IMS Database Reorganization Expert: Categories and utility control statements

Collected data element categories	Utility control statements

– Category 1: IMS database attributes, data set attributes, runtime options, and data set space statistics
– Category 2: IMS database statistics and data set free space statistics
	`(REORG)`
	` CONDREORG=YES`
	`(CONDREORG)`
	` SENSOR_HOME=NO`

Collected data element categories	Utility control statements
– Category 1: IMS database attributes, data set attributes, runtime options, and data set space statistics – Category 2: IMS database statistics and data set free space statistics – Category 3: Root segment distribution statistics	(REORG) CONDREORG=YES (CONDREORG) SENSOR_HOME=YES

IMS Online Reorganization Facility

The following keywords are used for collecting sensor data:

- CONDREORG: Controls conditional reorganization and sensor data collection. CONDREORG(Y) must be specified. Categories 1 and 2 are always collected when CONDREORG(Y). The default is CONDREORG(N).

  > **Note:** The DIAGONLY and REORGDIAG suboptions are optional. Specify CONDREORG(Y,DIAGONLY) to collect sensor data without database reorganization.

- CR.SENSOR_HOME: Controls category 3. The default is CR.SENSOR_HOME(Y).

These utility control statements must be specified for the REORG command in HRFSYSIN DD of an IMS Online Reorganization Facility job.

For parameter descriptions, see "HRFSYSIN DD statement keywords" in the *IMS Online Reorganization Facility User's Guide*.

The following table summarizes the utility control statements that are used to collect specific data element categories with IMS Online Reorganization Facility.

Table 26: IMS Online Reorganization Facility: Categories and utility control statements

Collected data element categories	Utility control statements
– Category 1: IMS database attributes, data set attributes, runtime options, and data set space statistics – Category 2: IMS database statistics and data set free space statistics	CONDREORG(Y) CR.SENSOR_HOME(N)
– Category 1: IMS database attributes, data set attributes, runtime options, and data set space statistics – Category 2: IMS database statistics and data set free space statistics – Category 3: Root segment distribution statistics	CONDREORG(Y) CR.SENSOR_HOME(Y)

Data elements related to database attributes

This reference topic provides information about data elements that are related to database attributes.

The following table summarizes the data elements that are related to database attributes.

Table 27: Data elements related to database attributes

Data element name	Applicable database organizations	Type	Category	Description
DB_DATABASE_TYPE	HDAM, HIDAM, HISAM, SHISAM, PINDEX, SINDEX, PHDAM, PHIDAM, PSINDEX	DB	1	The type of database organization.
DB_ACCESS_METHOD	HDAM, HIDAM, HISAM, SHISAM, PINDEX, SINDEX, PHDAM, PHIDAM, PSINDEX	DB	1	The operating system access method for the database. The value is collected from the database definition.

Data elements related to data set attributes

This reference topic provides information about data elements that are related to data set attributes.

The following table summarizes the data elements that are related to data set attributes.

Table 28: Data elements related to data set attributes

Data element name	Applicable database organizations	Type	Category	Description
DB_DS_ORG	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DS	1	The organization type of the data set.
DB_DS_NAME	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DS	1	The name of the data set.
DBX_DS_ORG	PINDEX, SINDEX, PHIDAM, PSINDEX	DS	1	The organization type of the index database data set.
DBX_DS_NAME	PINDEX, SINDEX, PHIDAM, PSINDEX	DS	1	The name of the index database data set.

Data elements related to runtime options

This reference topic provides information about data elements that are related to runtime options.

The following table summarizes the data elements that are related to runtime options.

Table 29: Data elements related to runtime options

Data element name	Applicable database organizations	Type	Category	Description
DB_FLAG_SENSOR_HOME	HDAM, PHDAM	DB	1	The indicator that shows whether the SENSOR_HOME option of Database Sensor is specified.
DB_FLAG_SENSOR_DBINFO	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DB	1	The indicator that shows whether the SENSOR_DBINFO option of Database Sensor is specified.

Data element name	Applicable database organizations	Type	Category	Description
DB_FLAG_SEGMENT_STAT	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DB	1	The indicator that shows whether the SEGMENT_STAT option of Database Sensor is specified.
DBX_FLAG_SEGMENT_STAT	PINDEX, SINDEX, PHIDAM, PSINDEX	DB	1	The indicator that shows whether the SEGMENT_STAT option of Database Sensor is specified.

Data elements related to database data set space

This reference topic provides information about data elements that are related to database data set space.

The following table summarizes the data elements that are related to database data set space. These data elements are collected for each database data set.

Table 30: Data elements related to database data set space

Data element name	Applicable database organizations	Type	Category	Description
DB_FLAG_SMS	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DS	1	The indicator that shows whether DFSMSdss was active when collecting the statistics for data elements. The value is either Y or N. **Y** DFSMSdss is active. **N** DFSMSdss is not active.

Data element name	Applicable database organizations	Type	Category	Description
DB_MAX_EXT_DS	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DS	1	The maximum number of extents for the data set which is limited by an access method. This number is as follows: – VSAM data set: 251 – OSAM data set: ▪ 62 for IMS 13.1 or earlier ▪ 120 for IMS 14.1 or later **Notes:** 1. Whether VSAM extent constraint removal is specified is not taken into consideration when this value is calculated. Even if a VSAM file has extent constraint removal specified, DB Sensor ignores the feature and regards the file as extent constraint removal not specified. For detail about VSAM extent constraint removal, see *z/OS® DFSMS Using Data Sets*. 2. A multivolume VSAM file has 255-extent limit due to its access method. However, DB Sensor assumes the extent limit as 251 because four extents might be used by the access method.
DB_MAX_EXT_VOL	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DS	1	The maximum number of extents that can be allocated on one DASD volume. **VSAM data set** 123 extents per volume **OSAM data set** 16 extents per volume
DB_AVAIL_EXT_LESS_100	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DS	1	The indicator that shows whether the number of remaining extents to be allocated for the data set is less than 100. The value is either Y or N. **Y** The remaining extents is less than 100. **N** The remaining extents is equal to or greater than 100.

Data element name	Applicable database organizations	Type	Category	Description
DB_AVAIL_EXT_LIMIT	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DS	1	The reason the remaining extents are less than 100. Use this information to determine an action for expanding space. The reason is shown when DB_AVAIL_EXT_LESS_100 is "Y". The reason shows one of the following texts: – OSAM_MAXIMUM or VSAM_MAXIMUM The number of remaining extents that is displayed in DB_NUM_AVAIL_EXT shows the allowable number of remaining extents that is calculated based on the OSAM or VSAM extent limit. If the number of remaining extents is low, you must increase the primary and secondary allocation size of the data set definition and re-create the OSAM data set. – VOL_FREE_EXTENTS The number of remaining extents that is displayed in DB_NUM_AVAIL_EXT shows the allowable number for extending the data set on the DASD volume. This value is calculated based on the free space that is available on the DASD volume. If the number of remaining extents is low, you must increase the free space on the DASD volume for allocation, increase the number of DASD volumes for allocation, or re-create the data set on a DASD volume that has a larger free space. The number of remaining extents is calculated for the volumes that have volume serial numbers assigned. For candidate volumes without volume serial numbers, the number of remaining extents cannot be estimated. For those candidate volumes, DB Sensor assumes that the number of remaining extents is zero. The number of remaining extents is calculated based on the space utilization of the DASD volume at the time when DB Sensor is run. After this value is calculated, the size of free space on the volume might change due to some file operations, such as files being created or deleted. For this reason, the number of remaining extents might be different from the actual number of remaining extents.

Data element name	Applicable database organizations	Type	Category	Description
DB_NUM_AVAIL_EXT	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DS	1	The estimated number of remaining extents for the data set. This value is collected when DB_AVAIL_EXT_LESS_100 is "Y". **Notes:** 1. This value is estimated from the amount of free space left on the DASD volume at the time when the statistics were collected. Because other files are created or deleted, the estimated value might not be the same as the actual number of remaining extents. 2. In estimating this value, VSAM extent constraint removal and guaranteed space attributes defined in SMS are not taken into consideration. Thus, this value might be smaller than the actual number of remaining extent operations. 3. In estimating this value, VSAM extent consolidation is not taken into consideration. Thus, this value might be smaller than the actual number of extent operations.
DB_NUM_EXT	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DS	1	The number of extents that currently exist in the data set.
DB_RBA_HIGH_USED	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DS	1	The highest value of the relative byte address that is used by the data set. This value is shown in decimal format.
DB_RBA_HIGH_ALLOC	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DS	1	The highest value of the relative byte address that is allocated for the data set. This value is shown in decimal format.
DB_NUM_VOL	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DS	1	The number of DASD volumes that are used by the data set.

DB_NUM_UNUSED_VOL	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DS	1	The number of unused DASD volumes.
				
				This value is calculated by the following formula:
				
				`DB_NUM_UNUSED_VOL=`
				`  The number of volumes defined to data set`
				`  - DB_NUM_VOL`

Data element name	Applicable database organizations	Type	Category	Description
DB_NUM_UNUSED _VOL_SER	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DS	1	The number of unused DASD volumes whose volume serial numbers are already assigned. This value is calculated by the following formula: `DB_NUM_UNUSED_VOL_SER= DB_NUM_UNUSED_VOL - DB_NUM_UNUSED_VOL_CAND`
DB_NUM_UNUSED _VOL_CAND	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DS	1	The number of unused DASD volumes whose volume serial numbers are not assigned. These are the candidate volumes. This value is calculated by the following formula: `DB_NUM_UNUSED_VOL_CAND= DB_NUM_UNUSED_VOL - DB_NUM_UNUSED_VOL_SER`
DB_FLAG_SPACE_TYPE	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DS	1	The primary and secondary space unit type for allocating the data set. The value is Cylinder, Track, or Bytes.
DB_NUM_PRI_SPACE	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DS	1	The size of the primary allocation.
DB_NUM_SEC_SPACE	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DS	1	The size of the secondary allocation.
DB_UNUSED_BYTES	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DS	1	The size of free space in the database data set. Free space refers to areas that are not used by IMS.
DB_PCT_UNUSED_BYTES	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DS	1	The percentage of free space in the database data set. Free space refers to areas that are not used by IMS.

Data element name	Applicable database organizations	Type	Category	Description
DB_MAX_DS_SIZE	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DS	1	The maximum size of the data set. 4 GB or 8 GB. For HDAM and HIDAM databases: – If the data set is a VSAM linear data set (OSAM LDS) with the extended addressability attribute, the maximum size is 8 GB. – If the data set is OSAM and block size is even, the maximum size is 8 GB. – Otherwise, the maximum size is 4 GB. For HISAM and SHISAM databases, the maximum size is 4 GB. For PHDAM and PHIDAM databases: – If the data set is a VSAM linear data set (OSAM LDS) with the extended addressability attribute and OSAM8G is specified in the RECON data sets, the maximum size is 8 GB. – If the data set is OSAM and OSAM8G is specified in the RECON data sets, the maximum size is 8 GB. – Otherwise, the maximum size is 4 GB.
DB_PCT_OF_MAX_DS_SIZE	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DS	1	The percentage of allocated bytes (bytes for High Allocated RBA) compared to the maximum size (4 GB or 8 GB). This value is calculated by the following formula: `DB_PCT_OF_MAX_DS_SIZE (%)= (DB_MAX_DS_SIZE - DB_RBA_HIGH_ALLOC) / DB_MAX_DS_SIZE *100`
DB_NUM_DBDS_BLOCKS	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DS	1	The number of blocks or CIs that are used for the data set. High Used RBA is on the highest block or CI.
DB_NUM_ALLOCATED_BLOCKS	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DS	N/A	The number of blocks or CIs that are allocated for the data set. This data element is imported by the Statistics Data Import Utility and is used by other utilities.
DB_BLOCK_SIZE	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DS	1	The CI size of VSAM or the block size of OSAM.
DB_LRECL_SIZE	HISAM, SHISAM	DS	1	The logical record length of VSAM. This data is collected only for VSAM.
DBX_FLAG_SMS	PINDEX, SINDEX, PHIDAM, PSINDEX	DS	1	The indicator that shows whether SMS is active in the system in which the index database data set exists.

Data element name	Applicable database organizations	Type	Category	Description
DBX_MAX_EXT_DS	PINDEX, SINDEX, PHIDAM, PSINDEX	DS	1	The maximum number of extents that can be allocated for the index database data set due to the VSAM file limitation.
DBX_MAX_EXT_VOL	PINDEX, SINDEX, PHIDAM, PSINDEX	DS	1	The maximum number of extents that can be allocated on each DASD volume for the index database data set.
DBX_AVAIL_EXT_LESS_100	PINDEX, SINDEX, PHIDAM, PSINDEX	DS	1	The indicator that shows whether the remaining extents to be allocated for the index DB data set are less than 100.
DBX_AVAIL_EXT_LIMIT	PINDEX, SINDEX, PHIDAM, PSINDEX	DS	1	The reason the remaining extents are less than 100 for the index database data set. Use this to determine how to expand space.
DBX_NUM_AVAIL_EXT	PINDEX, SINDEX, PHIDAM, PSINDEX	DS	1	The estimated number of remaining extents for the index database data set. This is collected when DBX_AVAIL_EXT_LESS_100 is Y.
DBX_NUM_EXT	PINDEX, SINDEX, PHIDAM, PSINDEX	DS	1	The number of extents of the index database data set.
DBX_RBA_HIGH_USED	PINDEX, SINDEX, PHIDAM, PSINDEX	DS	1	The highest value of relative byte address that is used by the index database data set. This value is in decimal format.
DBX_RBA_HIGH_ALLOC	PINDEX, SINDEX, PHIDAM, PSINDEX	DS	1	The highest value of relative byte address that is allocated for the index database data set. This value is in decimal format.
DBX_NUM_VOL	PINDEX, SINDEX, PHIDAM, PSINDEX	DS	1	The number of DASD volumes that are used by the index database data set.
DBX_NUM_UNUSED_VOL	PINDEX, SINDEX, PHIDAM, PSINDEX	DS	1	The number of unused DASD volumes that are defined for use by the index database data set, but have not been used.
DBX_NUM_UNUSED _VOL_SER	PINDEX, SINDEX, PHIDAM, PSINDEX	DS	1	The number of unused DASD volumes for the index database data set that have volume serial numbers assigned.
DBX_NUM_UNUSED _VOL_CAND	PINDEX, SINDEX, PHIDAM, PSINDEX	DS	1	The number of candidate DASD volumes for the index database data set that do not have volume serial numbers assigned.
DBX_FLAG_SPACE_TYPE	PINDEX, SINDEX, PHIDAM, PSINDEX	DS	1	The space unit type for allocating the index database data set. The value is Cylinder, Track, or Bytes.
DBX_NUM_PRI_SPACE	PINDEX, SINDEX, PHIDAM, PSINDEX	DS	1	The size of the primary allocation that is defined for the index database data set.
DBX_NUM_SEC_SPACE	PINDEX, SINDEX, PHIDAM, PSINDEX	DS	1	The size of the secondary allocation that is defined for the index database data set.

Data element name	Applicable database organizations	Type	Category	Description
DBX_UNUSED_BYTES	PINDEX, SINDEX, PHIDAM, PSINDEX	DS	1	The size of free space in the index database data set. Free space refers to areas that are not used (not formatted) by IMS.
DBX_PCT_UNUSED_BYTES	PINDEX, SINDEX, PHIDAM, PSINDEX	DS	1	The percentage of free space in the index database data set. Free space refers to areas that are not used (not formatted) by IMS.
DBX_MAX_DS_SIZE	PINDEX, SINDEX, PHIDAM, PSINDEX	DS	1	The maximum size of the index database data set (4 GB).
DBX_PCT_OF_MAX_DS_SIZE	PINDEX, SINDEX, PHIDAM, PSINDEX	DS	1	The percentage of allocated bytes (bytes for High Allocated RBA) in the maximum size (4 GB) of the index database data set.
DBX_NUM_DBDS_BLOCKS	PINDEX, SINDEX, PHIDAM, PSINDEX	DS	1	The number of CIs that are used for the index database data set.
DBX_BLOCK_SIZE	PINDEX, SINDEX, PHIDAM, PSINDEX	DS	1	The CI size of the index database data set.
DBX_LRECL_SIZE	PINDEX, SINDEX, PHIDAM, PSINDEX	DS	1	The logical record length of the index database data set.

Data elements related to data set CI/CA splits

This reference topic provides information about data elements that are related to data set CI/CA splits.

The following table summarizes the data elements that are related to data set CI/CA splits.

Table 31: Data elements related to data set CI/CA splits

Data element name	Applicable database organizations	Type	Category	Description
DB_NUM_CI_SPLIT	HISAM, SHISAM	DS	1	The number of control interval splits that have occurred for VSAM KSDS.
DB_PCT_NUM_CI_SPLIT	HISAM, SHISAM	DS	1	The percentage of split CIs compared to the total number of CIs.
DB_NUM_CA_SPLIT	HISAM, SHISAM	DS	1	The number of control area splits that have occurred for VSAM KSDS.
DB_PCT_NUM_CA_SPLIT	HISAM, SHISAM	DS	1	The percentage of split CAs compared to the total number of CAs.
DBX_NUM_CI_SPLIT	PINDEX, SINDEX, PHIDAM, PSINDEX	DS	1	The number of split CIs (VSAM control interval) in the index database data set.
DBX_PCT_NUM_CI_SPLIT	PINDEX, SINDEX, PHIDAM, PSINDEX	DS	1	The percentage of split CIs compared to the total number of CIs in the index database data set.
DBX_NUM_CA_SPLIT	PINDEX, SINDEX, PHIDAM, PSINDEX	DS	1	The number of split CAs (VSAM control area) in the index database data set.

Data element name	Applicable database organizations	Type	Category	Description
DBX_PCT_NUM_CA_SPLIT	PINDEX, SINDEX, PHIDAM, PSINDEX	DS	1	The percentage of split CAs compared to the total number of CAs in the index database data set.

Data elements related to index

This reference topic provides information about data elements that are related to index.

The following table summarizes the data elements that are related to index.

Table 32: Data elements related to index

Data element name	Applicable database organizations	Type	Category	Description
DBX_NUM_IPS	PINDEX, SINDEX, PHIDAM, PSINDEX	DB	1	The number of index pointer segments in the index database.
DBX_NUM_IPS_OVFL	SINDEX	DB	1	The number of index pointer segments in the overflow data set. The number is the same as the number of duplicated keys.
DBX_PCT_IPS_OVFL	SINDEX	DB	1	The percentage of index pointer segments in the overflow data set compared to the total number of IPS segments.

Data elements related to root segments

This reference topic provides information about data elements that are related to root segments.

The following table summarizes the data elements that are related to root segments.

Table 33: Data elements related to root segments

Data element name	Applicable database organizations	Type	Category	Description
DB_NUM_ROOT	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DB	2	The number of root segment occurrences in the database or the partition.
DB_NUM_SYNONYM	HDAM, PHDAM	DB	2	The number of synonyms that are root segment occurrences not assigned to a unique root anchor point (RAP).
DB_PCT_NUM_SYNONYM	HDAM, PHDAM	DB	2	The percentage of synonyms compared to the total number of root segment occurrences. This value is calculated by the following formula: `DB_PCT_NUM_SYNONYM (%)= (DB_NUM_SYNONYM / DB_NUM_ROOT) * 100`

Data element name	Applicable database organizations	Type	Category	Description
DB_NUM_ROOT_NOHOME	HDAM, PHDAM	DB	3	The number of root segment occurrences that are not in the home block or CI. A home block refers to a block or CI that is selected by a randomizer. IMS attempts to put root segment occurrences in the home block. If there is not enough free space to store the root segment occurrence, IMS puts the root segment occurrence in a different block. However, in accessing the segment occurrence, IMS attempts to read the home block before reading the block in which the segment occurrence exists, thus I/O overhead is increased as the DB_NUM_ROOT_NOHOME increases.
DB_PCT_NUM_ROOT_NOHOME	HDAM, PHDAM	DB	3	The percentage of root segment occurrences that are not in the home block compared to the total number of root segment occurrences. This value is calculated by the following formula: `DB_PCT_NUM_ROOT_NOHOME (%)= (DB_NUM_ROOT_NOHOME / DB_NUM_ROOT) * 100`
DB_NUM_ROOT_OVFL	HDAM, PHDAM	DB	2	The number of root segment occurrences that are found in an overflow area.
DB_PCT_NUM_ROOT_OVFL	HDAM, PHDAM	DB	2	The percentage of root segment occurrences found in the overflow area compared to the total number of root segment occurrences. This value is calculated by the following formula: `DB_PCT_NUM_ROOT_OVFL (%)= (DB_NUM_ROOT_OVFL / DB_NUM_ROOT) * 100`
DB_AVG_LEN_SYNONYM_CHAIN	HDAM, PHDAM	DB	3	The average length of all the synonym chains that have a length greater than or equal to 2.

Data elements related to randomizing parameter

This reference topic provides information about data elements that are related to the randomizing parameter.

The following table summarizes the data elements that are related to the randomizing parameter.

Table 34: Data elements related to the randomizing parameter

Data element name	Applicable database organizations	Type	Category	Description
DB_BYTES_SEG_RAA	HDAM, PHDAM	DB	2	The total bytes of segment occurrences that are found in a root addressable area (RAA).

Data element name	Applicable database organizations	Type	Category	Description

DB_PCT_BYTES_OVFL	HDAM, PHDAM	DB	2	The percentage of the total bytes of segment occurrences that are found in an overflow area.
				This value is calculated by the following formula:
				`DB_PCT_BYTES_OVFL (%)=`
				`(Total bytes of segment occurrences`
				`in an overflow area`
				`/ Total bytes of segment occurrences in DSG1)`
				`* 100`
				Data Set Group 1 (DSG1) refers to the database data set that contains root segment occurrences.

DB_NUM_RAP	HDAM, PHDAM	DB	2	The total number of root anchor points (RAPs) in the database.
DB_NUM_UNUSED_RAP	HDAM, PHDAM	DB	2	The number of unused root anchor points.

DB_PCT_NUM_UNUSED_RAP	HDAM, PHDAM	DB	2	The usage rate of RAPs. This value shows the percentage of unused root anchor points compared to the total root anchor points.
				This value is calculated by the following formula:
				`DB_PCT_NUM_UNUSED_RAP (%)=`
				`(DB_NUM_UNUSED_RAP / DB_NUM_RAP) * 100`

Data elements related to database records

This reference topic provides information about data elements that are related to database records.

The following table summarizes the data elements that are related to database records.

Table 35: Data elements related to database records

Data element name	Applicable database organizations	Type	Category	Description

DB_AVG_DBREC_LENGTH	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DB	2	The average length of database records. This value is calculated by "the total bytes of segment occurrences in the database" divided by "the number of root segment occurrences".
				This value is calculated by the following formula:
				`DB_AVG_DBREC_LENGTH=`
				`Total bytes of segment occurrences`
				`/ DB_NUM_ROOT`

DB_ESTIMATED_DBREC_IO	HDAM, HIDAM, HISAM, PHDAM, PHIDAM	DB	2	The estimated number of I/Os that are required to retrieve an entire database record.

Data element name	Applicable database organizations	Type	Category	Description
DB_ESTIMATED_ROOT_IO	HDAM, PHDAM	DB	2	The estimated number of I/Os that are required to reach a root segment from RAP by following the synonym chain.

Data elements related to segments in a data set group

This reference topic provides information about data elements that are related to segments in a data set group.

The following table summarizes the data elements that are related to segments in a data set group.

Table 36: Data elements related to segments in a data set group

Data element name	Applicable database organizations	Type	Category	Description
DB_NUM_SEG	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DS	2	The number of segment occurrences in the data set.
DB_NUM_VLSEG	HDAM, HIDAM, HISAM, PHDAM, PHIDAM	DS	2	The number of variable-length segment occurrences in the data set.
DB_NUM_VLSEG_SPLIT	HDAM, HIDAM, PHDAM, PHIDAM	DS	2	The number of split segment occurrences in the data set. The split segments are split into a prefix portion and a data portion. A variable length segment can be in this status if the segment length is made longer and there is not enough space to store the changed segment in the block or CI.
DB_PCT_NUM_VLSEG_SPLIT	HDAM, HIDAM, PHDAM, PHIDAM	DS	2	The percentage of the split variable-segment occurrences compared to the total number of variable-segment occurrences in the data set. This value is calculated by the following formula: `DB_PCT_NUM_VLSEG_SPLIT (%)= (DB_NUM_VLSEG_SPLIT / DB_NUM_VLSEG) * 100`
DB_NUM_DELSEG	HISAM	DS	2	The number of deleted segment occurrences in the data set. A deleted segment occurrence refers to a segment occurrence whose delete byte is marked as deleted.
DB_BYTES_SEG	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DS	2	The total bytes of segment occurrences in the data set.

Data element name	Applicable database organizations	Type	Category	Description
DB_PCT_BYTES_SEG	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DS	2	The percentage of segment occurrences compared to the total bytes of used blocks in the data set. This value is calculated by the following formula: `DB_PCT_BYTES_SEG (%)= (DB_BYTES_SEG / (DB_NUM_DBDS_BLOCKS * DB_BLOCK_SIZE)) * 100`
DB_PCT_NUM_DELSEG	HISAM	DS	2	The percentage of deleted segment occurrences compared to the total bytes of used blocks in the data set. This value is calculated by the following formula: `DB_PCT_NUM_DELSEG (%)= (DB_NUM_DELSEG / (DB_NUM_DBDS_BLOCKS * DB_BLOCK_SIZE)) * 100`

Data elements related to pointers in a data set group

This reference topic provides information about data elements that are related to pointers in a data set group.

The following table summarizes the data elements that are related to pointers in a data set group.

Table 37: Data elements related to pointers in a data set group

Data element name	Applicable database organizations	Type	Category	Description
DB_NUM_PTR	HDAM, HIDAM, PHDAM, PHIDAM	DS	2	The number of used physical pointers that point to target segments within the data set. A used physical pointer indicates a physical pointer with nonzero value. Physical pointers are PTF, PTB, PCF, PCB, HF, HB, and VLS pointers. VLS pointer refers to a pointer that points from the prefix portion of split segment to the data portion.
DB_NUM_PTR_DIFF_BLK	HDAM, HIDAM, PHDAM, PHIDAM	DS	2	The number of physical pointers that point to the target segments on a different block or CI within the data set.
DB_PCT_NUM_PTR_DIFF_BLK	HDAM, HIDAM, PHDAM, PHIDAM	DS	2	The percentage of physical pointers that point to a different block or CI compared to the used physical pointers. This value is calculated by the following formula: `DB_PCT_NUM_PTR_DIFF_BLK (%)= (DB_NUM_PTR_DIFF_BLK / DB_NUM_PTR ) * 100`

Data elements related to free space in a data set group

This reference topic provides information about data elements that are related to free space in a data set group.

The following table summarizes the data elements that are related to free space in a data set group.

Table 38: Data elements related to free space in a data set group

Data element name	Applicable database organizations	Type	Category	Description
DB_NUM_FSE	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DS	2	The number of free space elements in the data set. For HISAM and SHISAM databases, the number of unused areas in logical records.
DB_NUM_FSE_MIN	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DS	2	The number of free space elements that can hold the smallest segment in the data set.
DB_NUM_FSE_MAX	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DS	2	The number of free space elements that can hold the largest segment in the data set.

DB_AVG_NUM_FSE	HDAM, HIDAM, PHDAM, PHIDAM	DS	2	The average number of free space elements, per block or CI, in the data set.
				This value is calculated by the following formula:
				`DB_AVG_NUM_FSE=`
				`DB_NUM_FSE / DB_NUM_DBDS_BLOCKS`

DB_AVG_NUM_NOREUSE_FSE	HDAM, HIDAM, PHDAM, PHIDAM	DS	2	The average number, per block or CI, of free space elements whose lengths are less than the smallest segment in the data set.
				This value is calculated by the following formula:
				`DB_AVG_NUM_NOREUSE_FSE =`
				`(DB_NUM_FSE - DB_NUM_FSE_MIN)`
				`/ DB_NUM_DBDS_BLOCKS`

DB_PCT_NUM_NOREUSE_FSE	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DS	2	The percentage of free space elements that cannot hold the smallest segment in the data set.
DB_BYTES_FREE_SPACE	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DS	2	The total bytes of free spaces.

DB_PCT_BYTES_FREE_SPACE	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DS	2	The percentage of bytes of total free spaces to the total used bytes for the data set.
				This value is calculated by the following formula:
				`DB_PCT_BYTES_FREE_SPACE (%)=`
				`(DB_BYTES_FREE_SPACE /`
				`(DB_NUM_DBDS_BLOCKS * DB_BLOCK_SIZE))`
				`* 100`

Data element name	Applicable database organizations	Type	Category	Description
DB_BYTES_UNIDENTIFIED	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DS	2	The total slack bytes in the data set. A slack byte is a byte of disk space that cannot hold IMS data.
DB_NUM_UNIDENTIFIED	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DS	2	The number of slack byte areas in the data set. These areas consist of 7 or fewer slack bytes and cannot hold IMS data.
DB_AVG_NUM_UNIDENTIFIED	HDAM, HIDAM, PHDAM, PHIDAM	DS	2	The average number of slack byte areas, per block or CI, in the data set. Slack byte areas cannot hold IMS data. This value is calculated by the following formula: `DB_AVG_NUM_UNIDENTIFIED= DB_NUM_UNIDENTIFIED / DB_NUM_DBDS_BLOCKS`
DB_PCT_NUM_FRAGD_FSE	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DS	2	The percentage of free space elements that cannot hold the largest segment in the data set.
DB_AVG_NUM_FRAGD_FSE	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	DS	2	The average number of free space elements, per block or CI (VSAM control interval), that cannot hold the largest segment.

Data elements related to segment occurrence count

This reference topic provides information about data elements that are related to the number of segment occurrences.

The following table summarizes the data elements that are related to segment occurrence count.

Table 39: Data elements related to segment occurrence count

Data element name	Applicable database organizations	Type	Category	Description
DB_NUM_SEGTYPE	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	SG	4	The number of segment types in the database.
DB_NUM_SEG_DB	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	SG	4	The number of segment occurrences in the database.
DB_NUM_SEG_PART	PHDAM, PHIDAM	SG	4	The number of segment occurrences in the HALDB partition.
DB_NUM_SEG_DSG01_DB	HDAM, HIDAM, PHDAM, PHIDAM	SG	4	The number of segment occurrences in data set group 01 of the non-HALDB database or data set group A of the HALDB database.
DB_NUM_SEG_DSG02_DB	HDAM, HIDAM, PHDAM, PHIDAM	SG	4	The number of segment occurrences in data set group 02 of the non-HALDB database or data set group B of the HALDB database.

Data element name	Applicable database organizations	Type	Category	Description
DB_NUM_SEG_DSG03_DB	HDAM, HIDAM, PHDAM, PHIDAM	SG	4	The number of segment occurrences in data set group 03 of the non-HALDB database or data set group C of the HALDB database.
DB_NUM_SEG_DSG04_DB	HDAM, HIDAM, PHDAM, PHIDAM	SG	4	The number of segment occurrences in data set group 04 of the non-HALDB database or data set group D of the HALDB database.
DB_NUM_SEG_DSG05_DB	HDAM, HIDAM, PHDAM, PHIDAM	SG	4	The number of segment occurrences in data set group 05 of the non-HALDB database or data set group E of the HALDB database.
DB_NUM_SEG_DSG06_DB	HDAM, HIDAM, PHDAM, PHIDAM	SG	4	The number of segment occurrences in data set group 06 of the non-HALDB database or data set group F of the HALDB database.
DB_NUM_SEG_DSG07_DB	HDAM, HIDAM, PHDAM, PHIDAM	SG	4	The number of segment occurrences in data set group 07 of the non-HALDB database or data set group G of the HALDB database.
DB_NUM_SEG_DSG08_DB	HDAM, HIDAM, PHDAM, PHIDAM	SG	4	The number of segment occurrences in data set group 08 of the non-HALDB database or data set group H of the HALDB database.
DB_NUM_SEG_DSG09_DB	HDAM, HIDAM, PHDAM, PHIDAM	SG	4	The number of segment occurrences in data set group 09 of the non-HALDB database or data set group I of the HALDB database.
DB_NUM_SEG_DSG10_DB	HDAM, HIDAM, PHDAM, PHIDAM	SG	4	The number of segment occurrences in data set group 10 of the non-HALDB database or data set group J of the HALDB database.
DB_NUM_SEG_DSG01_PART	PHDAM, PHIDAM	SG	4	The number of segment occurrences in data set group A of the HALDB partition.
DB_NUM_SEG_DSG02_PART	PHDAM, PHIDAM	SG	4	The number of segment occurrences in data set group B of the HALDB partition.
DB_NUM_SEG_DSG03_PART	PHDAM, PHIDAM	SG	4	The number of segment occurrences in data set group C of the HALDB partition.
DB_NUM_SEG_DSG04_PART	PHDAM, PHIDAM	SG	4	The number of segment occurrences in data set group D of the HALDB partition.
DB_NUM_SEG_DSG05_PART	PHDAM, PHIDAM	SG	4	The number of segment occurrences in data set group E of the HALDB partition.
DB_NUM_SEG_DSG06_PART	PHDAM, PHIDAM	SG	4	The number of segment occurrences in data set group F of the HALDB partition.

Data element name	Applicable database organizations	Type	Category	Description
DB_NUM_SEG_DSG07_PART	PHDAM, PHIDAM	SG	4	The number of segment occurrences in data set group G of the HALDB partition.
DB_NUM_SEG_DSG08_PART	PHDAM, PHIDAM	SG	4	The number of segment occurrences in data set group H of the HALDB partition.
DB_NUM_SEG_DSG09_PART	PHDAM, PHIDAM	SG	4	The number of segment occurrences in data set group I of the HALDB partition.
DB_NUM_SEG_DSG10_PART	PHDAM, PHIDAM	SG	4	The number of segment occurrences in data set group J of the HALDB partition.
DB_NUM_DELSEG_DB	HISAM	SG	4	The number of deleted segment occurrences in the database.
DB_NUM_SEG_PRIM_DB	HISAM	SG	4	The number of segment occurrences in the primary data set of the database.
DB_NUM_SEG_OVFL_DB	HISAM	SG	4	The number of segment occurrences in the overflow data set of the database.
DB_NUM_SEG_SC_DB	PHDAM, PHIDAM	SG	4	The number of segment occurrences per segment type in the HALDB database.
DB_NUM_SEG_SC	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	SG	4	The number of segment occurrences per segment type in the HALDB partition or the non-HALDB database.
DB_NUM_DELSEG_SC	HISAM	SG	4	The number of deleted segment occurrences per segment type in the database.
DB_NUM_SEG_SC_PRIM	HISAM	SG	4	The number of segment occurrences per segment type in the HISAM primary data set.
DB_NUM_SEG_SC_OVFL	HISAM	SG	4	The number of segment occurrences per segment type in the HISAM overflow data set.
DB_NUM_DELSEG_SC_PRIM	HISAM	SG	4	The number of deleted segment occurrences per segment type in the HISAM primary data set.
DB_NUM_DELSEG_SC_OVFL	HISAM	SG	4	The number of deleted segment occurrences per segment type in the HISAM overflow data set.
DB_SEG_SC	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	SG	4	The code number of the segment.
DB_SEG_LEVEL	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	SG	4	The hierarchical level of the segment.
DB_SEG_DSG	HDAM, HIDAM, PHDAM, PHIDAM	SG	4	The data set group of the segment.

Data element name	Applicable database organizations	Type	Category	Description
DB_SEG_NAME	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM	SG	4	The name of the segment.
DB_FLAG_SEG_LEN_TYPE	HDAM, HIDAM, HISAM, PHDAM, PHIDAM	SG	4	Whether the segment length is fixed and a segment edit/compression exit routine is specified.
DBX_NUM_IPS_DB	PHIDAM, PSINDEX	SG	4	The number of index pointer segments in the HALDB database.
DBX_NUM_IPS_PRIM	SINDEX	SG	4	The number of index pointer segments in the primary data set.
DBX_SEG_NAME	PINDEX, SINDEX, PSINDEX	SG	4	The name of the index pointer segments.

Data elements for Fast Path databases

Data elements for Fast Path databases are used to analyze the status of Fast Path databases, including DEDB areas and units of work (UOWs).

Topics:

- "Overview of data elements for Fast Path databases" on page 167
- "Data elements related to AREA definition" on page 172
- "Data elements related to free space in an area" on page 172
- "Data elements related to overflow in an area" on page 173
- "Data element related to segment occurrences in an area" on page 174
- "Data elements related to database records in an area" on page 174
- "Data elements related to physical I/O in an area" on page 174
- "Data elements related to UOW statistics information" on page 175
- "Data element related to repository group information" on page 175
- "Data elements related to RBASEFS or RDOVFFS conditions" on page 176
- "Data elements related to synonym in an area" on page 176
- "Data elements related to free space in a UOW" on page 176
- "Data elements related to overflow in a UOW" on page 177
- "Data elements related to database records in a UOW" on page 178
- "Data elements related to synonym in a UOW" on page 178
- "Data elements related to physical I/O in a UOW" on page 178
- "Data elements related to free space in a UOW group" on page 179
- "Data elements related to overflow in a UOW group" on page 180
- "Data elements related to database records in a UOW group" on page 180
- "Data elements related to synonym in a UOW group" on page 181
- "Data elements related to physical I/O in a UOW group" on page 181

Overview of data elements for Fast Path databases

Data elements for Fast Path databases are collected by FP DB Sensor and can be stored and used by IMS Tools that support Fast Path sensor data processing.

Data element categories

Data elements for Fast Path databases are grouped into four categories. The following table summarizes the categories and the data elements collected as sensor data for Fast Path databases.

Table 40: Categories of data elements for Fast Path databases

Category	Description	Data elements
Category 1	DEDB area definition, free space statistics, and overflow usage statistics in the area	"Data elements related to AREA definition" on page 172 "Data elements related to free space in an area" on page 172 "Data elements related to overflow in an area" on page 173 "Data element related to segment occurrences in an area" on page 174 "Data elements related to database records in an area" on page 174 (Category 1) "Data elements related to physical I/O in an area" on page 174 (Category 1) "Data elements related to UOW statistics information" on page 175 (Category 1) "Data element related to repository group information" on page 175 "Data elements related to RBASEFS or RDOVFFS conditions" on page 176
Category 2	Database record statistics, synonym statistics, and physical I/O statistics in the area	"Data elements related to database records in an area" on page 174 (Category 2) "Data elements related to synonym in an area" on page 176 "Data elements related to physical I/O in an area" on page 174 (Category 2)
Category 3	Free space statistics, overflow usage statistics, database record statistics, synonym statistics, and physical I/O statistics in the UOW	"Data elements related to free space in a UOW" on page 176 "Data elements related to overflow in a UOW" on page 177 "Data elements related to database records in a UOW" on page 178 "Data elements related to synonym in a UOW" on page 178 "Data elements related to physical I/O in a UOW" on page 178

Category	Description	Data elements
Category 4	Free space statistics, overflow usage statistics, database record statistics, synonym statistics, and physical I/O statistics in the group of UOWs	"Data elements related to free space in a UOW group" on page 179 "Data elements related to overflow in a UOW group" on page 180 "Data elements related to database records in a UOW group" on page 180 "Data elements related to synonym in a UOW group" on page 181 "Data elements related to physical I/O in a UOW group" on page 181 "Data elements related to UOW statistics information" on page 175 (Category 4)

IMS Tools products and functions for collecting sensor data

You can run FP DB Sensor as a stand-alone job or as an integrated process within the following IMS Tools products and utilities:

- IMS Fast Path Advanced Tool (FPA)
- IMS Fast Path Online Tools (FPO)
- Online Space Management utility (OSM)
- IMS High Performance Image Copy

The data element categories that can be collected depend on the run mode (stand-alone or integrated) and on the runtime options that you specify.

Availability of data element categories by IMS Tools product or utility

The following table shows, for each IMS Tools product or utility, the data element categories that can be collected for Fast Path databases.

Table 41: Fast Path databases: Data element categories available with each IMS Tools product or utility

IMS Tools product or utility	Category 1	Categories 1 and 2	Categories 1, 2, and 3	Categories 1, 2, and 4
FP Stand-alone DB Sensor	Supported	Supported	Supported	Supported
IMS Fast Path Advanced Tool	Supported	Supported	Supported	Supported
IMS Fast Path Online Tools	Supported	Supported	Supported	Supported
Online Space Management utility	N/A	Supported	N/A	N/A
IMS HP Image Copy	Supported	N/A	N/A	N/A

Utility control statements for collecting sensor data

To collect sensor data, you must specify utility control statements that correspond to the data element categories that you want to collect. The required control statements vary by IMS Tools product or function.

Note: For considerations when collecting sensor data from an online database, see the topic "Considerations for FP Stand-alone DB Sensor" in the *IMS Solution Packs Data Sensor User's Guide*.

FP Stand-alone DB Sensor

FP Stand-alone DB Sensor always collects category 1. The following keywords and DD statements are used for collecting other data element categories:

- SENSOR_DBREC: Controls category 2. The default is SENSOR_DBREC=YES.
- SENSOR_UOW: Controls categories 3 and 4. The default is SENSOR_UOW=NO.
- HFPAUOWC DD: Works with the SENSOR_UOW keyword to control categories 3 and 4.

These control statements must be specified for the GLOBAL command in the HFPSYSIN DD.

For parameter descriptions, see "GLOBAL command keywords for FP Stand-alone DB Sensor" in the *IMS Solution Packs Data Sensor User's Guide*.

The following table summarizes the utility control statements that are used to collect specific data element categories when you run FP DB Sensor as a stand-alone job.

Table 42: FP Stand-alone DB Sensor: Categories and control statements

Collected data element categories	Utility control statements
– Category 1: DEDB area definition, free space statistics, and overflow usage statistics in the area	`SENSOR_DBREC=NO` `SENSOR_UOW=NO`
– Category 1: DEDB area definition, free space statistics, and overflow usage statistics in the area – Category 2: Database record statistics, synonym statistics, and physical I/O statistics in the area	`SENSOR_DBREC=YES` `SENSOR_UOW=NO`

– Category 1: DEDB area definition, free space statistics, and overflow usage statistics in the area
– Category 2: Database record statistics, synonym statistics, and physical I/O statistics in the area
– Category 3: Free space statistics, overflow usage statistics, database record statistics, synonym statistics, and physical I/O statistics in the UOW
	`SENSOR_DBREC=YES`
	`SENSOR_UOW=YES`
	Requirement: Do not specify HFPAUOWC DD.

– Category 1: DEDB area definition, free space statistics, and overflow usage statistics in the area
– Category 2: Database record statistics, synonym statistics, and physical I/O statistics in the area
– Category 4: Free space statistics, overflow usage statistics, database record statistics, synonym statistics, and physical I/O statistics in the group of UOWs
	`SENSOR_DBREC=YES`
	`SENSOR_UOW=YES`
	Requirement: Specify HFPAUOWC DD.

IMS Fast Path Advanced Tool

The following keywords and DD statements are used for collecting sensor data:

- SENSOR: Controls sensor data collection. SENSOR=YES must be specified. Category 1 is always collected when SENSOR=YES. The default is SENSOR=NO.
- SENSOR_DBREC: Controls category 2. The default is SENSOR_DBREC=NO.
- SENSOR_UOW: Controls categories 3 and 4. The default is SENSOR_UOW=NO.
- HFPAUOWC DD: Works with the SENSOR_UOW keyword to control categories 3 and 4.

These utility control statements must be specified in HFPSYSIN DD of an IMS Fast Path Advanced Tool job.

For parameter descriptions, see the topic "FPA keywords" in the *IMS High Performance Fast Path Utilities User's Guide*.

The following table summarizes the utility control statements that are used to collect specific data element categories with IMS Fast Path Advanced Tool.

Table 43: IMS Fast Path Advanced Tool: Categories and utility control statements

Collected data element categories	Utility control statements

– Category 1: DEDB area definition, free space statistics, and overflow usage statistics in the area	`SENSOR=YES`
	`SENSOR_DBREC=NO`
	`SENSOR_UOW=NO`

– Category 1: DEDB area definition, free space statistics, and overflow usage statistics in the area
– Category 2: Database record statistics, synonym statistics, and physical I/O statistics in the area
	`SENSOR=YES`
	`SENSOR_DBREC=YES`
	`SENSOR_UOW=NO`

– Category 1: DEDB area definition, free space statistics, and overflow usage statistics in the area
– Category 2: Database record statistics, synonym statistics, and physical I/O statistics in the area
– Category 3: Free space statistics, overflow usage statistics, database record statistics, synonym statistics, and physical I/O statistics in the UOW
	`SENSOR=YES`
	`SENSOR_DBREC=YES`
	`SENSOR_UOW=YES`
	
	Requirement: Do not specify HFPAUOWC DD.

– Category 1: DEDB area definition, free space statistics, and overflow usage statistics in the area
– Category 2: Database record statistics, synonym statistics, and physical I/O statistics in the area
– Category 4: Free space statistics, overflow usage statistics, database record statistics, synonym statistics, and physical I/O statistics in the group of UOWs
	`SENSOR=YES`
	`SENSOR_DBREC=YES`
	`SENSOR_UOW=YES`
	
	Requirement: Specify HFPAUOWC DD.

IMS Fast Path Online Tools

The following keywords and DD statements are used for collecting sensor data:

- SENSOR: Controls sensor data collection. SENSOR=YES must be specified. Category 1 is always collected when SENSOR=YES. The default is SENSOR=NO.
- SENSOR_DBREC: Controls category 2. The default is SENSOR_DBREC=NO.
- SENSOR_UOW: Controls categories 3 and 4. The default is SENSOR_UOW=NO.
- FPXAUOWC DD: Works with the SENSOR_UOW keyword to control categories 3 and 4.

These utility control statements must be specified in FPXIN DD of an IMS Fast Path Online Tools job.

For parameter descriptions, see the topic "FPO keywords" in the *IMS High Performance Fast Path Utilities User's Guide*.

The following table summarizes the utility control statements that are used to collect specific data element categories with IMS Fast Path Online Tools.

Table 44: IMS Fast Path Online Tools: Categories and utility control statements

Collected data element categories	Utility control statements

– Category 1: DEDB area definition, free space statistics, and overflow usage statistics in the area	`SENSOR=YES`
	`SENSOR_DBREC=NO`
	`SENSOR_UOW=NO`

– Category 1: DEDB area definition, free space statistics, and overflow usage statistics in the area
– Category 2: Database record statistics, synonym statistics, and physical I/O statistics in the area
	`SENSOR=YES`
	`SENSOR_DBREC=YES`
	`SENSOR_UOW=NO`

– Category 1: DEDB area definition, free space statistics, and overflow usage statistics in the area
– Category 2: Database record statistics, synonym statistics, and physical I/O statistics in the area
– Category 3: Free space statistics, overflow usage statistics, database record statistics, synonym statistics, and physical I/O statistics in the UOW
	`SENSOR=YES`
	`SENSOR_DBREC=YES`
	`SENSOR_UOW=YES`
	
	Requirement: Do not specify FPXAUOWC DD.

– Category 1: DEDB area definition, free space statistics, and overflow usage statistics in the area
– Category 2: Database record statistics, synonym statistics, and physical I/O statistics in the area
– Category 4: Free space statistics, overflow usage statistics, database record statistics, synonym statistics, and physical I/O statistics in the group of UOWs
	`SENSOR=YES`
	`SENSOR_DBREC=YES`
	`SENSOR_UOW=YES`
	
	Requirement: Specify FPXAUOWC DD.

Online Space Management utility

The Online Space Management utility does not require any specific utility control statements to collect sensor data. By default, it collects data elements for categories 1 and 2.

Table 45: Online Space Management utility: Categories and utility control statements

Collected data element categories	Utility control statements
– Category 1: DEDB area definition, free space statistics, and overflow usage statistics in the area – Category 2: Database record statistics, synonym statistics, and physical I/O statistics in the area	No specific control statements are required.

IMS High Performance Image Copy

The following keywords are used for collecting sensor data:

– SENSOR: Controls sensor data collection. SENSOR=Y must be specified. The default is SENSOR=N.

– DEDBPC: Controls sensor data collection for Fast Path databases. DEDBPC=Y must be specified. The default is DEDBPC=N.

These utility control statements must be specified for the GLOBAL command in ICEIN DD of an Image Copy job.

For parameter descriptions, see the topic "ICEIN control statement keywords" in the *IMS High Performance Image Copy User's Guide*.

The following table summarizes the utility control statements that are used to collect specific data element categories with IMS HP Image Copy.

Table 46: IMS HP Image Copy: Categories and utility control statements

Collected data element categories	Utility control statements
Category 1 – Category 1: DEDB area definition, free space statistics, and overflow usage statistics in the area	`SENSOR=Y, DEDBPC=Y`

Data elements related to AREA definition

This reference topic provides information about data elements that are related to AREA definition.

The following table summarizes the data elements that are related to AREA definition.

Table 47: Data elements related to AREA definition

Data element name	Applicable database organizations	Type	Category	Description
DB_AREADEF_CISIZE	DEDB	AREA	1	The size of the VSAM CI for the area.
DB_AREADEF_UOW1	DEDB	AREA	1	The number of VSAM CIs in a UOW for the area.
DB_AREADEF_UOW2	DEDB	AREA	1	The number of VSAM CIs in the overflow section of a UOW for the area.
DB_AREADEF_ROOT1	DEDB	AREA	1	The total space allocated to the root addressable part of the area and to the area reserved for the IOVF part.
DB_AREADEF_ROOT2	DEDB	AREA	1	The space reserved for the IOVF part in terms of UOWs.
DB_AREADEF_NUM_SDEP_CIS	DEDB	AREA	1	The total number of CIs that are allocated for the SDEP part.

Data elements related to free space in an area

This reference topic provides information about data elements that are related to free space in an area.

The following table summarizes the data elements that are related to free space in an area.

Table 48: Data elements related to free space in an area

Data element name	Applicable database organizations	Type	Category	Description
DB_PCT_BYTES_FS_RAA	DEDB	AREA	1	The percentage of free space in the RAA BASE (in bytes) compared to the total RAA BASE in the data set (in bytes).
DB_PCT_BYTES_FS_DOVF	DEDB	AREA	1	The percentage of free space in the DOVF (in bytes) compared to the total DOVF in the data set (in bytes).
DB_PCT_BYTES_FS_IOVF	DEDB	AREA	1	The percentage of free space in the IOVF (in bytes) compared to the total IOVF in the data set (in bytes).
DB_PCT_BYTES_FS_SDEP	DEDB	AREA	1	The percentage of free space in the SDEP (in bytes) compared to the total SDEP in the data set (in bytes).

Data elements related to overflow in an area

This reference topic provides information about data elements that are related to overflow in an area.

The following table summarizes the data elements that are related to overflow in an area.

Table 49: Data elements related to overflow in an area

Data element name	Applicable database organizations	Type	Category	Description
DB_PCT_NUM_UOW_USE_DOVF	DEDB	AREA	1	The percentage of UOWs that use DOVF CIs compared to the total number of UOWs in the data set.
DB_AVG_NUM_DOVFCI_BY_UOW	DEDB	AREA	1	The average number of DOVF CIs that are used by a UOW in the data set. UOWs that do not use DOVF CIs are excluded.
DB_MAX_NUM_DOVFCI_BY_UOW	DEDB	AREA	1	The maximum number of DOVF CIs that are used by a UOW in the data set.
DB_PCT_NUM_UOW_USE_IOVF	DEDB	AREA	1	The percentage of UOWs that use IOVF CIs compared to the total number of UOWs in the data set.
DB_NUM_UOW_USE_IOVF	DEDB	AREA	1	The number of UOWs that use IOVF CIs in the data set.
DB_AVG_NUM_IOVFCI_BY_UOW	DEDB	AREA	1	The average number of IOVF CIs that are used by a UOW in the data set. UOWs that do not use IOVF CIs are excluded.
DB_MAX_NUM_IOVFCI_BY_UOW	DEDB	AREA	1	The maximum number of IOVF CIs that are used by a UOW in the data set.
DB_MIN_NUM_IOVFCI_BY_UOW	DEDB	AREA	1	The minimum number of IOVF CIs that are used by a UOW in the data set.

Data element name	Applicable database organizations	Type	Category	Description
DB_PCT_NUM_IOVFCI_USED	DEDB	AREA	1	The percentage of used IOVF CIs compared to the total IOVF CIs (bitmaps excluded) in the data set.
DB_PCT_NUM_RAPCI_OVFL	DEDB	AREA	1	The percentage of RAP CIs that use overflow CIs compared to the total number of used RAP CIs in the data set.

Data element related to segment occurrences in an area

This reference topic provides information about data elements that are related to segment occurrences in an area.

The following table summarizes the data elements that are related to segment occurrences in an area.

Table 50: Data element related to segment occurrences in an area

Data element name	Applicable database organizations	Type	Category	Description
DB_NUM_SEG	DEDB	AREA	1	The number of segment occurrences in the data set.

Data elements related to database records in an area

This reference topic provides information about data elements that are related to database records in an area.

The following table summarizes the data elements that are related to database records in an area.

Table 51: Data elements related to database records in an area

Data element name	Applicable database organizations	Type	Category	Description
DB_NUM_ROOT	DEDB	AREA	1	The number of root segment occurrences in the database, the partition, or the area.
DB_AVG_DBREC_LENGTH	DEDB	AREA	1	The average length of database records in the database, the partition, or the area.
DB_MAX_DBREC_LENGTH	DEDB	AREA	2	The length of the longest database record in the data set.
DB_MIN_DBREC_LENGTH	DEDB	AREA	2	The length of the shortest database record in the data set.
DB_PCT_NUM_DBREC_IOVF	DEDB	AREA	2	The percentage of DB records using IOVF CIs compared to the total DB records in the data set.

Data elements related to physical I/O in an area

This reference topic provides information about data elements that are related to physical I/O in an area.

The following table summarizes the data elements that are related to physical I/O in an area.

Table 52: Data elements related to physical I/O in an area

Data element name	Applicable database organizations	Type	Category	Description
DB_AVG_DBREC_IO	DEDB	AREA	2	The average number of physical I/Os required to retrieve an entire DB record in the data set.
DB_ESTIMATED_DBREC_IO	DEDB	AREA	1	The estimated number of I/Os that are required to retrieve an entire database record.
DB_MAX_DBREC_IO	DEDB	AREA	2	The maximum number of physical I/Os required to retrieve an entire DB record in the data set.
DB_AVG_ROOT_IO	DEDB	AREA	2	The average number of physical I/Os required to retrieve a root segment in the data set.
DB_ESTIMATED_ROOT_IO	DEDB	AREA	1	The estimated number of I/Os that are required to reach a root segment from RAP by following the synonym chain.
DB_MAX_ROOT_IO	DEDB	AREA	2	The maximum number of physical I/Os required to retrieve a root segment in the data set.

Data elements related to UOW statistics information

This reference topic provides information about data elements that are related to UOW statistics information.

The following table summarizes the data elements that are related to UOW statistics information.

Table 53: Data elements related to UOW statistics information

Data element name	Applicable database organizations	Type	Category	Description
DB_FLAG_UOW_DATA	DEDB	AREA	1	The indicator that shows whether the data elements are collected for each UOW.
DB_FLAG_UOW_GROUP_DATA	DEDB	AREA	1	The indicator that shows whether the data elements are collected for each group of UOWs.
DB_NUM_UOW_GROUPS	DEDB	AREA	4	The number of UOW groups that are defined.

Data element related to repository group information

This reference topic provides information about data elements that are related to repository group information.

The following table summarizes the data elements that are related to repository group information.

Table 54: Data element related to repository group information				
Data element name	**Applicable database organizations**	**Type**	**Category**	**Description**
DB_SENSOR_DATA_GROUP_ID	DEDB	AREA	1	The name of the repository group.

Data elements related to RBASEFS or RDOVFFS conditions

This reference topic provides information about data elements that are related to the RBASEFS or RDOVFFS conditions.

The following table summarizes the data elements that are related to RBASEFS or RDOVFFS conditions.

Table 55: Data elements related to RBASEFS or RDOVFFS conditions				
Data element name	**Applicable database organizations**	**Type**	**Category**	**Description**
DB_NUM_UOW_RFS_COND	DEDB	AREA	1	The number of UOWs that match the RBASEFS condition or the RDOVFFS condition.
DB_PCT_NUM_UOW_RFS_COND	DEDB	AREA	1	The percentage of UOWs that match the RBASEFS condition or the RDOVFFS condition compared to the total number of UOWs.
DB_THRESHOLD_RBASEFS	DEDB	AREA	1	The threshold value that is specified by the RBASEFS or the EXC_RBASEFS keyword for selecting UOWs to reorganize.
DB_THRESHOLD_RDOVFFS	DEDB	AREA	1	The threshold value that is specified by the RDOVFFS or the EXC_RDOVFFS keyword for selecting UOWs to reorganize.

Data elements related to synonym in an area

This reference topic provides information about data elements that are related to synonym in an area.

The following table summarizes the data elements that are related to synonym in an area.

Table 56: Data elements related to synonym in an area				
Data element name	**Applicable database organizations**	**Type**	**Category**	**Description**
DB_AVG_LEN_SYNONYM_CHAIN	DEDB	AREA	2	The average length of all synonym chains in the data set that have a length greater than or equal to 2.
DB_MAX_LEN_SYNONYM_CHAIN	DEDB	AREA	2	The length of the longest synonym chain in the data set.

Data elements related to free space in a UOW

This reference topic provides information about data elements that are related to free space in a UOW.

The following table summarizes the data elements that are related to free space in a UOW.

Table 57: Data elements related to free space in a UOW

Data element name	Applicable database organizations	Type	Category	Description
DBU_PCT_BYTES_FS_RAA	DEDB	UOW	3	The percentage of free space in the RAA BASE (in bytes) compared to the total RAA BASE in the UOW (in bytes).
DBU_PCT_BYTES_FS_DOVF	DEDB	UOW	3	The percentage of free space in the DOVF (in bytes) compared to the total DOVF in the UOW (in bytes).
DBU_PCT_BYTES_FS_IOVF	DEDB	UOW	3	The percentage of free space in the IOVFs that are used by the UOW compared to the total bytes of those IOVFs.
DBU_PCT_USABLE_RAAFS	DEDB	UOW	3	The percentage of usable free space in the RAA BASE (in bytes) compared to the total RAA BASE in the UOW (in bytes).
DBU_PCT_USABLE_DOVFFS	DEDB	UOW	3	The percentage of usable free space in the DOVF (in bytes) compared to the total DOVF in the UOW (in bytes).
DBU_PCT_USABLE_IOVFFS	DEDB	UOW	3	The percentage of usable free space in the IOVFs that are used by the UOW compared to the total bytes of those IOVFs.
DBU_PCT_RAP_ROOTSZFS	DEDB	UOW	3	The percentage of RAP CIs that have free space to insert a root segment compared to the total used RAP CIs in the UOW.
DBU_MAX_PCT_BYTES_RAPFS	DEDB	UOW	3	The maximum percentage of free space in a RAP CI that uses overflow CIs (bytes) compared to a RAP CI in the UOW (bytes).
DBU_FLAG_UOW_USING_OVFL	DEDB	UOW	3	The indicator that shows whether at least one overflow CI is used by the UOW.
DBU_FLAG_UOW_USING_IOVF	DEDB	UOW	3	The indicator that shows whether at least one IOVF CI is used by the UOW.

Data elements related to overflow in a UOW

This reference topic provides information about data elements that are related to overflow in a UOW.

The following table summarizes the data elements that are related to overflow in a UOW.

Table 58: Data elements related to overflow in a UOW

Data element name	Applicable database organizations	Type	Category	Description
DBU_NUM_DOVFCI_BY_UOW	DEDB	UOW	3	The number of DOVF CIs that are used by the UOW.
DBU_NUM_IOVFCI_BY_UOW	DEDB	UOW	3	The number of IOVF CIs that are used by the UOW.

Data element name	Applicable database organizations	Type	Category	Description
DBU_PCT_NUM_RAPCI_OVFL	DEDB	UOW	3	The percentage of RAP CIs that use overflow CIs compared to the total number of used RAP CIs in the UOW.

Data elements related to database records in a UOW

This reference topic provides information about data elements that are related to database records in a UOW.

The following table summarizes the data elements that are related to database records in a UOW.

Table 59: Data elements related to database records in a UOW

Data element name	Applicable database organizations	Type	Category	Description
DBU_NUM_ROOT	DEDB	UOW	3	The number of root segment occurrences in the UOW.
DBU_AVG_DBREC_LENGTH	DEDB	UOW	3	The average length of database records in the UOW.
DBU_MAX_DBREC_LENGTH	DEDB	UOW	3	The length of the longest database record in the UOW.
DBU_MIN_DBREC_LENGTH	DEDB	UOW	3	The length of the shortest database record in the UOW.
DBU_PCT_NUM_DBREC_IOVF	DEDB	UOW	3	The percentage of DB records using IOVF CIs compared to the total DB records in the UOW.

Data elements related to synonym in a UOW

This reference topic provides information about data elements that are related to synonym in a UOW.

The following table summarizes the data elements that are related to synonym in a UOW.

Table 60: Data elements related to synonym in a UOW

Data element name	Applicable database organizations	Type	Category	Description
DBU_AVG_LEN_SYN_CHAIN	DEDB	UOW	3	The average length of all synonym chains in the UOW that have a length greater than or equal to 2.
DBU_MAX_LEN_SYN_CHAIN	DEDB	UOW	3	The length of the longest synonym chain in the UOW.

Data elements related to physical I/O in a UOW

This reference topic provides information about data elements that are related to physical I/O in a UOW.

The following table summarizes the data elements that are related to physical I/O in a UOW.

Table 61: Data elements related to physical I/O in a UOW

Data element name	Applicable database organizations	Type	Category	Description
DBU_AVG_DBREC_IO	DEDB	UOW	3	The average number of physical I/Os required to retrieve an entire DB record in the UOW.
DBU_MAX_DBREC_IO	DEDB	UOW	3	The maximum number of physical I/Os required to retrieve an entire DB record in the UOW.
DBU_AVG_ROOT_IO	DEDB	UOW	3	The average number of physical I/Os required to retrieve a root segment in the UOW.
DBU_MAX_ROOT_IO	DEDB	UOW	3	The maximum number of physical I/Os required to retrieve a root segment in the UOW.

Data elements related to free space in a UOW group

This reference topic provides information about data elements that are related to free space in a UOW group.

The following table summarizes the data elements that are related to free space in a UOW group.

Table 62: Data elements related to free space in a UOW group

Data element name	Applicable database organizations	Type	Category	Description
DBUG_PCT_BYTES_FS_RAA	DEDB	UOWG	4	The percentage of free space in the RAA BASE (in bytes) compared to the total RAA BASE in the group of UOWs (in bytes).
DBUG_PCT_BYTES_FS_DOVF	DEDB	UOWG	4	The percentage of free space in the DOVF (in bytes) compared to the total DOVF in the group of UOWs (in bytes).
DBUG_PCT_BYTES_FS_IOVF	DEDB	UOWG	4	The percentage of free space in the IOVFs that are used by the UOW group compared to the total bytes of those IOVFs.
DBUG_PCT_USABLE_RAAFS	DEDB	UOWG	4	The percentage of usable free space in the RAA BASE compared to the total RAA BASE in the group of UOWs (in bytes).
DBUG_PCT_USABLE_DOVFFS	DEDB	UOWG	4	The percentage of usable free space in the DOVF (in bytes) compared to the total DOVF in the group of UOWs (in bytes).
DBUG_PCT_USABLE_IOVFFS	DEDB	UOWG	4	The percentage of usable free space in the IOVFs that are used by the UOW group compared to the total bytes of the IOVFs.
DBUG_PCT_RAP_ROOTSZFS	DEDB	UOWG	4	The percentage of RAP CIs that have free space to insert a root segment compared to the total used RAP CIs in UOW group.

Data elements related to overflow in a UOW group

This reference topic provides information about data elements that are related to overflow in a UOW group.

The following table summarizes the data elements that are related to overflow in a UOW group.

Table 63: Data elements related to overflow in a UOW group

Data element name	Applicable database organizations	Type	Category	Description
DBUG_PCT_NUM_UOW_DOVF	DEDB	UOWG	4	The percentage of UOWs that use DOVF CIs compared to the total number of UOWs in the group of UOWs.
DBUG_AVG_NUM_DOVFCI	DEDB	UOWG	4	The average number of DOVF CIs that are used by a UOW in the group of UOWs. UOWs that do not use DOVF CIs are excluded.
DBUG_MAX_NUM_DOVFCI	DEDB	UOWG	4	The maximum number of DOVF CIs that are used by a UOW in the group of UOWs.
DBUG_PCT_NUM_UOW_IOVF	DEDB	UOWG	4	The percentage of UOWs that use IOVF CIs compared to the total number of UOWs in the group of UOWs.
DBUG_AVG_NUM_IOVFCI	DEDB	UOWG	4	The average number of IOVF CIs that are used by a UOW in the group of UOWs. UOWs that do not use IOVF CIs are excluded.
DBUG_MAX_NUM_IOVFCI	DEDB	UOWG	4	The maximum number of IOVF CIs that are used by a UOW in the group of UOWs.
DBUG_PCT_NUM_RAPCI_OVFL	DEDB	UOWG	4	The percentage of RAP CIs that use overflow CIs compared to the total number of used RAP CIs in the group of UOWs.

Data elements related to database records in a UOW group

This reference topic provides information about data elements that are related to database records in a UOW group.

The following table summarizes the data elements that are related to database records in a UOW group.

Table 64: Data elements related to database records in a UOW group

Data element name	Applicable database organizations	Type	Category	Description
DBUG_NUM_ROOT	DEDB	UOWG	4	The number of root segment occurrences in the group of UOWs.
DBUG_AVG_DBREC_LENGTH	DEDB	UOWG	4	The average length of database records in the group of UOWs.
DBUG_MAX_DBREC_LENGTH	DEDB	UOWG	4	The length of the longest database record in the group of UOWs.
DBUG_MIN_DBREC_LENGTH	DEDB	UOWG	4	The length of the shortest database record in the group of UOWs.

Data element name	Applicable database organizations	Type	Category	Description
DBUG_PCT_NUM_DBREC_IOVF	DEDB	UOWG	4	The percentage of DB records using IOVF CIs compared to the total DB records in the group of UOWs.

Data elements related to synonym in a UOW group

This reference topic provides information about data elements that are related to synonym in a UOW group.

The following table summarizes the data elements that are related to synonym in a UOW group.

Table 65: Data elements related to synonym in a UOW group

Data element name	Applicable database organizations	Type	Category	Description
DBUG_AVG_LEN_SYN_CHAIN	DEDB	UOWG	4	The average length of all synonym chains in the group of UOWs that have a length greater than or equal to 2.
DBUG_MAX_LEN_SYN_CHAIN	DEDB	UOWG	4	The length of the longest synonym chain in the group of UOWs.

Data elements related to physical I/O in a UOW group

This reference topic provides information about data elements that are related to physical I/O in a UOW group.

The following table summarizes the data elements that are related to physical I/O in a UOW group.

Table 66: Data elements related to physical I/O in a UOW group

Data element name	Applicable database organizations	Type	Category	Description
DBUG_AVG_DBREC_IO	DEDB	UOWG	4	The average number of physical I/Os required to retrieve an entire DB record in the group of UOWs.
DBUG_MAX_DBREC_IO	DEDB	UOWG	4	The maximum number of physical I/Os required to retrieve an entire DB record in the group of UOWs.
DBUG_AVG_ROOT_IO	DEDB	UOWG	4	The average number of physical I/Os required to retrieve a root segment in the group of UOWs.
DBUG_MAX_ROOT_IO	DEDB	UOWG	4	The maximum number of physical I/Os required to retrieve a root segment in the group of UOWs.

Recovery-related data elements

Recovery-related data elements provide information that is related to IMS database recovery.

These data elements can be used to review factors that influence database recovery processing.

Topics:

– “Data elements related to data set backup status” on page 182

- "Data elements related to database recovery" on page 182
- "Data elements related to database backout" on page 182
- "Data elements related to change accumulation groups" on page 182

Data elements related to data set backup status

This reference topic provides information about data elements that are related to the status of data set backup.

The following table summarizes the data elements that are related to the status of data set backup.

Table 67: Data elements related to data set backup status

Data element name	Type	Description
DB_DBRC_IC_NEEDED	DS	The image copy needed flag from RECON for a database data set or a DEDB area.
DB_DBRC_IC_RECOMMENDED	DS	The image copy recommended flag from RECON for a database data set or a DEDB area.
DB_HOURS_SINCE_LASTIC	DS	The number of hours since the last image copy was taken for a database data set or a DEDB area.
DB_IS_IN_A_DBRC_CAGRP	DS	The flag indicating whether a database data set or a DEDB area belongs to a RECON change accumulation group.

Data elements related to database recovery

This reference topic provides information about data elements that are related to database recovery.

The following table summarizes the data elements that are related to database recovery.

Table 68: Data elements related to database recovery

Data element name	Type	Description
DB_DBRC_EEQE_COUNT	DS	The number of Extended Error Queue Elements created for write errors for a data set or a DEDB area.
DB_DBRC_RECOV_NEEDED	DS	The recovery needed flag from the RECON for a database data set.
DB_DBRC_RECOVERABLE	DB	An indication of whether a database, a HALDB partition, or a DEDB area is recoverable or nonrecoverable.

Data elements related to database backout

This reference topic provides information about data elements that are related to database backout.

The following table summarizes the data elements that are related to database backout.

Table 69: Data elements related to database backout

Data element name	Type	Description
DB_DBRC_BACKOUT_NEEDED	DB	The database backout needed flag from RECON for a database, a HALDB partition, or a DEDB area.

Data elements related to change accumulation groups

This reference topic provides information about data elements that are related to change accumulation groups.

The following table summarizes the data elements that are related to change accumulation groups.

Table 70: Data elements related to change accumulation groups

Data element name	Type	Description
DB_HOURS_SINCE_LASTCA	CAGR	The number of hours since the last change accumulation occurred for a RECON CAGRP.

IMS Tools event-related data elements

IMS Tools event-related data provides information about database events, such as the number of days since the last event occurred.

Topics:

- "Data elements related to event dates" on page 183

Data elements related to event dates

This reference topic provides information about data elements that are related to the date that an event occurred.

The following table summarizes the data element that is related to event dates.

Table 71: Data elements related to event dates

Data element name	Applicable database organizations	Type	Description
DB_DAYS_SINCE_LAST_REORG	HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM, INDEX, PSINDEX	DB	The number of days that elapsed since the last reorganization. Elapsed days are calculated based on the number of 24-hour periods since the last reorganization (rather than the number of calendar days). This data element is collected by IMS Database Reorganization Expert, IMS Online Reorganization Facility, and IMS Fast Path Advanced Tool (Reorg function) when ITKBDATA=UTILHIST is specified.
	DEDB	AREA	

Reference: Policy Services journal reports

Policy Services writes journal records that are useful to IBM® Software Support for problem resolution.

Topics:

- "Journal report overview" on page 184
- "Notification List and Directory Entry List report" on page 185
- "Notification List Delete report" on page 186
- "Notification List and Directory Entry Import report" on page 187
- "Notification List Update report" on page 189
- "Directory Entry Update report" on page 189
- "Policy Decision Making report" on page 189
- "Policy Environment Service Environment Create report" on page 192
- "Policy Environment Service Environment Delete report" on page 193
- "Policy Environment Service Environment Select and Validate report" on page 194
- "Policy Environment Service Worklist Maintenance Process report" on page 196
- "Policy Rule Template and Stream List report" on page 196
- "Policy Stream Delete report" on page 197
- "Policy Stream Import report" on page 198
- "Policy Template Delete report" on page 199
- "Policy Template Import report" on page 200
- "Policy Template Update report" on page 203
- "Rule Template Import report" on page 206

Journal report overview

Journal records are written to reflect the status of policy template, policy streams, rule templates, notification list, directory entry processing, the creating and promoting of environments, policy validation, and evaluation of policy and sensor data during certain processing.

The data set that is used for journaling is a GDG, to allow for copies to be retained, or can specify that the journal output be sent to a SYSOUT device.

You can copy the sample job BSNGDG in the *hlq*.SHKTSAMP library to one of your own libraries. Modify the job as shown in the documentation within the BSNGDG job.

The following reports are written to the journal:

- Notification List and Directory Entry List report
- Notification List Delete report
- Notification List Import report
- Notification List Update report
- Policy Decision Making report
- Policy Environment Service Environment Create report
- Policy Environment Service Environment Delete report
- Policy Environment Service Environment Select and Validate report
- Policy Environment Service Worklist Maintenance Process report

- Policy Environment Service Worklist Maintenance Process report
- Policy Rule Template and Stream List report
- Policy Stream Delete report
- Policy Stream Import report
- Policy Template Delete report
- Policy Template Import report
- Policy Template Update report
- Rule Template Import report

You can review these records to determine the following information:

- Policy templates, and rule templates were installed during a maintenance install
- Policy templates, and rule thresholds that have been modified
- Policy templates that have been created, using an existing policy template as a model
- Policy templates that have been created, without using an existing policy template as a model
- Creating notification lists and directory entries
- Importing of policy templates, policy streams, rule templates, notification lists and directory entries
- Creation of a maintenance environment
- Promoting a maintenance environment
- Other

IBM® Software Support can also use these journal records to assist in problem determination. If a problem is reported, you should send these Journal records to IBM® Software Support to be used in the assistance in problem resolution.

Policy Services requires that a journal data set DD statement be included in the JCL of the IMS Tools product that is using Policy Services. For example:

```
//BSNJM01  DD  DSN=BSNJM01.BSN(+1),
//         SPACE=(TRK,(50,50)),UNIT=3390,
//         VOL=SER=222222,
//         DCB=(LRECL=134,BLKSIZE=134,RECFM=FBA),
//         DISP=(NEW,CATLG)
```

You can also specify the following statement , which allows the journal output to be sent to a SYSOUT device.

```
//BSNJM01  DD  SYSOUT=A
```

Notification List and Directory Entry List report

The Notification List and Directory Entry List report lists all notification lists or directory entries of a specific environment that are in the repository.

The following example shows a list of notification lists from a sample Notification List and Directory Entry List report:

```
********************************************************************************
****   NOTIFICATION LIST
********************************************************************************

--------------------------------------------------------------------------------
LEVEL    RECONID  NOTIFICATION LIST    DESCRIPTION
--------------------------------------------------------------------------------
00000001 MYRECON1 LIST01               NOTIFICATION LIST DESCRIPTION1
00000001 MYRECON1 LIST02               NOTIFICATION LIST DESCRIPTION2
00000001 MYRECON1 LIST03               NOTIFICATION LIST DESCRIPTION3
00000001 MYRECON1 LIST04               NOTIFICATION LIST DESCRIPTION4
00000001 MYRECON1 LIST05               NOTIFICATION LIST DESCRIPTION5
00000001 MYRECON1 LIST06               NOTIFICATION LIST DESCRIPTION6
00000001 MYRECON1 LIST07               NOTIFICATION LIST DESCRIPTION7
00000001 MYRECON1 LIST08               NOTIFICATION LIST DESCRIPTION8
00000001 MYRECON1 LIST09               NOTIFICATION LIST DESCRIPTION9
```

Figure 103: Example: List of notification lists

The following example shows a directory entry list from a sample Notification List and Directory Entry List report:

```
********************************************************************************
****   DIRECTORY ENTRIES
********************************************************************************

--------------------------------------------------------------------------------
LEVEL            NAME                OPTIONS                 DESCRIPTION
--------------------------------------------------------------------------------
00000001         DIR1                TSO                     Directory Entry
00000001         DIR2                WTO                     Directory Entry
00000001         DIR3                TSO                     Directory Entry
```

Figure 104: Example: Directory entry list

Notification List Delete report

The Notification List Delete report shows you the notification list that was deleted from the repository.

All policies of the specific environment in the repository are scanned to ensure that the notification list to be deleted is not being referenced by any one of the policies. If a referencing policy exists, the report shows that the delete notification list request is rejected.

The following example shows the summary notification lists and threshold notification lists being referenced by a policy:

```
*******************************************************************************
****   POLICY TEMPLATE GET CLAUSE RAW DATA
*******************************************************************************

G:LIST03
G:LIST05

2026-02-20 23:55:077@PDS : BSN7001I PDS BSNPDSC0 GET CONTROL WITH FUNCTION PDS_GETC  RC=00000000,RSN=EXIT
2026-02-20 23:55:077@PDS : BSN7001I PDS BSNPDSC0 GET CONTROL WITH FUNCTION PDS_GETC  RC=00000000,RSN=ENTRY


*******************************************************************************
****   POLICY TEMPLATE GET CLAUSE RAW DATA
*******************************************************************************

G:IBM.NUM_DBRECORDS.10;   HIGH; CRITICAL; SKIPEVAL; G:LIST03; G:LIST02;
G:IBM.AVG_DBREC_LEN.10;   HIGH; CRITICAL; SKIPEVAL; G:LIST01; G:LIST04;
G:IBM.DBDS_GROWTH.10;     HIGH; CRITICAL; SKIPEVAL; G:LIST02; G:LIST06;
G:IBM.FRAGMENTATION.10;   HIGH; CRITICAL; SKIPEVAL; G:LIST01; G:LIST02;
G:IBM.VL_SEGM_SPLIT.10;   HIGH; CRITICAL; SKIPEVAL; G:LIST03; G:LIST02;
G:IBM.SLACK_BYTES.10;     HIGH; CRITICAL; SKIPEVAL; G:LIST01; G:LIST04;
G:IBM.SEGM_SPREAD.10;     HIGH; CRITICAL; SKIPEVAL; G:LIST02; G:LIST06;
G:IBM.UNUSED_RAPS.10;     HIGH; CRITICAL; SKIPEVAL; G:LIST04; G:LIST07;
G:IBM.RAP_SYNONYMS.10;    HIGH; CRITICAL; SKIPEVAL; G:LIST06; G:LIST08;
G:IBM.ROOTS_NOTHOME.10;   HIGH; CRITICAL; SKIPEVAL; G:LIST07; G:LIST09;
G:IBM.HDAM_OVERFLOW.10;   HIGH; CRITICAL; SKIPEVAL; G:LIST08; G:LIST02;
G:IBM.ROOT_OVERFLOW.10;   HIGH; CRITICAL; SKIPEVAL; G:LIST09; G:LIST06;
G:IBM.NUM_DBRECORDS.10;   MED;  SEVERE;   SKIPEVAL; G:LIST02; G:LIST08;
G:IBM.AVG_DBREC_LEN.10;   MED;  SEVERE;   SKIPEVAL; G:LIST06; G:LIST09;
G:IBM.DBDS_GROWTH.10;     MED;  SEVERE;   SKIPEVAL; G:LIST08; G:LIST03;
G:IBM.FRAGMENTATION.10;   MED;  SEVERE;   SKIPEVAL; G:LIST09; G:LIST01;
G:IBM.VL_SEGM_SPLIT.10;   MED;  SEVERE;   SKIPEVAL; G:LIST03; G:LIST02;
G:IBM.SLACK_BYTES.10;     MED;  SEVERE;   SKIPEVAL; G:LIST01; G:LIST07;
G:IBM.SEGM_SPREAD.10;     MED;  SEVERE;   SKIPEVAL; G:LIST02; G:LIST09;
G:IBM.UNUSED_RAPS.10;     MED;  SEVERE;   SKIPEVAL; G:LIST01;
G:IBM.RAP_SYNONYMS.10;    MED;  SEVERE;   SKIPEVAL; G:LIST02;
G:IBM.ROOTS_NOTHOME.10;   MED;  SEVERE;   SKIPEVAL; G:LIST03; G:LIST02;
G:IBM.HDAM_OVERFLOW.10;   MED;  SEVERE;   SKIPEVAL; G:LIST02; G:LIST03;
G:IBM.ROOT_OVERFLOW.10;   MED;  SEVERE;   SKIPEVAL; G:LIST01; G:LIST02;
G:IBM.NUM_DBRECORDS.10;   LOW;  WARNING;  SKIPEVAL; G:LIST03; G:LIST02;
G:IBM.AVG_DBREC_LEN.10;   LOW;  WARNING;  SKIPEVAL; G:LIST01; G:LIST04;
G:IBM.DBDS_GROWTH.10;     LOW;  WARNING;  SKIPEVAL; G:LIST02; G:LIST06;
G:IBM.FRAGMENTATION.10;   LOW;  WARNING;  SKIPEVAL; G:LIST04; G:LIST07;
G:IBM.VL_SEGM_SPLIT.10;   LOW;  WARNING;  SKIPEVAL; G:LIST06; G:LIST08;
G:IBM.SLACK_BYTES.10;     LOW;  WARNING;  SKIPEVAL; G:LIST07; G:LIST09;
G:IBM.SEGM_SPREAD.10;     LOW;  WARNING;  SKIPEVAL; G:LIST08; G:LIST02;
G:IBM.UNUSED_RAPS.10;     LOW;  WARNING;  SKIPEVAL; G:LIST09; G:LIST06;
G:IBM.RAP_SYNONYMS.10;    LOW;  WARNING;  SKIPEVAL; G:LIST02; G:LIST08;
G:IBM.ROOTS_NOTHOME.10;   LOW;  WARNING;  SKIPEVAL; G:LIST06; G:LIST09;
G:IBM.HDAM_OVERFLOW.10;   LOW;  WARNING;  SKIPEVAL; G:LIST08; G:LIST03;
G:IBM.ROOT_OVERFLOW.10;   LOW;  WARNING;  SKIPEVAL; G:LIST09; G:LIST01;
```

Figure 105: Example of Policy summary notification lists and threshold notification lists

Notification List and Directory Entry Import report

The Notification List and Directory Entry Import report shows the notification list or directory entry template that was imported into the repository during installation or maintenance.

The following example shows the notification list template from a sample Notification List and Directory Entry Import report:

```
********************************************************************************
********************************************************************************
***   NOTIFICATION LIST IMPORT PROCESS STARTED
********************************************************************************
********************************************************************************


2026-02-20 20:01:333@NLDS: BSN5211I LEVEL=00000001, RECON=MYRECON1
2026-02-20 20:01:333@NLDS: BSN5211I NOTIFICATION LIST IMPORT STARTED



********************************************************************************
****   NOTIFICATION LIST TEMPLATE FOR IMPORT
********************************************************************************

@BEGIN{NL_VERSION}
1
@END
@BEGIN{NL_NAME}
LIST23
@END
@BEGIN{NL_DESC}
Notification list description
@END
@BEGIN{NL_CREATED}
2025-09-08 07:15:30
@END
@BEGIN{NL_LAST_UPDATE}
2025-09-11 12:20:31
@END
@BEGIN{NL_LAST_UPDATER}
SHIOMIT
@END
@BEGIN{NL_DESTINATIONS}
USER1;   1; STLMVS1.USER1;   Primary DBA;        NOW NOWAIT;
USER2;   1; STLMVS1.USER2;   Secondary DBA;      NOW NOWAIT;
USER3;   1; STLMVS1.USER3;   Secondary DBA;      NOW NOWAIT; AGTMOD11
SHIOMIT; 2; STLMVS1.SHIOMIT; Backup DBA; 3 11 13 KEY001 1;
DEST_01; 1; ; Other destinations; ;
@END

2026-02-20 20:01:333@NLDS: BSN5201I NLDS BSNNLPD0 GET CONTROL WITH FUNCTION NLDSCHCK RC=00000000,RSN=ENTRY
2026-02-20 20:01:333@NLDS: BSN5201I NLDS BSNNLPD0 GET CONTROL WITH FUNCTION NLDSCHCK RC=00000000,RSN=EXIT
2026-02-20 20:01:333@NLDS: BSN5201I NLDS BSNNLDP0 GET CONTROL WITH FUNCTION NLDSIMPT RC=00000000,RSN=EXIT

********************************************************************************
********************************************************************************
***   NOTIFICATION LIST IMPORT PROCESS ENDED
********************************************************************************
********************************************************************************


2026-02-20 20:01:333@NLDS: BSN5212I LEVEL=00000001, RECON=MYRECON1, NOTIFICATION LIST=LIST23
2026-02-20 20:01:333@NLDS: BSN5212I NOTIFICATION LIST IMPORT ENDED RC=00000000,RSN=00000000
```

Figure 106: Example of notification list template

The following example shows the directory entry template from a sample Notification List and Directory Entry Import report:

```
********************************************************************************
****   NOTIFICATION LIST TEMPLATE FOR IMPORT
********************************************************************************

@BEGIN{NL_VERSION}
1
@END
@BEGIN{NL_DELEGATE}
A; ;
@END
@BEGIN{NL_NAME}
JERRY
@END
@BEGIN{NL_DESC}
Jerry Hughes
@END
@BEGIN{NL_CREATED}
2026-01-27
@END
@BEGIN{NL_LAST_UPDATE}
2026-01-27 22:28:12
@END
@BEGIN{NL_LAST_UPDATER}
USRT004
@END
@BEGIN{NL_DESTINATIONS}
Jerry Hughes        ; !
02; USRT004
; NOW      NOWAIT
@END
```

Figure 107: Example of directory entry template

Notification List Update report

The Notification List Update report shows the notification list that was updated.

A notification list can contain both directory entries and nested notification lists. You can see the final valid directory entries expanded from the notification list in this report.

The following example shows the expanded valid directory entries and updated notification list definition from a sample Notification List Update report:

```
NOTIFICATION LIST  BSNGLOBL LIST02              INCLUDES G:LIST01
```

Figure 108: Example of notification lists nesting information

```
--------------------------------------------------------------------------------
BOUND NOTIFICATION DIRECTORY ENTRIES
--------------------------------------------------------------------------------
DIR3                    TSO

DIR1                    TSO

DIR2                    WTO
```

Figure 109: Example of notification list expanded valid directory entries

```
--------------------------------------------------------------------------------
NOTIFICATION LIST ENTRY        DESCRIPTION: LIST02 Description
--------------------------------------------------------------------------------
DIR3                    TSO

G:LIST01                  NESTED NOTIFICATION LIST

DIR1                    TSO
```

Figure 110: Example of notification list definition

Directory Entry Update report

The Directory Entry Update report shows the directory entry that was updated.

The following example shows an updated directory entry definition:

```
--------------------------------------------------------------------------------
 NOTIFICATION DIRECTORY ENTRY
--------------------------------------------------------------------------------
 DIRECTORY ENTRY NAME: DIR1                LONG NAME: directory entry 1

 STATUS: A    DELEGATE:                     OPTION:

 DESCRIPTION: Directory Entry 1 Description

  TSO DESTINATION
  ADDRESS:USER02

  PARAMETER: NOW     NOWAIT
```

Figure 111: Example of directory entry definition

Policy Decision Making report

The Policy Decision Making report includes the policy stream and the rule streams that are in the repository. The report also lists all the conditions and exceptions that were met for each rule.

The report provides a detailed summary of how IMS Policy Services is configured. You can use the decision making report to see the specified variables for rule streams and policy streams. Also, the end of the report shows any exceptions that were generated and the actions that were completed for each exception.

The following example shows the resource type that was defined:

```
*******************************************************************************
****   POLICY TEMPLATE GET CLAUSE RAW DATA
*******************************************************************************

HDAM
```

Figure 112: An example clause from a Policy Decision Making report

The Policy Decision Making report shows each rule stream for each threshold. The following example shows the high threshold for one rule stream.

```
*******************************************************************************
****   RULE STREAM READ FROM REPOSITORY
*******************************************************************************
RULE(
      RULE_EXP(
        VERSION(1)
        NAME(G:IBM.NUM_DBRECORDS.10/HIGH)
        ANNOTATION(Simple rule on the number of database records)
        RESOURCE_REF(HDAM)
        RESOURCE_REF(HIDAM)
        RESOURCE_REF(PHDAM)
        RESOURCE_REF(PHIDAM)
        RESOURCE_REF(HISAM)
        CONDITION(
              OR(
                IF(DB_NUM_ROOT,GE,
                  4294967295
                )
              )
        )
        EXCEPTION(
          EXCEPTION_CLASS(NUMBER_OF_DB_RECORDS)
          EXCEPTION_LEVEL(WARNING)
          EXCEPTION_MESSAGE(
            Threshold on the number of DB records is reached/exceeded in %RESOURC
 E%)
        )
      )
      EXCEPTION_LEVEL(CRITICAL)
      NTFYLIST_REF(G:LIST03)
      NTFYLIST_REF(G:LIST02)
      ONMISSING(*,SKIPEVAL)
 )
```

Figure 113: An example of the high threshold for one rule stream in a Policy Decision Making report

In the example, the rule stream is defined to monitor the number of date base records. The high threshold has been set to 4294967295. When the number of database records reaches this threshold, an exception is generated that generates a warning message.

The policy stream build includes the specified policy actions, the policy stream, and all the exceptions that were generated. The policy stream repeat all the rule streams. The exceptions are listed as BSN messages, and you can find more information about these messages in the reference part of this user's guide.

The following example shows the actions that are taken when rules with the specified exception class reach a specified exception level. For example, if rules that contain the exception class DATA_SET_SIZE_GROWTH reach an exception level of CRITICAL, IMS Policy Services initiates a reorganization of the database.

```
*******************************************************************************
****   POLICY STREAM BUILD FROM RULE STREAM
*******************************************************************************
    ACTION(ACTION_REF(REORG)
           EXCEPTION_CLASS(DATA_SET_SIZE_GROWTH)
           EXCEPTION_LEVEL(CRITICAL))
    ACTION(ACTION_REF(REORG)
           EXCEPTION_CLASS(FRAGMENTED_FREE_SPACES)
           EXCEPTION_LEVEL(CRITICAL))
    ACTION(ACTION_REF(REORG)
           EXCEPTION_CLASS(EXCESSIVE_SLACK_BYTES)
           EXCEPTION_LEVEL(CRITICAL))
    ACTION(ACTION_REF(REORG)
           EXCEPTION_CLASS(EXCESSIVE_VL_SPLIT_SEGMENTS)
           EXCEPTION_LEVEL(CRITICAL))
    ACTION(ACTION_REF(MESSAGE)
           EXCEPTION_CLASS(*)
           EXCEPTION_LEVEL(*))
    NTFYLIST_REF(G:LIST03)
    NTFYLIST_REF(G:LIST05)
    RESOURCE_REF(HDAM)
```

Figure 114: An example of the policy stream build from a sample Policy Decision Making report

The following example show a rule from the policy stream build.

```
*******************************************************************************
****   POLICY STREAM BUILD FROM RULE STREAM
*******************************************************************************

POLICY(
    VERSION(1)
    DOMAIN_REF(REORG)
    NAME(SYS.DBDTYPE.HDAM)
    ORIGINAL_NAME(IBM.DBDTYPE.HDAM)
    ANNOTATION(IBM basic policy for HDAM databases)

    ACTION(ACTION_REF(REORG)
           EXCEPTION_CLASS(DATA_SET_SIZE_GROWTH)
           EXCEPTION_LEVEL(CRITICAL))
    ACTION(ACTION_REF(REORG)
           EXCEPTION_CLASS(FRAGMENTED_FREE_SPACES)
           EXCEPTION_LEVEL(CRITICAL))
    ACTION(ACTION_REF(REORG)
           EXCEPTION_CLASS(EXCESSIVE_SLACK_BYTES)
           EXCEPTION_LEVEL(CRITICAL))
    ACTION(ACTION_REF(REORG)
           EXCEPTION_CLASS(EXCESSIVE_VL_SPLIT_SEGMENTS)
           EXCEPTION_LEVEL(CRITICAL))
    ACTION(ACTION_REF(MESSAGE)
           EXCEPTION_CLASS(*)
           EXCEPTION_LEVEL(*))
    NTFYLIST_REF(G:LIST03)
    NTFYLIST_REF(G:LIST05)
    RESOURCE_REF(HDAM)RULE(
      RULE_EXP(
        VERSION(1)
        NAME(G:IBM.NUM_DBRECORDS.10/HIGH)
        ANNOTATION(Simple rule on the number of database records)
        RESOURCE_REF(HDAM)
        RESOURCE_REF(HIDAM)
        RESOURCE_REF(PHDAM)
        RESOURCE_REF(PHIDAM)
        RESOURCE_REF(HISAM)
        CONDITION(
              OR(
                IF(DB_NUM_ROOT,GE,
                  4294967295
                )
              )
        )
        EXCEPTION(
          EXCEPTION_CLASS(NUMBER_OF_DB_RECORDS)
          EXCEPTION_LEVEL(WARNING)
          EXCEPTION_MESSAGE(
            Threshold on the number of DB records is reached/exceeded in %RESOURC
E%)
        )
      )
      EXCEPTION_LEVEL(CRITICAL)
      NTFYLIST_REF(G:LIST03)
      NTFYLIST_REF(G:LIST02)
      ONMISSING(*,SKIPEVAL)
 )
```

Figure 115: An example of the policy stream build from a sample Policy Decision Making report

Policy Environment Service Environment Create report

The Policy Environment Service Create report shows you the policy domain and level of a maintenance environment that was created.

The origin environment level is valid only when the created environment is copied from an existing one.

The following example shows an example of creating an empty maintenance environment report:

```
********************************************************************************
********************************************************************************
***   PES ENVIRONMENT CREATE PROCESS STARTED
********************************************************************************
********************************************************************************


2026-02-10 19:39:169@PES : BSN1511I DOMAIN=REORG, ORIGIN ENVIRON LEVEL=
2026-02-10 19:39:169@PES : BSN1511I PES ENVIRONMENT CREATE PROCESS STARTED

2026-02-10 19:39:169@PES : BSN1501I PES BSNPESQ0 GET CONTROL WITH FUNCTION PES_ENQE  RC=00000000,RSN=ENTRY
2026-02-10 19:39:169@PES : BSN1501I PES BSNPESQ0 GET CONTROL WITH FUNCTION PES_ENQE  RC=00000000,RSN=EXIT
2026-02-10 19:39:169@PES : BSN1501I PES BSNPES20 GET CONTROL WITH FUNCTION CRTEUPDH  RC=00000000,RSN=ENTRY
2026-02-10 19:39:169@PES : BSN1501I PES BSNPES20 GET CONTROL WITH FUNCTION CRTEUPDH  RC=00000000,RSN=EXIT
2026-02-10 19:39:169@PES : BSN1501I PES BSNPES20 GET CONTROL WITH FUNCTION CRTEDNEW  RC=00000000,RSN=ENTRY
2026-02-10 19:39:169@PES : BSN1501I PES BSNPESE0 GET CONTROL WITH FUNCTION PESEGETE  RC=00000000,RSN=ENTRY
2026-02-10 19:39:169@PES : BSN1501I PES BSNPESE0 GET CONTROL WITH FUNCTION PESEGETE  RC=00000000,RSN=EXIT
2026-02-10 19:39:169@PES : BSN1501I PES BSNPES20 GET CONTROL WITH FUNCTION CRTEDNEW  RC=00000000,RSN=EXIT
2026-02-10 19:39:169@PES : BSN1501I PES BSNPES20 GET CONTROL WITH FUNCTION PES2DESC  RC=00000000,RSN=ENTRY
2026-02-10 19:39:169@PES : BSN1501I PES BSNPESD0 GET CONTROL WITH FUNCTION PESDGETD  RC=00000000,RSN=ENTRY
2026-02-10 19:39:169@PES : BSN1501I PES BSNPESD0 GET CONTROL WITH FUNCTION PESDGETD  RC=00000000,RSN=EXIT
2026-02-10 19:39:169@PES : BSN1501I PES BSNPES20 GET CONTROL WITH FUNCTION CRTEDESC  RC=00000000,RSN=EXIT
2026-02-10 19:39:169@PES : BSN1501I PES BSNPES20 GET CONTROL WITH FUNCTION CRTE0PKG  RC=00000000,RSN=ENTRY
2026-02-10 19:39:169@PES : BSN1501I PES BSNPESK0 GET CONTROL WITH FUNCTION PESKGETK  RC=00000000,RSN=ENTRY
2026-02-10 19:39:169@PES : BSN1501I PES BSNPESK0 GET CONTROL WITH FUNCTION PESKGETK  RC=00000000,RSN=EXIT
2026-02-10 19:39:170@PES : BSN1501I PES BSNPES20 GET CONTROL WITH FUNCTION CRTE0PKG  RC=00000000,RSN=EXIT
2026-02-10 19:39:170@PES : BSN1501I PES BSNPES20 GET CONTROL WITH FUNCTION CRTENNEW  RC=00000000,RSN=ENTRY
2026-02-10 19:39:170@PES : BSN1501I PES BSNPESE0 GET CONTROL WITH FUNCTION PESEGETE  RC=00000000,RSN=ENTRY
2026-02-10 19:39:170@PES : BSN1501I PES BSNPESE0 GET CONTROL WITH FUNCTION PESEGETE  RC=00000000,RSN=EXIT
2026-02-10 19:39:170@NLDS: BSN5201I NLDS BSNNLPD0 GET CONTROL WITH FUNCTION NLPDCREA RC=00000000,RSN=ENTRY
2026-02-10 19:39:170@NLDS: BSN5201I NLDS BSNNLPD0 GET CONTROL WITH FUNCTION NLDSCREA RC=00000000,RSN=EXIT
2026-02-10 19:39:170@PES : BSN1501I PES BSNPES20 GET CONTROL WITH FUNCTION CRTENNEW  RC=00000000,RSN=EXIT
2026-02-10 19:39:170@PES : BSN1501I PES BSNPES20 GET CONTROL WITH FUNCTION CRTEUPDD  RC=00000000,RSN=ENTRY
2026-02-10 19:39:170@PES : BSN1501I PES BSNPES20 GET CONTROL WITH FUNCTION CRTEUPDD  RC=00000000,RSN=EXIT
2026-02-10 19:39:170@PES : BSN1501I PES BSNPES20 GET CONTROL WITH FUNCTION CRTE0END  RC=00000000,RSN=ENTRY
2026-02-10 19:39:170@PES : BSN1501I PES BSNPES20 GET CONTROL WITH FUNCTION CRTE0END  RC=00000000,RSN=EXIT
2026-02-10 19:39:170@PES : BSN1501I PES BSNPESA0 GET CONTROL WITH FUNCTION PES_ADTA  RC=00000000,RSN=ENTRY
2026-02-10 19:39:171@PES : BSN1501I PES BSNPESA0 GET CONTROL WITH FUNCTION PES_ADTA  RC=00000000,RSN=EXIT
2026-02-10 19:39:171@PES : BSN1501I PES BSNPESQ0 GET CONTROL WITH FUNCTION PES_DEQE  RC=00000000,RSN=ENTRY
2026-02-10 19:39:171@PES : BSN1501I PES BSNPESQ0 GET CONTROL WITH FUNCTION PES_DEQE  RC=00000000,RSN=EXIT
2026-02-10 19:39:171@PES : BSN1501I PES BSNPES20 GET CONTROL WITH FUNCTION PES2CRTE  RC=00000000,RSN=EXIT


********************************************************************************
********************************************************************************
***   PES ENVIRONMENT CREATE PROCESS ENDED
********************************************************************************
********************************************************************************
```

Figure 116: Example of creating an empty maintenance environment report

Policy Environment Service Environment Delete report

The Policy Environment Service Delete report shows you the environment level that was deleted and its policy domain.

The following example shows an example of deleting environment report:

```
********************************************************************************
********************************************************************************
***   PES ENVIRONMENT DELETE PROCESS STARTED
********************************************************************************
********************************************************************************


2026-02-20 19:18:029@PES : BSN1511I DOMAIN=REORG, ORIGIN ENVIRON LEVEL=00000001
2026-02-20 19:18:029@PES : BSN1511I PES ENVIRONMENT DELETE PROCESS STARTED

2026-02-20 19:18:029@PES : BSN1501I PES BSNPESQ0 GET CONTROL WITH FUNCTION PES_ENQE  RC=00000000,RSN=ENTRY
2026-02-20 19:18:029@PES : BSN1501I PES BSNPESQ0 GET CONTROL WITH FUNCTION PES_ENQE  RC=00000000,RSN=EXIT
2026-02-20 19:18:029@PES : BSN1501I PES BSNPESE0 GET CONTROL WITH FUNCTION PESEGETE  RC=00000000,RSN=ENTRY
2026-02-20 19:18:029@PES : BSN1501I PES BSNPESE0 GET CONTROL WITH FUNCTION PESEGETE  RC=00000000,RSN=EXIT
2026-02-20 19:18:029@PDS : BSN7001I PDS BSNPDSA0 GET CONTROL WITH FUNCTION PDSADELA  RC=00000000,RSN=ENTRY
2026-02-20 19:18:029@PDS : BSN7001I PDS BSNPDSL0 GET CONTROL WITH FUNCTION PDS_STRL  RC=00000000,RSN=ENTRY

2026-02-20 19:18:029@PDS : BSN7001I PDS BSNPDSL0 GET CONTROL WITH FUNCTION PDS_STRL  RC=00000004,RSN=EXIT
2026-02-20 19:18:029@PDS : BSN7001I PDS BSNPDSL0 GET CONTROL WITH FUNCTION PDS_ENDL  RC=00000000,RSN=ENTRY
2026-02-20 19:18:029@PDS : BSN7001I PDS BSNPDSL0 GET CONTROL WITH FUNCTION PDS_ENDL  RC=00000000,RSN=EXIT
2026-02-20 19:18:029@PDS : BSN7001I PDS BSNPDSL0 GET CONTROL WITH FUNCTION PDS_STRL  RC=00000000,RSN=ENTRY

2026-02-20 19:18:029@PDS : BSN7001I PDS BSNPDSL0 GET CONTROL WITH FUNCTION PDS_STRL  RC=00000004,RSN=EXIT
2026-02-20 19:18:029@PDS : BSN7001I PDS BSNPDSL0 GET CONTROL WITH FUNCTION PDS_ENDL  RC=00000000,RSN=ENTRY
2026-02-20 19:18:029@PDS : BSN7001I PDS BSNPDSL0 GET CONTROL WITH FUNCTION PDS_ENDL  RC=00000000,RSN=EXIT
2026-02-20 19:18:029@PDS : BSN7001I PDS BSNPDSA0 GET CONTROL WITH FUNCTION PDS_DELA  RC=00000000,RSN=EXIT
2026-02-20 19:18:029@RDS : BSN6401I RDS BSNRDSA0 GET CONTROL WITH FUNCTION RDS_DELA  RC=00000000,RSN=ENTRY
2026-02-20 19:18:029@RDS : BSN6401I RDS BSNRDSL0 GET CONTROL WITH FUNCTION RDS_STRL  RC=00000000,RSN=ENTRY
2026-02-20 19:18:029@RDS : BSN6401I RDS BSNRDSL0 GET CONTROL WITH FUNCTION RDS_STRL  RC=00000000,RSN=ENTRY
2026-02-20 19:18:029@RDS : BSN6401I RDS BSNRDSA0 GET CONTROL WITH FUNCTION RDS_DELA  RC=00000000,RSN=EXIT
2026-02-20 19:18:030@NLDS: BSN5201I NLDS BSNNLDA0 GET CONTROL WITH FUNCTION NLDSDELA RC=00000000,RSN=ENTRY
2026-02-20 19:18:030@NLDS: BSN5201I NLDS BSNNLDI0 GET CONTROL WITH FUNCTION NLDSSTRL RC=00000000,RSN=ENTRY
2026-02-20 19:18:030@NLDS: BSN5201I NLDS BSNNLDL0 GET CONTROL WITH FUNCTION NLDSRELS RC=00000000,RSN=ENTRY
2026-02-20 19:18:030@NLDS: BSN5201I NLDS BSNNLDI0 GET CONTROL WITH FUNCTION NLDSSTRL RC=00000004,RSN=EXIT
2026-02-20 19:18:030@NLDS: BSN5201I NLDS BSNNLDA0 GET CONTROL WITH FUNCTION NLDSDELA RC=00000004,RSN=EXIT
2026-02-20 19:18:030@PES : BSN1501I PES BSNPESE0 GET CONTROL WITH FUNCTION PESEDELE  RC=00000000,RSN=ENTRY
2026-02-20 19:18:030@PES : BSN1501I PES BSNPESE0 GET CONTROL WITH FUNCTION PESEDELE  RC=00000000,RSN=EXIT
2026-02-20 19:18:030@NLDS: BSN5201I NLDS BSNNLPD0 GET CONTROL WITH FUNCTION NLDSDSTY RC=00000000,RSN=ENTRY
2026-02-20 19:18:030@NLDS: BSN5201I NLDS BSNNLPD0 GET CONTROL WITH FUNCTION NLDSDSTY RC=00000000,RSN=EXIT
2026-02-20 19:18:030@PES : BSN1501I PES BSNPES20 GET CONTROL WITH FUNCTION DELTUPDH  RC=00000000,RSN=ENTRY
2026-02-20 19:18:030@PES : BSN1501I PES BSNPES20 GET CONTROL WITH FUNCTION DELTUPDH  RC=00000000,RSN=EXIT
2026-02-20 19:18:030@PES : BSN1501I PES BSNPESA0 GET CONTROL WITH FUNCTION PES_ADTA  RC=00000000,RSN=ENTRY
2026-02-20 19:18:030@PES : BSN1501I PES BSNPESA0 GET CONTROL WITH FUNCTION PES_ADTA  RC=00000000,RSN=EXIT
2026-02-20 19:18:030@PES : BSN1501I PES BSNPESQ0 GET CONTROL WITH FUNCTION PES_DEQE  RC=00000000,RSN=ENTRY
2026-02-20 19:18:030@PES : BSN1501I PES BSNPESQ0 GET CONTROL WITH FUNCTION PES_DEQE  RC=00000000,RSN=EXIT
2026-02-20 19:18:030@PES : BSN1501I PES BSNPES20 GET CONTROL WITH FUNCTION PES2DELT  RC=00000000,RSN=EXIT


********************************************************************************
********************************************************************************
***   PES ENVIRONMENT DELETE PROCESS ENDED
********************************************************************************
********************************************************************************
```

Figure 117: Example of deleting environment report

Policy Environment Service Environment Select and Validate report

The Policy Environment Service Environment Select and Validation report shows the process of promoting a history environment to an operational environment, or the information for validating a maintenance environment.

Any policy that failed to pass the validation would show in the report with the cause of the failure.

The following example shows the policy environment select process:

```
********************************************************************************
********************************************************************************
***   POLICY ENVIRONMENT SELECTION PROCESS STARTED
********************************************************************************
********************************************************************************


2026-02-20 20:47:126@PES : BSN1511I FOR DOMAIN REORG, ORIGIN ENVIRONMENT LEVEL=00000002,
2026-02-20 20:47:126@PES : BSN1511I THE PES ENVIRONMENT SELECT PROCESS STARTED

2026-02-20 20:47:126@PES : BSN1501I THE PES MODULE BSNPESQ0 RECEIVED CONTROL WITH FUNCTION PES_ENQE: RC=00000000, RSN=ENTRY
2026-02-20 20:47:126@PES : BSN1501I THE PES MODULE BSNPESQ0 RECEIVED CONTROL WITH FUNCTION PES_ENQE: RC=00000000, RSN=EXIT
2026-02-20 20:47:126@NLDS: BSN5201I THE NLDS MODULE BSNNLDA0 RECEIVED CONTROL WITH FUNCTION NLDSMERG: RC=00000000, RSN=ENTRY   .
2026-02-20 20:47:126@NLDS: BSN5201I THE NLDS MODULE BSNNLDA0 RECEIVED CONTROL WITH FUNCTION NLDSCOPA: RC=00000000, RSN=ENTRY   .
2026-02-20 20:47:126@NLDS: BSN5201I THE NLDS MODULE BSNNLDI0 RECEIVED CONTROL WITH FUNCTION NLDSSTRL: RC=00000000, RSN=ENTRY   .
00000002 BSNGLOBL LIST01                                    List01 description
2026-02-20 20:47:126@NLDS: BSN5201I THE NLDS MODULE BSNNLDI0 RECEIVED CONTROL WITH FUNCTION NLDSENDL: RC=00000000, RSN=ENTRY   .
2026-02-20 20:47:126@NLDS: BSN5201I THE NLDS MODULE BSNNLDI0 RECEIVED CONTROL WITH FUNCTION NLDSENDL: RC=00000000, RSN=EXIT    .
2026-02-20 20:47:126@NLDS: BSN5201I THE NLDS MODULE BSNNLDL0 RECEIVED CONTROL WITH FUNCTION NLDSRELS: RC=00000000, RSN=ENTRY   .
2026-02-20 20:47:126@NLDS: BSN5201I THE NLDS MODULE BSNNLDA0 RECEIVED CONTROL WITH FUNCTION NLDSCOPA: RC=00000000, RSN=EXIT    .
2026-02-20 20:47:126@NLDS: BSN5201I THE NLDS MODULE BSNNLDA0 RECEIVED CONTROL WITH FUNCTION NLDSCOPA: RC=00000000, RSN=ENTRY   .
2026-02-20 20:47:126@NLDS: BSN5201I THE NLDS MODULE BSNNLDI0 RECEIVED CONTROL WITH FUNCTION NLDSSTRL: RC=00000000, RSN=ENTRY   .
2026-02-20 20:47:126@NLDS: BSN5201I THE NLDS MODULE BSNNLDA0 RECEIVED CONTROL WITH FUNCTION NLDSCOPA: RC=00000004, RSN=EXIT    .
2026-02-20 20:47:126@NLDS: BSN5201I THE NLDS MODULE BSNNLDA0 RECEIVED CONTROL WITH FUNCTION NLDSMERG: RC=00000004, RSN=EXIT    .
2026-02-20 20:47:126@PES : BSN1501I THE PES MODULE BSNPES30 RECEIVED CONTROL WITH FUNCTION PES0VALA: RC=00000000, RSN=ENTRY
2026-02-20 20:47:127@PVE : BSN4000I THE POLICY VALIDATION PROCESS HAS STARTED FOR THE RESOURCE .
2026-02-20 20:47:127@PVE : BSN4001I THE POLICY VALIDATION PROCESS HAS ENDED FOR THE RESOURCE :
2026-02-20 20:47:127@PVE : BSN4001I  RC=00, RSN=00.
2026-02-20 20:47:128@PVE : BSN4000I THE POLICY VALIDATION PROCESS HAS STARTED FOR THE RESOURCE .
2026-02-20 20:47:128@PVE : BSN4001I THE POLICY VALIDATION PROCESS HAS ENDED FOR THE RESOURCE :
2026-02-20 20:47:128@PVE : BSN4001I  RC=00, RSN=00.
2026-02-20 20:47:128@PVE : BSN4000I THE POLICY VALIDATION PROCESS HAS STARTED FOR THE RESOURCE .
2026-02-20 20:47:128@PVE : BSN4001I THE POLICY VALIDATION PROCESS HAS ENDED FOR THE RESOURCE :
2026-02-20 20:47:128@PVE : BSN4001I  RC=00, RSN=00.
2026-02-20 20:47:128@PVE : BSN4000I THE POLICY VALIDATION PROCESS HAS STARTED FOR THE RESOURCE .
2026-02-20 20:47:128@PVE : BSN4001I THE POLICY VALIDATION PROCESS HAS ENDED FOR THE RESOURCE :
2026-02-20 20:47:128@PVE : BSN4001I  RC=00, RSN=00.
2026-02-20 20:47:128@PVE : BSN4000I THE POLICY VALIDATION PROCESS HAS STARTED FOR THE RESOURCE .
2026-02-20 20:47:128@PVE : BSN4001I THE POLICY VALIDATION PROCESS HAS ENDED FOR THE RESOURCE :
2026-02-20 20:47:128@PVE : BSN4001I  RC=00, RSN=00.
2026-02-20 20:47:128@PVE : BSN4000I THE POLICY VALIDATION PROCESS HAS STARTED FOR THE RESOURCE .
2026-02-20 20:47:128@PVE : BSN4001I THE POLICY VALIDATION PROCESS HAS ENDED FOR THE RESOURCE :
2026-02-20 20:47:128@PVE : BSN4001I  RC=00, RSN=00.
2026-02-20 20:47:128@PVE : BSN4000I THE POLICY VALIDATION PROCESS HAS STARTED FOR THE RESOURCE .
2026-02-20 20:47:128@PVE : BSN4001I THE POLICY VALIDATION PROCESS HAS ENDED FOR THE RESOURCE :
2026-02-20 20:47:128@PVE : BSN4001I  RC=00, RSN=00.
2026-02-20 20:47:128@PDS : BSN7001I THE PDS MODULE BSNPDST0 RECEIVED CONTROL WITH FUNCTION PDS_PTRL: RC=00000000, RSN=ENTRY
2026-02-20 20:47:128@PDS : BSN7001I THE PDS MODULE BSNPDSP0 RECEIVED CONTROL WITH FUNCTION PDSPRELP: RC=00000000, RSN=ENTRY
2026-02-20 20:47:129@PDS : BSN7001I THE PDS MODULE BSNPDSP0 RECEIVED CONTROL WITH FUNCTION PDSPRELP: RC=00000000, RSN=EXIT
2026-02-20 20:47:129@PES : BSN1501I THE PES MODULE BSNPES30 RECEIVED CONTROL WITH FUNCTION PES0VALA: RC=00000000, RSN=EXIT
2026-02-20 20:47:129@PES : BSN1501I THE PES MODULE BSNPES30 RECEIVED CONTROL WITH FUNCTION SELEUPNN: RC=00000000, RSN=ENTRY
2026-02-20 20:47:129@PES : BSN1501I THE PES MODULE BSNPESE0 RECEIVED CONTROL WITH FUNCTION PESEGETE: RC=00000000, RSN=ENTRY
2026-02-20 20:47:129@PES : BSN1501I THE PES MODULE BSNPESE0 RECEIVED CONTROL WITH FUNCTION PESEGETE: RC=00000000, RSN=EXIT
2026-02-20 20:47:129@PES : BSN1501I THE PES MODULE BSNPESE0 RECEIVED CONTROL WITH FUNCTION PESEGETE: RC=00000000, RSN=ENTRY
2026-02-20 20:47:129@PES : BSN1501I THE PES MODULE BSNPESE0 RECEIVED CONTROL WITH FUNCTION PESEGETE: RC=00000000, RSN=EXIT
2026-02-20 20:47:129@PES : BSN1501I THE PES MODULE BSNPES30 RECEIVED CONTROL WITH FUNCTION SELEUPNN: RC=00000000, RSN=EXIT
2026-02-20 20:47:129@PES : BSN1501I THE PES MODULE BSNPESA0 RECEIVED CONTROL WITH FUNCTION PES_ADTA: RC=00000000, RSN=ENTRY
2026-02-20 20:47:130@PES : BSN1501I THE PES MODULE BSNPESA0 RECEIVED CONTROL WITH FUNCTION PES_ADTA: RC=00000000, RSN=EXIT
2026-02-20 20:47:130@PES : BSN1501I THE PES MODULE BSNPESQ0 RECEIVED CONTROL WITH FUNCTION PES_DEQE: RC=00000000, RSN=ENTRY
2026-02-20 20:47:130@PES : BSN1501I THE PES MODULE BSNPESQ0 RECEIVED CONTROL WITH FUNCTION PES_DEQE: RC=00000000, RSN=EXIT
2026-02-20 20:47:130@PES : BSN1501I THE PES MODULE BSNPES30 RECEIVED CONTROL WITH FUNCTION PES3SELE: RC=00000000, RSN=EXIT


********************************************************************************
********************************************************************************
***   POLICY ENVIRONMENT SELECTION PROCESS ENDED
********************************************************************************
********************************************************************************


2026-02-20 20:47:130@PES : BSN1512I FOR DOMAIN=REORG, OPERATION ENVIRONMENT=00000002, NON-DOMAIN OPERATON ENVIRONMENT LEVEL=00000005
2026-02-20 20:47:130@PES : BSN1512I THE PES ENVIRONMENT SELECT PROCESS ENDED, RC=00000000, RSN=00000000.
```

Figure 118: Example of the policy environment select process

```
********************************************************************************
********************************************************************************
***   POLICY ENVIRONMENT VALIDATION PROCESS STARTED
********************************************************************************
********************************************************************************


2026-02-20 06:19:380@PES : BSN1511I FOR DOMAIN REORG, ORIGIN ENVIRONMENT LEVEL=00000005,
2026-02-20 06:19:380@PES : BSN1511I THE PES ENVIRONMENT VALIDATE PROCESS STARTED

2026-02-20 06:19:380@PES : BSN1501I THE PES MODULE BSNPES30 RECEIVED CONTROL WITH FUNCTION PES0VALA: RC=00000000, RSN=ENTRY
2026-02-20 06:19:381@PVE : BSN4000I THE POLICY VALIDATION PROCESS HAS STARTED FOR THE RESOURCE .
2026-02-20 06:19:381@PVE : BSN4001I THE POLICY VALIDATION PROCESS HAS ENDED FOR THE RESOURCE :
2026-02-20 06:19:381@PVE : BSN4001I  RC=00, RSN=00.
2026-02-20 06:19:381@PDS : BSN7001I THE PDS MODULE BSNPDST0 RECEIVED CONTROL WITH FUNCTION PDS_PTRL: RC=00000000, RSN=ENTRY
2026-02-20 06:19:381@PDS : BSN7001I THE PDS MODULE BSNPDSP0 RECEIVED CONTROL WITH FUNCTION PDSPRELP: RC=00000000, RSN=ENTRY
2026-02-20 06:19:381@PDS : BSN7001I THE PDS MODULE BSNPDSP0 RECEIVED CONTROL WITH FUNCTION PDSPRELP: RC=00000000, RSN=EXIT
2026-02-20 06:19:381@PES : BSN1501I THE PES MODULE BSNPES30 RECEIVED CONTROL WITH FUNCTION PES0VALA: RC=00000000, RSN=EXIT
2026-02-20 06:19:381@PES : BSN1501I THE PES MODULE BSNPESA0 RECEIVED CONTROL WITH FUNCTION PES_ADTA: RC=00000000, RSN=ENTRY
2026-02-20 06:19:381@PES : BSN1501I THE PES MODULE BSNPESA0 RECEIVED CONTROL WITH FUNCTION PES_ADTA: RC=00000000, RSN=EXIT
2026-02-20 06:19:381@PES : BSN1501I THE PES MODULE BSNPES30 RECEIVED CONTROL WITH FUNCTION PES3VALD: RC=00000000, RSN=EXIT


********************************************************************************
********************************************************************************
***   POLICY ENVIRONMENT VALIDATION PROCESS ENDED
********************************************************************************
********************************************************************************


2026-02-20 06:19:381@PES : BSN1512I FOR DOMAIN=REORG, ENVIRONMENT LEVEL=00000005
2026-02-20 06:19:381@PES : BSN1512I THE PES ENVIRONMENT VALIDATE PROCESS ENDED, RC=00000000, RSN=00000000.
```

Figure 119: Example of the policy environment validation process

Policy Environment Service Worklist Maintenance Process report

The Policy Environment Service Worklist Maintenance Process report shows the status of the policy objects in an installation or maintenance process.

The report includes maintenance activities conducted towards each policy objects, and related APAR and package information.

The Policy Environment Service Worklist Maintenance Process report contains worklist objects information and related APAR and package information as shown in the following example:

```
********************************************************************************
****   IMPORTED WORKLIST OBJECTS
********************************************************************************

--------------------------------------------------------------------------------------------------------------
LOCALE    TYPE  NAME
--------------------------------------------------------------------------------------------------------------
00001234  STRM  OBJECT004
00002222  RULE  OBJECT006
00003333  STRM  OBJECT003
2026-02-20 19:43:381@PES : BSN1512I PES IMPORT WORKLIST SERVICE ENDED RC=00000000, RSN=00000000
2026-02-20 19:43:381@PES : BSN1501I PES BSNPESQ0 GET CONTROL WITH FUNCTION PES_DEQE  RC=00000000,RSN=ENTRY
2026-02-20 19:43:381@PES : BSN1501I PES BSNPESQ0 GET CONTROL WITH FUNCTION PES_DEQE  RC=00000000,RSN=EXIT


2026-02-20 19:43:382@PES : BSN1511I PES ADD APARS SERVICE STARTED
```

Figure 120: Example of imported worklist objects in the sample Policy Environment Service Worklist Maintenance Process report

```
********************************************************************************
****   ADD APAR LIST
********************************************************************************

--------------------------------------------------------------------------------------------------------------
APARID    APAR DESCRIPTION
--------------------------------------------------------------------------------------------------------------
APAR001   DESC11111111111111111111
APAR007   DESCRIPTION 22222222222
APAR008   MY DESCRIPTION
APAR009   DESC11111111111111111111
APAR006   DESCRIPTION 22222222222
2026-02-20 19:43:382@PES : BSN1512I PES ADD APARS SERVICE ENDED RC=00000000, RSN=00000000


2026-02-20 19:43:382@PES : BSN1511I PES ADD PACKAGE SERVICE STARTED

ADDED PACKAGE - PACKAGE ID: PKG002  , DESCRIPTION: PACKAGE DESCRIPTION
2026-02-20 19:43:382@PES : BSN1512I PES ADD PACKAGE SERVICE ENDED RC=00000000, RSN=00000000


2026-02-20 19:43:382@PES : BSN1511I PES GET WORKLIST ITEM SERVICE STARTED

GETED WORKLIST ITEM - ITEM TYPE: RULE, USAGE: IMP, LOCALE: 00002222, ITEM NAME: OBJECT006
2026-02-20 19:43:382@PES : BSN1512I PES GET WORKLIST ITEM SERVICE ENDED RC=00000000, RSN=00000000
2026-02-20 19:43:382@PES : BSN1511I PES UPDATE WORKLIST ITEM SERVICE STARTED

UPDATED WORKLIST ITEM - ITEM TYPE: RULE, USAGE: IMP, LOCALE: 00002222, ITEM NAME: OBJECT006
INSTALLED STATUS UPDATED: Y
CUSTOMIZED STATUS UPDATED: I
COPYED STATUS UPDATED: N
2026-02-20 19:43:383@PES : BSN1512I PES UPDATE WORKLIST ITEM SERVICE ENDED RC=00000000, RSN=00000000
```

Figure 121: Example of APAR and package installation process in the sample Policy Environment Service Worklist Maintenance Process report

Policy Rule Template and Stream List report

The Policy Rule Template and Stream List report lists all rule templates, rule streams, and policy templates that are in the repository.

Use the Policy Rule Template and Rule Stream List report to quickly scan through all the templates and stream that are currently in the repository. By reading the descriptions, you can also understand the function of each template or stream.

The following example shows a rule template list from a sample Policy Rule Template and Rule Stream List report.

```
********************************************************************************
****   RULE TEMPLATE/STREAM LIST
********************************************************************************
--------------------------------------------------------------------------------------------------------------
 RECONID  RULE NAME                        DESCRIPTION
--------------------------------------------------------------------------------------------------------------
00000002 MYRECON1 CI_CA_SPLITS_HISAM              DLIDB - OUT OF SPACE CONDITION
00000002 MYRECON1 IBM.AVG_DBREC_LEN.10            Simple rule on the average database record length
```

Figure 122: Example rule template list

The following example shows a rule stream list from a sample Policy Rule Template and Rule Stream List report.

```
*************************************************************************
****   RULE TEMPLATE/STREAM LIST
*************************************************************************
-------------------------------------------------------------------------------------------------
 RECONID  RULE NAME                        DESCIPTION
-------------------------------------------------------------------------------------------------
00000002 MYRECON1 CI_CA_SPLITS_HISAM/HIGH          DLIDB - OUT OF SPACE CONDITION
00000002 MYRECON1 CI_CA_SPLITS_HISAM/LOW           DLIDB - OUT OF SPACE CONDITION
00000002 MYRECON1 CI_CA_SPLITS_HISAM/MED           DLIDB - OUT OF SPACE CONDITION
00000002 MYRECON1 IBM.AVG_DBREC_LEN.10/HIGH        Simple rule on the average database record length
00000002 MYRECON1 IBM.AVG_DBREC_LEN.10/LOW         Simple rule on the average database record length
00000002 MYRECON1 IBM.AVG_DBREC_LEN.10/MED         Simple rule on the average database record length
```

Figure 123: Example rule stream list

The following table describes the different fields in the rule template and stream list.

Table 72: Rule Template and stream list field descriptions	
Field	**Description**
RECONID	The RECONID in which the rule template or stream is located.
RULE NAME	The name of the rule template or stream.
DESCRIPTION	A description of the rule.

The following example shows a policy template list from a sample Policy Rule Template and Rule Stream List report.

```
*************************************************************************
****   POLICY TEMPLATE/STREAM LIST
*************************************************************************

-------------------------------------------------------------------------------------------------
----
DOMAIN NAME  LEVEL    RECONID  POLICY NAME          DESCRIPTION
-------------------------------------------------------------------------------------------------
----
REORG        00000002 MYRECON1 IBM.DBDTYPE.HDAM     IBM basic policy for HDAM databases
REORG        00000002 MYRECON1 IBM.DBDTYPE.HDDB     IBM basic policy for IMS HD databases
REORG        00000002 MYRECON1 IBM.DBDTYPE.HIDAM    IBM basic policy for HIDAM databases
REORG        00000002 MYRECON1 IBM.DBDTYPE.PHDAM    IBM basic policy for PHDAM partitions
REORG        00000002 MYRECON1 IBM.DBDTYPE.PHIDAM   IBM basic policy for PHIDAM partitions
REORG        00000002 MYRECON1 SYS.DBDTYPE.HDAM     IBM basic policy for HDAM databases
REORG        00000002 MYRECON1 SYS.DBDTYPE.HDDB     IBM basic policy for IMS HD databases
REORG        00000002 MYRECON1 SYS.DBDTYPE.HIDAM    IBM basic policy for HIDAM databases
REORG        00000002 MYRECON1 SYS.DBDTYPE.PHDAM    IBM basic policy for PHDAM partitions
REORG        00000002 MYRECON1 SYS.DBDTYPE.PHIDAM   IBM basic policy for PHIDAM partitions
```

Figure 124: Example policy template list

The following table describes the different fields in the policy template and stream list.

Table 73: Policy Rule Template Import report field descriptions	
Field	**Description**
DOMAIN NAME	The name of the policy domain to which the template or stream belongs
LEVEL	Domain environment level
RECONID	The RECONID in which the policy template or stream is located
POLICY NAME	The name of the policy template or stream
DESCRIPTION	A description of the policy

Policy Stream Delete report

The Policy Steam Delete report shows you the policy stream that was deleted from the repository.

The following example shows a sample Policy Steam Delete report:

```
********************************************************************************
********************************************************************************
***   POLICY STREAM DELETE   PROCESS STARTED
********************************************************************************
********************************************************************************


2026-02-20 01:12:469@PDS : BSN7011I DOMAIN=REORG, LEVEL=00006677, RECON=BBBRECON,
                                                                  POLICY=DEFAULT_BASIC_POLICY
2026-02-20 01:12:469@PDS : BSN7011I POLICY STREAM DELETE   PROCESS STARTED



********************************************************************************
********************************************************************************
***   POLICY STREAM DELETE   PROCESS ENDED
********************************************************************************
********************************************************************************


2026-02-20 01:12:469@PDS : BSN7012I DOMAIN=REORG, LEVEL=00006677, RECON=BBBRECON,
                                                                  POLICY=DEFAULT_BASIC_POLICY
2026-02-20 01:12:469@PDS : BSN7012I POLICY STREAM IMPORT   PROCESS ENDED RC=00000000, RSN=00000000
```

Figure 125: Example of Policy Steam Delete report

Policy Stream Import report

The Policy Stream Import report shows the policy stream that was imported into the repository during installation or maintenance. Because a policy stream contains all the rules streams that are active in the repository, you can use this report to view a list of all the rule streams comprising a policy stream.

The Policy Stream Import report contains detailed information such as the policy version, the policy name, rule names, and rule conditions as shown in the following example.

```
*******************************************************************************
****   POLICY STREAM FOR IMPORT
*******************************************************************************

POLICY(
   VERSION(1)
   DOMAIN_REF(REORG)
   NAME(BAD_STREAM_POLIC)
   ORIGINAL_NAME(IBM.DBDTYPE.HDAM)
   ANNOTATION(IBM basic policy for HDAM databases)

   ACTION(ACTION_REF(REORG)
          EXCEPTION_CLASS(DATA_SET_SIZE_GROWTH)
          EXCEPTION_LEVEL(CRITICAL))
   ACTION(ACTION_REF(REORG)
          EXCEPTION_CLASS(FRAGMENTED_FREE_SPACES)
          EXCEPTION_LEVEL(CRITICAL))
   ACTION(ACTION_REF(REORG)
          EXCEPTION_CLASS(EXCESSIVE_SLACK_BYTES)
          EXCEPTION_LEVEL(CRITICAL))
   ACTION(ACTION_REF(REORG)
          EXCEPTION_CLASS(EXCESSIVE_VL_SPLIT_SEGMENTS)
          EXCEPTION_LEVEL(CRITICAL))
   ACTION(ACTION_REF(MESSAGE)
          EXCEPTION_CLASS(*)
          EXCEPTION_LEVEL(*))
   NTFYLIST_REF(G:LIST03)
   NTFYLIST_REF(G:LIST05)
   RESOURCE_REF(HDAM)
   RULE(
     RULE_EXP(
       VERSION(1)
       NAME(G:IBM.NUM_DBRECORDS.10/HIGH)
       ANNOTATION(Simple rule on the number of database records)
       RESOURCE_REF(HDAM)
       RESOURCE_REF(HIDAM)
       RESOURCE_REF(PHDAM)
       RESOURCE_REF(PHIDAM)
       RESOURCE_REF(HISAM)
       CONDITION(
             OR(
               IF(DB_NUM_ROOT,GE,
                 4294967295
               )
             )
       )
       EXCEPTION(
         EXCEPTION_CLASS(NUMBER_OF_DB_RECORDS)
         EXCEPTION_LEVEL(WARNING)
         EXCEPTION_MESSAGE(
           Threshold on the number of DB records is reached/exceeded in %RESOURC
E%)
       )
     )
     EXCEPTION_LEVEL(CRITICAL)
     NTFYLIST_REF(G:LIST03)
     NTFYLIST_REF(G:LIST02)
     ONMISSING(*,SKIPEVAL)
)
```

Figure 126: An example of the Policy Stream Import report

The example shows the actions that are taken when rules with the specified exception class reach a specified exception level. For example, if rules that contain the exception class DATA_SET_SIZE_GROWTH reach an exception level of CRITICAL, IMS Policy Services initiates a reorganization of the database.

The example also shows a rule that is defined to monitor the number of date base records. The high threshold has been set to 4294967295. When the number of database records reaches this threshold, an exception is generated that generates a warning message.

Policy Template Delete report

The Policy Template Delete report shows you the policy template that was deleted from the repository.

The following example shows a sample Policy Template Delete report:

```
********************************************************************************
********************************************************************************
***   POLICY TEMPLATE DELETE PROCESS STARTED
********************************************************************************
********************************************************************************


2026-02-20 22:54:191@PDS : BSN7011I DOMAIN=REORG, LEVEL=00000011, RECON=BBBRECON,
                                                                   POLICY=DEFAULT_BASIC_POLICY
2026-02-20 22:54:191@PDS : BSN7011I POLICY TEMPLATE DELETE PROCESS STARTED



********************************************************************************
********************************************************************************
***   POLICY TEMPLATE DELETE PROCESS ENDED
********************************************************************************
********************************************************************************


2026-02-20 22:54:191@PDS : BSN7012I DOMAIN=REORG, LEVEL=00000011, RECON=BBBRECON,
                                                                   POLICY=DEFAULT_BASIC_POLICY
2026-02-20 22:54:191@PDS : BSN7012I POLICY TEMPLATE IMPORT PROCESS ENDED RC=00000000, RSN=00000000
```

Figure 127: Example of Policy Template Delete report

Policy Template Import report

The Policy Template Import report shows you the policy template, the rule streams that are read from the repository, and the policy stream that is built from the rule streams. You can use this report to ensure that the policy templates has been imported and built correctly.

The following example shows information about a policy template that was imported. For example, the template shows the policy name, conditions for a database reorganization, and a list of rules that are imported.

```
*******************************************************************************
****   POLICY TEMPLATE FOR IMPORT
*******************************************************************************

#*****************************************************************************
#*                                                                           *
#*   LICENSED MATERIALS - PROPERTY OF IBM                                    *
#*                                                                           *
#*   5655-S35                                                                *
#*                                                                           *
#*   COPYRIGHT IBM CORP. 2009 ALL RIGHTS RESERVED.                           *
#*                                                                           *
#*   US GOVERNMENT USERS RESTRICTED RIGHTS - USE,                            *
#*   DUPLICATION OR DISCLOSURE RESTRICTED BY GSA ADP                         *
#*   SCHEDULE CONTRACT WITH IBM CORP.                                        *
#*                                                                           *
#*****************************************************************************
@BEGIN{POLICY_TEMPLATE_VERSION}
1
@END
@BEGIN{MAINTENANCE_MESSAGES}
@END
@BEGIN{TEMPLATE_ORIGINAL_NAME}
IBM.DBDTYPE.HDAM
@END
@BEGIN{POLICY_DOMAIN}
REORG
@END
@BEGIN{POLICY_TEMPLATE_TYPE}
BASIC
@END
@BEGIN{POLICY_NAME}
IBM.DBDTYPE.HDAM
@END
@BEGIN{POLICY_DESC}
IBM basic policy for HDAM databases
@END
@BEGIN{ACTION_DESC}
REORG      DATA_SET_SIZE_GROWTH              CRITICAL
REORG      FRAGMENTED_FREE_SPACES            CRITICAL
REORG      EXCESSIVE_SLACK_BYTES             CRITICAL
REORG      EXCESSIVE_VL_SPLIT_SEGMENTS       CRITICAL
MESSAGE    *                                 *
@END
@BEGIN{NOTIFY_REF_LIST}
G:LIST03
G:LIST05
@END
@BEGIN{RESOURCE_TYPE_LIST}
HDAM
@END
@BEGIN{RULE_LIST}
G:IBM.NUM_DBRECORDS.10;   HIGH; CRITICAL; SKIPEVAL; G:LIST03; G:LIST02;
```

Figure 128: Example policy template from the Policy Template Import report

The following example shows that the rule for the high threshold for the number of database records was read from the repository. Only the rules listed in the policy template rule list are read.

```
*******************************************************************************
****   RULE STREAM READ FROM REPOSITORY
*******************************************************************************
   RULE(
     RULE_EXP(
       VERSION(1)
       NAME(G:IBM.NUM_DBRECORDS.10/HIGH)
       ANNOTATION(Simple rule on the number of database records)
       RESOURCE_REF(HDAM)
       RESOURCE_REF(HIDAM)
       RESOURCE_REF(PHDAM)
       RESOURCE_REF(PHIDAM)
       RESOURCE_REF(HISAM)
       CONDITION(
             OR(
               IF(DB_NUM_ROOT,GE,
                 4294967295
               )
             )
       )
       EXCEPTION(
         EXCEPTION_CLASS(NUMBER_OF_DB_RECORDS)
         EXCEPTION_LEVEL(WARNING)
         EXCEPTION_MESSAGE(
           Threshold on the number of DB records is reached/exceeded in %RESOURC
E%)
       )
     )
   )
```

Figure 129: Example of a rule stream for the number of database records

Once all rules have been read, the policy stream is built. The policy stream build reflects all conditions specified in the policy template, as shown in the following example.

```
*******************************************************************************
****   POLICY STREAM BUILD FROM RULE STREAM
*******************************************************************************
POLICY(
   VERSION(1)
   DOMAIN_REF(REORG)
   NAME(IBM.DBDTYPE.HDAM)
   ORIGINAL_NAME(IBM.DBDTYPE.HDAM)
   ACTION(ACTION_REF(REORG)
          EXCEPTION_CLASS(DATA_SET_SIZE_GROWTH)
          EXCEPTION_LEVEL(CRITICAL))
   ACTION(ACTION_REF(REORG)
          EXCEPTION_CLASS(FRAGMENTED_FREE_SPACES)
          EXCEPTION_LEVEL(CRITICAL))
   ACTION(ACTION_REF(REORG)
          EXCEPTION_CLASS(EXCESSIVE_SLACK_BYTES)
          EXCEPTION_LEVEL(CRITICAL))
   ACTION(ACTION_REF(REORG)
          EXCEPTION_CLASS(EXCESSIVE_VL_SPLIT_SEGMENTS)
          EXCEPTION_LEVEL(CRITICAL))
   ACTION(ACTION_REF(MESSAGE)
          EXCEPTION_CLASS(*)
          EXCEPTION_LEVEL(*))
   NTFYLIST_REF(G:LIST03)
   NTFYLIST_REF(G:LIST05)
   RESOURCE_REF(HDAM)
   RULE(
     RULE_EXP(
       VERSION(1)
       NAME(G:IBM.NUM_DBRECORDS.10/HIGH)
       ANNOTATION(Simple rule on the number of database records)
       RESOURCE_REF(HDAM)
       RESOURCE_REF(HIDAM)
       RESOURCE_REF(PHDAM)
       RESOURCE_REF(PHIDAM)
       RESOURCE_REF(HISAM)
       CONDITION(
             OR(
               IF(DB_NUM_ROOT,GE,
                 4294967295
               )
             )
       )
       EXCEPTION(
         EXCEPTION_CLASS(NUMBER_OF_DB_RECORDS)
         EXCEPTION_LEVEL(WARNING)
         EXCEPTION_MESSAGE(
           Threshold on the number of DB records is reached/exceeded in %RESOURC
E%)
       )
     )
     EXCEPTION_LEVEL(CRITICAL)
     NTFYLIST_REF(G:LIST03)
     NTFYLIST_REF(G:LIST02)
     ONMISSING(*,SKIPEVAL)
)
```

Figure 130: Example of a policy stream build

Policy Template Update report

The Policy Template Update report shows updates made to a rule, policy, or notification list.

The following example shows all the clause data in an updated policy:

```
*****   POLICY TEMPLATE NOTIFICATION LIST CLAUSE

-------------------------------------------------------------------------------
   NOTIFICATION LIST NAME
-------------------------------------------------------------------------------
       LIST01
       LIST02


*****   POLICY TEMPLATE RESOURCE TYPE LIST CLAUSE

-------------------------------------------------------------------------------
   RESOURCE TYPE LIST NAME
-------------------------------------------------------------------------------
       HDAM
       HIDAM
       PHDAM
       PHIDAM
       HISAM


*****   POLICY TEMPLATE ACTION DESCRIPTION CLAUSE

-------------------------------------------------------------------------------
ACTION NAME  EXCEPTION CLASS                 EXCEPTION LEVEL
-------------------------------------------------------------------------------
REORG        HD_DB_SPACE_UTILIZATION         CRITICAL
MESSAGE      HD_DB_SPACE_UTILIZATION         *
REORG        HISAM_CI_CA_SPLITS              CRITICAL
MESSAGE      HISAM_CI_CA_SPLITS              *
MESSAGE      DLIDB_OUT_OF_SPACE              *
MESSAGE      RAP_OVERLOAD                    *


*****   POLICY TEMPLATE  RULE LIST CLAUSE

-------------------------------------------------------------------------------
RULE TEMPLATE NAME   THRSHOLD     EXCEPTION     MISSING DATA   NOTIFICATION LIST
-------------------------------------------------------------------------------
CI_CA_SPLITS_HISAM   HIGH         CRITICAL      SKIPEVAL       LIST01
                                                               LIST02
CI_CA_SPLITS_HISAM   MED          SEVERE        SKIPEVAL       LIST07
                                                               LIST01
CI_CA_SPLITS_HISAM   LOW          WARNING       SKIPEVAL       LIST03
                                                               LIST03
```

Figure 131: Example clause list

The following table describes the different fields for each clause list.

Table 74: Clause list field descriptions

Field	Description
NOTIFICATION LIST NAME	The name of a policy-level and rule-level notification list
RESOURCE TYPE LIST NAME	The name of the resource type list
ACTION NAME	The name of the action that is carried out if the conditions are met
EXCEPTION CLASS	The name of an exception class The name must be defined in the Policy Domain as a valid exception class name.
EXCEPTION LEVEL	The name of an exception level The name must be defined in the Policy Domain as a valid exception level name.
RULE TEMPLATE NAME	The name of the rule template
THRESHOLD	The name of the threshold set in the rule template
EXCEPTION	An exception level Allowed values are WARNING, SEVERE, and CRITICAL

Field	Description
MISSING DATA	Rule evaluation behavior on missing data Optional, allowed values are EVALUATE, SKIPEVAL, and EXCEPTION
NOTIFICATION LIST	The name of a rule-level notification list, if specified

The maintenance message indicates the policy template that will be updated by the current maintenance, as shown in the following example:

```
*******************************************************************************
****   POLICY TEMPLATE UPDATE MAINTENANCE MESSAGE
*******************************************************************************

THE POLICY TEMPLATE 'DEFAULT_BASIC_POLICY'
WILL BE UPDATED BY THIS MAINTENANCE.
     * PLEASE BE CAUTIONS IF YOU HAVE UPDATED THE TEMPLATE *
```

Figure 132: Example maintenance message

Following example shows the updated policy template saved in the repository:

```
*******************************************************************************
****   POLICY TEMPLATE SAVED IN REPOSITORY
*******************************************************************************

@begin{Policy_Template_Version}
1
@end
@begin{Maintenanca_Messages}
THE POLICY TEMPLATE 'DEFAULT_BASIC_POLICY'
WILL BE UPDATED BY THIS MAINTENANCE.
     * PLEASE BE CAUTIONS IF YOU HAVE UPDATED THE TEMPLATE *
@end
@begin{Policy_Domain}
REORG
@end
@begin{Policy_Template_Type}
BASIC
@end
@begin{Template_Original_Name}
DEFAULT_BASIC_POLICY
@end
@begin{Policy_Name}
DEFAULT_BASIC_POLICY
@end
@begin{Policy_Desc}
SYSTEM DEFAULT BASIC POLICY FOR FULL-FUNCTION DATABASES
@end
@begin{Action_Desc}
REORG   HD_DB_SPACE_UTILIZATION                CRITICAL
MESSAGE HD_DB_SPACE_UTILIZATION                *
REORG   HISAM_CI_CA_SPLITS                     CRITICAL
MESSAGE HISAM_CI_CA_SPLITS                     *
MESSAGE DLIDB_OUT_OF_SPACE                     *
MESSAGE RAP_OVERLOAD                           *
@end
@begin{Notify_Ref_List}
R:LIST01
G:LIST02
@end
@begin{Resource_Type_List}
HDAM
HIDAM
PHDAM
PHIDAM
HISAM
@end
@begin{Rule_List}
CI_CA_SPLITS_HISAM;                        HIGH;      CRITICAL;  !
                                           SKIPEVAL;             !
                                           R:LIST01 G:LIST02
CI_CA_SPLITS_HISAM;                        MED;       SEVERE;    !
                                           SKIPEVAL;             !
                                           R:LIST07 G:LIST01
CI_CA_SPLITS_HISAM;                        LOW;       WARNING;   !
                                           SKIPEVAL;             !
                                           R:LIST03 G:LIST03
@end
```

Figure 133: Example policy template

Rule Template Import report

The Rule Template Import report shows you the rule templates and the corresponding rule threshold streams that were imported into the repository. You can use this report to ensure that all rule templates have been imported with the specified thresholds and the specified descriptions.

The following example shows you a rule template for monitoring the number of database records with the low, medium, and high thresholds set to 4294967295.

```
*******************************************************************************
****   RULE TEMPLATE FOR IMPORT
*******************************************************************************

#*******************************************************************************
#*                                                                             *
#*   LICENSED MATERIALS - PROPERTY OF IBM                                      *
#*                                                                             *
#*   5655-S35                                                                  *
#*                                                                             *
#*   COPYRIGHT IBM CORP. 2009 ALL RIGHTS RESERVED.                             *
#*                                                                             *
#*   US GOVERNMENT USERS RESTRICTED RIGHTS - USE,                              *
#*   DUPLICATION OR DISCLOSURE RESTRICTED BY GSA ADP                           *
#*   SCHEDULE CONTRACT WITH IBM CORP.                                          *
#*                                                                             *
#*******************************************************************************
@BEGIN{RULE_TEMPLATE_NAME}
IBM.NUM_DBRECORDS.10
@END
@BEGIN{RULE_DESC}
Simple rule on the number of database records
@END
@BEGIN{RESOURCE_TYPE_LIST}
HDAM
HIDAM
PHDAM
PHIDAM
HISAM
@END
@BEGIN{EXCEPTION_CLASS}
NUMBER_OF_DB_RECORDS
@END
@BEGIN{RULE_CONDITION_EXPRESSION}
    OR(
      IF(DB_NUM_ROOT,GE,
        &1
      )
    )
@END
@BEGIN{RULE_EXCEPTION_EXPRESSION}
  EXCEPTION_CLASS(NUMBER_OF_DB_RECORDS)
  EXCEPTION_LEVEL(WARNING)
  EXCEPTION_MESSAGE(
    $msg$)
@END
@BEGIN{RULE_CONDITION_DESC}
Total number of database records is reached or exceeded
the threshold &1
@END
@BEGIN{RULE_MESSAGE_TEMPLATE}
Threshold on the number of DB records is reached/exceeded in %RESOURCE%
@END
@BEGIN{DATA_ELEMENT_LIST}
DB_NUM_ROOT         &1
@END
@BEGIN{ORIGINAL_THRESHOLD_SETS}
LOW;  &1 = 4294967295
MED;  &1 = 4294967295
HIGH; &1 = 4294967295
@END
@BEGIN{THRESHOLD_SETS}
LOW;  &1 = 4294967295
MED;  &1 = 4294967295
HIGH; &1 = 4294967295
@END
```

Figure 134: Example rule template from the Rule Template Import report

From the rule template, three rule streams are generated and imported into the repository. In the following example, a rule stream for the low threshold is shown that was generated from the number of database records rule template.

```
*******************************************************************************
****   RULE STREAM WRITE TO THE REPOSITORY
*******************************************************************************
   RULE(
     RULE_EXP(
       VERSION(1)
       NAME(G:IBM.NUM_DBRECORDS.10/LOW)
       ANNOTATION(Simple rule on the number of database records)
       RESOURCE_REF(HDAM)
       RESOURCE_REF(HIDAM)
       RESOURCE_REF(PHDAM)
       RESOURCE_REF(PHIDAM)
       RESOURCE_REF(HISAM)
       CONDITION(
             OR(
               IF(DB_NUM_ROOT,GE,
                 4294967295
               )
             )
       )
       EXCEPTION(
         EXCEPTION_CLASS(NUMBER_OF_DB_RECORDS)
         EXCEPTION_LEVEL(WARNING)
         EXCEPTION_MESSAGE(
           Threshold on the number of DB records is reached/exceeded in %RESOURC
E%)
       )
     )
   )
```

Figure 135: Example rule stream from the Rule Template Import report

Reference: Policy Services

The topics in this section provide you with supplemental technical references for Policy Services.

Topics:

- “Reference: Policy Services data elements” on page 142
- “Reference: Policy Services journal reports” on page 184

Reference: Domain REORG

The topics in this section provide you with supplemental technical references for the Policy Services REORG domain.

Topics:

- "Domain REORG rules" on page 209
- "Domain REORG policies" on page 304
- "Domain REORG exceptions" on page 338

Domain REORG rules

The domain REORG rules are used to compare the stored data element values against the predefined threshold values that specify the limits for a set of data element values.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

A descriptive message within the rule that describes the maintenance history information for this rule.

The initial maintenance message is blank because at initial product installation no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

Defines the domain for which this rule is intended to be used.

For IMS Database Reorganization Expert, the domain name is REORG.

Rule template type

Defines the rule template type.

Currently, there is only one type: Standard

Rule template name

The name of this rule template.

Rule description

Defines in words what database functionality this rule evaluates.

Resource types supported

The resource types are all IMS-supported Hierarchical Direct Access Methods.

Exception class

The exception class represents the type of exception that can be raised by this rule.

Rule condition expression

The actual condition expression that is applied to the list of data elements for this rule.

Rule condition description

Describes in words what the rule condition expression is doing.

Rule exception expression

The rule exception expression consists of the following items:

- Exception class
- Exception level

– Exception message

These lines in the rule template file are used only as the template for building rule definition streams that are included in various policy definition streams. The actual exception severity level for a rule is determined by the enclosing individual policy stream. The EXCEPTION_LEVEL(WARNING) statement is then overridden by the actual exception severity level that the policy creator (IBM® or a user) assigned for a threshold level.

Rule message template

Defines the actual message that is sent to the notification list when the condition is met.

The following condition applies to the default exception messages that are shown in the rule message template section of each rule topic: %RESOURCE% is the IMS database that encountered the exception.

Data elements being evaluated for this rule

The data element is the smallest named unit of information having predefined attributes.

Rule threshold sets

The set of threshold values that are initially set by IBM®. There are two sets of threshold values:

– Original values set by IBM® that cannot be changed

– Original values initially set by IBM® that can be modified

Rule: IBM.AVG_DBREC_LEN.10

IBM.AVG_DBREC_LEN.10 is a simple rule for evaluating the average length of database records.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.AVG_DBREC_LEN.10

Rule description

Average length of database records.

Resource types supported

The following resource types are supported by this rule.

– HDAM

– HIDAM

– PHDAM

– PHIDAM

– HISAM

– SHISAM

Exception class

AVERAGE_DB_RECORD_LENGTH

Rule condition expression

```
OR(
  IF(DB_AVG_DBREC_LENGTH,GE,
    &1
  )
)
```

Rule condition description

Specify a threshold on the average database record length.

```
    DB_AVG_DBREC_LENGTH: &1
```

An exception is issued if the threshold is reached or exceeded.

You can apply this rule to a non-partitioned database or a HALDB partition, with the exception of an index or PSINDEX partition.

Rule exception expression

- EXCEPTION_CLASS(AVERAGE_DB_RECORD_LENGTH)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The average length of database records in %RESOURCE% has reached or exceeded a threshold

Data elements being evaluated for this rule

```
DB_AVG_DBREC_LENGTH &1
```

The variable &1 specifies a threshold for the data element value DB_AVG_DBREC_LENGTH of the database or the HALDB partition.

Rule threshold sets

Table 75: Rule threshold sets for IBM.AVG_DBREC_LEN.10

Threshold set name	Threshold values
LOW	&1 = 85899345920
MED	&1 = 85899345920
HIGH	&1 = 85899345920

Each of the default threshold values is never reached nor exceeded.

It is expected that you change these threshold values to suite your environment only if you want to activate this rule.

Rule: IBM.CICA_SPLITS.10

IBM.CICA_SPLITS.10 is a simple rule for evaluating the percentage of CI or CA splits in a HISAM or SHISAM database.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.CICA_SPLITS.10

Rule description

KSDS CI or CA splits in HISAM and SHISAM.

Resource types supported

The following resource types are supported by this rule.

- HISAM
- SHISAM

Exception class

EXCESSIVE_CI_OR_CA_SPLITS

Rule condition expression

```
OR(
   IF(DB_PCT_NUM_CI_SPLIT.1,GE,
      &1
   )
   IF(DB_PCT_NUM_CA_SPLIT.1,GE,
      &2
   )
)
```

Rule condition description

Specify thresholds on the percentage of the number of CI splits (DB_PCT_NUM_CI_SPLIT) and the percentage of the number of CA splits (DB_PCT_NUM_CA_SPLIT) of the primary data set of a HISAM or SHISAM database.

```
DB_PCT_NUM_CI_SPLIT: &1
DB_PCT_NUM_CA_SPLIT: &2
```

An exception is issued if one of these thresholds is reached or exceeded.

Rule exception expression

- EXCEPTION_CLASS(EXCESSIVE_CI_OR_CA_SPLITS)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The number of CI/CA splits of database %RESOURCE% has increased

Data elements being evaluated for this rule

```
DB_PCT_NUM_CI_SPLIT &1
DB_PCT_NUM_CA_SPLIT &2
```

The variable &1 specifies a threshold for the data element value of DB_PCT_NUM_CI_SPLIT of the primary data set.

The variable &2 specifies a threshold for the data element value of DB_PCT_NUM_CA_SPLIT of the primary data set.

Rule threshold sets

Table 76: Rule threshold sets for IBM.CICA_SPLITS.10

Threshold set name	Threshold values
LOW	&1 = 20 &2 = 20
MED	&1 = 30 &2 = 30
HIGH	&1 = 40 &2 = 40

Rule: IBM.DBDS_EXTENTS.10

IBM.DBDS_EXTENTS.10 is a simple rule for evaluating the limited availability of data set extents.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.DBDS_EXTENTS.10

Rule description

Availability of data set extents

Resource types supported

The following resource types are supported by this rule.

- HDAM
- HIDAM
- PHDAM
- PHIDAM
- HISAM
- SHISAM

Exception class

DATA_SET_EXTENTS_AVAILABILITY

Rule condition expression

```
OR(
  AOR(
    AAND(
      IF(DB_FLAG_SMS,IS,N)
      IF(DB_AVAIL_EXT_LESS_100,IS,Y)
      IF(DB_NUM_AVAIL_EXT,LE,
        &1
      )
    )
```

```
    AAND(
      IF(DB_FLAG_SMS,IS,Y)
      IF(DB_NUM_UNUSED_VOL_CAND,LE,
        &2
      )
      IF(DB_AVAIL_EXT_LESS_100,IS,Y)
      IF(DB_NUM_AVAIL_EXT,LE,
        &3
      )
    )
  )
)
```

Rule condition description

Specify a threshold on the estimated number of extents that can be allocated for a database data set (DB_NUM_AVAIL_EXT). The threshold must be less than 100. For an SMS-managed data set, also specify a threshold on the number of candidate volumes (DB_NUM_UNUSED_VOL_CAND).

1. For a non-SMS-managed data set, an exception is issued if DB_NUM_AVAIL_EXT of one of database data sets is less than or equal to the following threshold:

   ```
   &1
   ```

2. For an SMS-managed data set, an exception is issued if DB_NUM_UNUSED_VOL_CAND is less than or equal to:

   ```
   &2
   ```

   and DB_NUM_AVAIL_EXT is less than or equal to:

   ```
   &3
   ```

   for one of database data sets.

You can apply this rule to a non-partitioned database or a HALDB partition, with the exception of an index or PSINDEX partition.

Rule exception expression

- EXCEPTION_CLASS(DATA_SET_EXTENTS_AVAILABILITY)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The number of available extents for a data set of %RESOURCE% is small

Data elements being evaluated for this rule

```
DB_NUM_AVAIL_EXT  &1
DB_NUM_UNUSED_VOL_CAND   &2
DB_NUM_AVAIL_EXT  &3
```

The following data element values are evaluated for each data set that composes the database or the HALDB partition:

- The variable &1 specifies a threshold for the data element value of DB_NUM_AVAIL_EXT for the data set on non-SMS-managed volumes.
- The variable &2 specifies a threshold for the data element value of DB_NUM_UNUSED_VOL_CAND for the data set on SMS-managed volumes.
- The variable &3 specifies a threshold for the data element value of DB_NUM_AVAIL_EXT for the data set on SMS-managed volumes.

The values of the data elements DB_FLAG_SMS and DB_AVAIL_EXT_LESS_100 are also referred to in this rule template.

Rule threshold sets

Table 77: Rule threshold sets for IBM.DBDS_EXTENTS.10	
Threshold set name	**Threshold values**
LOW	&1 = 5 &2 = 0 &3 = 5
MED	&1 = 3 &2 = 0 &3 = 3
HIGH	&1 = 1 &2 = 0 &3 = 1

Rule: IBM.DBDS_GROWTH.10

IBM.DBDS_GROWTH.10 is a simple rule for evaluating the size of database data sets.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.DBDS_GROWTH.10

Rule description

Growth data set size.

> **Important:** This rule is not included in any of the IBM®-supplied REORG Domain policies. You can use this rule in any of the following ways:
>
> - Replace a similar rule in an existing REORG Domain policy
> - Add this rule to one of the existing REORG Domain policies
> - Create a REORG Domain policy and add this rule along with other rules

Resource types supported

The following resource types are supported by this rule.

- HDAM
- HIDAM
- PHDAM
- PHIDAM
- HISAM
- SHISAM

Exception class

DATA_SET_SIZE_GROWTH

Rule condition expression

```
OR(
  AOR(
    IF(DB_NUM_DBDS_BLOCKS,GE,
      &1
    )
    IF(DB_PCT_OF_MAX_DS_SIZE,GE,
      &2
    )
    IF(DB_RBA_HIGH_ALLOC,GE,
      &3
    )
    IF(DB_RBA_HIGH_USED,GE,
      &4
    )
  )
)
```

Rule condition description

Specify thresholds on the database data set size.

The following thresholds can be used in this rule:

1. Number of database data set blocks:

   ```
   DB_NUM_DBDS_BLOCKS   : &1
   ```

2. Percentage of maximum data set size:

   ```
   DB_PCT_OF_MAX_DS_SIZE: &2
   ```

3. High-Allocated RBA:

   ```
   DB_RBA_HIGH_ALLOC: &3
   ```

4. High-Used RBA:

   ```
   DB_RBA_HIGH_USED: &4
   ```

An exception is issued if one or more of these thresholds are reached or exceeded in one of the data sets.

You can apply this rule to a non-partitioned database or a HALDB partition, with the exception of an index or PSINDEX partition.

> **Tip:** Use rulesIBM.DBDS_GROWTH.20 and IBM.DBDS_GROWTH.30 because these rules measure the total amount of free space and evaluate the potential benefits of reorganizing free space.

Rule exception expression

- EXCEPTION_CLASS(DATA_SET_SIZE_GROWTH)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The size of a database data set in %RESOURCE% has reached or exceeded a threshold

Data elements being evaluated for this rule

```
DB_NUM_DBDS_BLOCKS     &1
DB_PCT_OF_MAX_DS_SIZE  &2
```

```
DB_RBA_HIGH_ALLOC      &3
DB_RBA_HIGH_USED       &4
```

The following data element values are evaluated for each data set that composes the database or the HALDB partition:

- The variable &1 specifies a threshold for the data element value of DB_NUM_DBDS_BLOCKS for the data set.
- The variable &2 specifies a threshold for the data element value of DB_PCT_OF_MAX_DS_SIZE for the data set.
- The variable &3 specifies a threshold for the data element value of DB_RBA_HIGH_ALLOC for the data set.
- The variable &4 specifies a threshold for the data element value of DB_RBA_HIGH_USED for the data set.

Rule threshold sets

Table 78: Rule threshold sets for IBM.DBDS_GROWTH.10

Threshold set name	Threshold values
LOW	&1 = 16777216 &2 = 60 &3 = 8589934592 &4 = 8589934592
MED	&1 = 16777216 &2 = 80 &3 = 8589934592 &4 = 8589934592
HIGH	&1 = 16777216 &2 = 90 &3 = 8589934592 &4 = 8589934592

The default threshold values for the variables &1, &2, and &4 are never reached nor exceeded.

It is expected that each of these threshold values be changed only if you want to monitor the data element value that correspond to the variable.

Rule: IBM.DBDS_GROWTH.20

IBM.DBDS_GROWTH.20 is a simple rule for evaluating the size of data sets that have certain amount of free space.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.DBDS_GROWTH.20

Rule description

Percentage growth data set and free space

Resource types supported

The following resource types are supported by this rule.

- HDAM
- HIDAM
- PHDAM
- PHIDAM
- HISAM
- SHISAM

Exception class

GROWING_DBDS_WITH_FREE_SPACES

Rule condition expression

```
OR(
  AAND(
    IF(DB_PCT_OF_MAX_DS_SIZE,GE,
      &1
    )
    IF(DB_PCT_BYTES_FREE_SPACE,GE,
      &2
    )
  )
)
```

Rule condition description

Specify a threshold on the percentage of the maximum data set size (DB_PCT_OF_MAX_DS_SIZE) and a threshold on the percentage of the free space in formatted database blocks (DB_PCT_BYTES_FREE_SPACE):

```
DB_PCT_OF_MAX_DS_SIZE: &1
DB_PCT_BYTES_FREE_SPACE: &2
```

An exception is issued if both of these thresholds are reached or exceeded in any of the database data sets. An exception indicates that a high percentage of unusable free space elements might have caused the growth in data set size.

You can apply this rule to a non-partitioned database or a HALDB partition, with the exception of an index or PSINDEX partition.

Rule exception expression

- EXCEPTION_CLASS(GROWING_DBDS_WITH_FREE_SPACES)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The size of a data set in %RESOURCE%, which still has a certain amount of free space, has increased

Data elements being evaluated for this rule

```
DB_PCT_OF_MAX_DS_SIZE    &1
DB_PCT_BYTES_FREE_SPACE  &2
```

The following data element values are evaluated for each data set that composes the database or the HALDB partition:

- The variable &1 specifies a threshold for the data element value of DB_PCT_OF_MAX_DS_SIZE for the data set.
- The variable &2 specifies a threshold for the data element value of DB_PCT_BYTES_FREE_SPACE for the data set.

Rule threshold sets

Table 79: Rule threshold sets for IBM.DBDS_GROWTH.20

Threshold set name	Threshold values
LOW	&1 = 75 &2 = 20
MED	&1 = 85 &2 = 20
HIGH	&1 = 90 &2 = 20

Rule: IBM.DBDS_GROWTH.30

IBM.DBDS_GROWTH.30 is a simple rule for evaluating the size of a data set that is full of segment data.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.DBDS_GROWTH.30

Rule description

Growth data set size full of segment data

Resource types supported

The following resource types are supported by this rule.

- HDAM
- HIDAM
- PHDAM
- PHIDAM
- HISAM
- SHISAM

Exception class

GROWING_DBDS_WITH_DATA_FULL

Rule condition expression

```
OR(
  AAND(
    IF(DB_PCT_OF_MAX_DS_SIZE,GE,
      &1
    )
    IF(DB_PCT_BYTES_SEG,GE,
      &2
    )
    IF(DB_PCT_UNUSED_BYTES,LE,
```

```
      &3
    )
  )
)
```

Rule condition description

Specify a threshold on the percentage of the maximum data set size (DB_PCT_OF_MAX_DS_SIZE), a threshold on the percentage of segment data in the formatted database blocks (DB_PCT_BYTES_SEG), and a threshold on the percentage of the unused bytes in the allocated data set (DB_PCT_UNUSED_BYTES):

```
   DB_PCT_OF_MAX_DS_SIZE: &1
   DB_PCT_BYTES_SEG     : &2
   DB_PCT_UNUSED_BYTES  : &3
```

An exception is issued if the first two thresholds are reached or exceeded and the percentage of the unused bytes is less than or equal to the third threshold for one of the database data sets.

You can apply this rule to a non-partitioned database or a HALDB partition, with the exception of an index or PSINDEX partition.

Rule exception expression

- EXCEPTION_CLASS(GROWING_DBDS_WITH_DATA_FULL)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The size of a data set in %RESOURCE%, which is full of data and is approaching its size limit, has increased

Data elements being evaluated for this rule

```
DB_PCT_OF_MAX_DS_SIZE  &1
DB_PCT_BYTES_SEG       &2
DB_PCT_UNUSED_BYTES    &3
```

The following data element values are evaluated for each data set that composes the database or the HALDB partition:

- The variable &1 specifies a threshold for the data element value of DB_PCT_OF_MAX_DS_SIZE for the data set.
- The variable &2 specifies a threshold for the data element value of DB_PCT_BYTES_SEG for the data set.
- The variable &3 specifies a threshold for the data element value of DB_PCT_UNUSED_BYTES for the data set.

Rule threshold sets

Table 80: Rule threshold sets for IBM.DBDS_GROWTH.30

Threshold set name	Threshold values
LOW	&1 = 75 &2 = 90 &3 = 10
MED	&1 = 85 &2 = 90 &3 = 10
HIGH	&1 = 90 &2 = 90 &3 = 10

Rule: IBM.DEDB_DBREC_IO.10

IBM.DEDB_DBREC_IO.10 is a simple rule for evaluating the average number of I/Os per database record.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.DEDB_DBREC_IO.10

Rule description

Average number of I/Os per database record

Resource types supported

DEDB

Exception class

DEDB_EXCESSIVE_AVG_NUM_RECORD_IO

Rule condition expression

```
OR(
      IF(DB_AVG_DBREC_IO,GT,
        &1
      )
    )
```

Rule condition description

Specify a threshold on the average number of I/Os that are required to read a database record in a DEDB area.

```
   DB_AVG_DBREC_IO: &1
```

An exception is issued if the threshold is exceeded.

Rule exception expression

- EXCEPTION_CLASS(DEDB_EXCESSIVE_AVG_NUM_RECORD_IO)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The average number of I/Os per DB record exceeded a threshold in area %RESOURCE%.

Data elements being evaluated for this rule

```
DB_AVG_DBREC_IO &1
```

Rule threshold sets

Table 81: Rule threshold sets for IBM.DEDB_DBREC_IO.10

Threshold set name	Threshold values
LOW	&1 = 1.5

Threshold set name	Threshold values
MED	&1 = 2.0
HIGH	&1 = 2.5

Rule: IBM.DEDB_DBREC_IO.20

IBM.DEDB_DBREC_IO.20 is a simple rule for evaluating the maximum number of I/Os per database record.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.DEDB_DBREC_IO.20

Rule description

Maximum number of I/Os per database record

Resource types supported

DEDB

Exception class

DEDB_DBRECORD_WITH_EXCESSIVE_IO

Rule condition expression

```
OR(
      IF(DB_MAX_DBREC_IO,GT,
        &1
      )
    )
```

Rule condition description

Specify a threshold on the maximum number of I/Os that are required to read a database record in a DEDB area.

```
   DB_MAX_DBREC_IO: &1
```

An exception is issued if the threshold is exceeded.

Rule exception expression

- EXCEPTION_CLASS(DEDB_DBRECORD_WITH_EXCESSIVE_IO)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The maximum number of I/Os per DB record exceeded a threshold in area %RESOURCE%.

Data elements being evaluated for this rule

```
DB_MAX_DBREC_IO &1
```

Rule threshold sets

Table 82: Rule threshold sets for IBM.DEDB_DBREC_IO.20

Threshold set name	Threshold values
LOW	&1 = 6.0
MED	&1 = 7.0
HIGH	&1 = 8.0

Rule: IBM.DEDB_DBRECCNT.10

IBM.DEDB_DBRECCNT.10 is a simple rule for calculating the number of database records in a DEDB area.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.DEDB_DBRECCNT.10

Rule description

Number of database records in a DEDB area

Resource types supported

DEDB

Exception class

NUMBER_OF_DB_RECORDS

Rule condition expression

```
OR(
      IF(DB_NUM_ROOT,GE,
        &1
      )
    )
```

Rule condition description

Specify a threshold on the number of root segment occurrences in a DEDB area.

```
   DB_NUM_ROOT: &1
```

An exception is issued if the threshold is reached or exceeded. Use this threshold to measure the growth of database records in an area.

Because the default threshold value is a dummy high value, the threshold is never exceeded. You must modify the threshold value to a non-dummy value to enable this rule.

Rule exception expression

- EXCEPTION_CLASS(NUMBER_OF_DB_RECORDS)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The number of database records in area %RESOURCE% has reached or exceeded a threshold.

Data elements being evaluated for this rule

```
DB_NUM_ROOT &1
```

Rule threshold sets

Table 83: Rule threshold sets for IBM.DEDB_DBRECCNT.10

Threshold set name	Threshold values
LOW	&1 = 4294967295
MED	&1 = 4294967295
HIGH	&1 = 4294967295

Rule: IBM.DEDB_FS.10

IBM.DEDB_DEDB_FS.10 is a simple rule for evaluating the percentage of free space in AREA RAA BASE.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.DEDB_DEDB_FS.10

Rule description

Percent of free space in AREA RAA BASE

Resource types supported

DEDB

Exception class

DEDB_FREE_SPACE_AVAIL_IN_RAA

Rule condition expression

```
OR(
      IF(DB_PCT_BYTES_FS_RAA,LT,
        &1
      )
    )
```

Rule condition description

Specify a threshold on the percentage of free space in the RAA BASE section of a DEDB area.

```
   DB_PCT_BYTES_FS_RAA: &1
```

An exception is issued if the percentage falls below the threshold.

Rule exception expression

- EXCEPTION_CLASS(DEDB_FREE_SPACE_AVAIL_IN_RAA)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The percentage of free space in RAA BASE fell below a threshold in area %RESOURCE%.

Data elements being evaluated for this rule

```
DB_PCT_BYTES_FS_RAA &1
```

Rule threshold sets

Table 84: Rule threshold sets for IBM.DEDB_DEDB_FS.10

Threshold set name	Threshold values
LOW	&1 = 30
MED	&1 = 20
HIGH	&1 = 10

Rule: IBM.DEDB_FS.20

IBM.DEDB_DEDB_FS.20 is a simple rule for evaluating the percentage of free space in AREA DOVF.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.DEDB_DEDB_FS.20

Rule description

Percent of free space in AREA DOVF

Resource types supported

DEDB

Exception class

DEDB_FREE_SPACE_AVAIL_IN_DOVF

Rule condition expression

```
OR(
      IF(DB_PCT_BYTES_FS_DOVF,LT,
        &1
      )
    )
```

Rule condition description

Specify a threshold on the percentage of free space in the DOVF section of a DEDB area.

```
   DB_PCT_BYTES_FS_DOVF: &1
```

An exception is issued if the percentage falls below the threshold.

Rule exception expression

- EXCEPTION_CLASS(DEDB_FREE_SPACE_AVAIL_IN_DOVF)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The percentage of free space in DOVF fell below a threshold in area %RESOURCE%.

Data elements being evaluated for this rule

```
DB_PCT_BYTES_FS_DOVF &1
```

Rule threshold sets

Table 85: Rule threshold sets for IBM.DEDB_DEDB_FS.20

Threshold set name	Threshold values
LOW	&1 = 50
MED	&1 = 30
HIGH	&1 = 20

Rule: IBM.DEDB_FS.30

IBM.DEDB_DEDB_FS.30 is a simple rule for evaluating the percentage of free space in AREA IOVF.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.DEDB_DEDB_FS.30

Rule description

Percent of free space in AREA IOVF

Resource types supported

DEDB

Exception class

DEDB_FREE_SPACE_AVAIL_IN_IOVF

Rule condition expression

```
OR(
      IF(DB_PCT_BYTES_FS_IOVF,LT,
        &1
      )
    )
```

Rule condition description

Specify a threshold on the percentage of free space in the IOVF section of a DEDB area.

```
   DB_PCT_BYTES_FS_IOVF: &1
```

An exception is issued if the percentage falls below the threshold.

Rule exception expression

- EXCEPTION_CLASS(DEDB_FREE_SPACE_AVAIL_IN_IOVF)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The percentage of free space in IOVF fell below a threshold in area %RESOURCE%.

Data elements being evaluated for this rule

```
DB_PCT_BYTES_FS_IOVF &1
```

Rule threshold sets

Table 86: Rule threshold sets for IBM.DEDB_DEDB_FS.30

Threshold set name	Threshold values
LOW	&1 = 80
MED	&1 = 50
HIGH	&1 = 30

Rule: IBM.DEDB_FS.31

IBM.DEDB_FS.31 is a simple rule for evaluating the percentage of free space in the independent overflow (IOVF) portion of a DEDB area.

Rule template version

The rule template version is indicated by a 4-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.DEDB_FS.31

Rule description

Percentage of free space in the IOVF portion of a DEDB area. This rule can also trigger an action (such as an IOVF extension of the subject area).

> **Important:** This rule is not included in any of the IBM®-supplied REORG Domain policies. You can use this rule in any of the following ways:
>
> - Replace a similar rule in an existing REORG Domain policy
> - Add this rule to one of the existing REORG Domain policies
> - Create a REORG Domain policy and add this rule along with other rules

Resource types supported

DEDB

Exception class

DEDB_IOVF_NEEDS_TO_BE_EXTENDED

Rule condition expression

```
OR(
   IF(DB_PCT_BYTES_FS_IOVF,LT,
    &1
   )
  )
```

Rule condition description

Specify a threshold on the percentage of free space in the IOVF portion of a DEDB area.

```
DB_PCT_BYTES_FS_IOVF: &1
```

An exception is issued if the percentage falls below the threshold.

> **Important:** If you want to trigger a utility action to extend the IOVF section of the subject area, use this rule instead of IBM.DEDB_FS.30.

Rule exception expression

- EXCEPTION_CLASS(DEDB_IOVF_NEEDS_TO_BE_EXTENDED)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The percentage of free space in the IOVF section fell below a threshold in area %RESOURCE%.

Data elements being evaluated for this rule

```
DB_PCT_BYTES_FS_IOVF &1
```

Rule threshold sets

Table 87: Rule threshold sets for IBM.DEDB_RFS.31

Threshold set name	Threshold values
LOW	&1 = 90
MED	&1 = 60
HIGH	&1 = 40

Rule: IBM.DEDB_FS.40

IBM.DEDB_DEDB_FS.40 is a simple rule for calculating the amount of free spaces in AREA RAA BASE and DOVF.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.DEDB_DEDB_FS.40

Rule description

Free spaces in AREA RAA BASE and DOVF

Resource types supported

DEDB

Exception class

DEDB_FREE_SPACE_IN_RAA_VS_DOVF

Rule condition expression

```
AND(
      IF(DB_PCT_BYTES_FS_RAA,GT,
        &1
      )
      IF(DB_PCT_BYTES_FS_DOVF,LT,
        &2
      )
    )
```

Rule condition description

Specify thresholds on the percentage of free spaces in the RAA BASE section (DB_PCT_BYTES_FS_RAA) and in the DOVF section (DB_PCT_BYTES_FS_DOVF) of a DEDB area.

```
DB_PCT_BYTES_FS_RAA : &1
DB_PCT_BYTES_FS_DOVF: &2
```

An exception is issued if the first threshold is exceeded and the second threshold has fallen below the defined percentage.

Rule exception expression

- EXCEPTION_CLASS(DEDB_FREE_SPACE_IN_RAA_VS_DOVF)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

Free spaces in RAA BASE and DOVF are used inefficiently in area %RESOURCE%.

Data elements being evaluated for this rule

```
DB_PCT_BYTES_FS_RAA  &1
DB_PCT_BYTES_FS_DOVF &2
```

Rule threshold sets

Table 88: Rule threshold sets for IBM.DEDB_DEDB_FS.40

Threshold set name	Threshold values
LOW	&1 = 20, &2 = 50
MED	&1 = 20, &2 = 30
HIGH	&1 = 20, &2 = 20

Rule: IBM.DEDB_FS.50

IBM.DEDB_DEDB_FS.50 is a simple rule for calculating free spaces in AREA RAA and IOVF.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.DEDB_DEDB_FS.50

Rule description

Free spaces in AREA RAA and IOVF

Resource types supported

DEDB

Exception class

DEDB_FREE_SPACE_IN_RAA_VS_IOVF

Rule condition expression

```
AND(
      IF(DB_PCT_BYTES_FS_RAA,GT,
        &1
      )
      IF(DB_PCT_BYTES_FS_IOVF,LT,
        &2
      )
    )
```

Rule condition description

Specify thresholds on the percentage of free spaces in the RAA BASE section (DB_PCT_BYTES_FS_RAA) and in the IOVF section (DB_PCT_BYTES_FS_IOVF) of a DEDB area.

```
   DB_PCT_BYTES_FS_RAA : &1
   DB_PCT_BYTES_FS_IOVF: &2
```

An exception is issued if the first threshold is exceeded and the second threshold has fallen below the defined percentage.

Rule exception expression

- EXCEPTION_CLASS(DEDB_FREE_SPACE_IN_RAA_VS_IOVF)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

Free spaces in RAA BASE and IOVF are used inefficiently in area %RESOURCE%.

Data elements being evaluated for this rule

```
DB_PCT_BYTES_FS_RAA  &1
DB_PCT_BYTES_FS_IOVF &2
```

Rule threshold sets

Table 89: Rule threshold sets for IBM.DEDB_DEDB_FS.50

Threshold set name	Threshold values
LOW	&1 = 20, &2 = 80
MED	&1 = 20, &2 = 50
HIGH	&1 = 20, &2 = 30

Rule: IBM.DEDB_FS.60

IBM.DEDB_DEDB_FS.60 is a simple rule for calculating free spaces in DOVF and IOVF of an AREA.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.DEDB_DEDB_FS.60

Rule description

Free spaces in DOVF and IOVF of an AREA

Resource types supported

DEDB

Exception class

DEDB_FREE_SPACE_AVAIL_IN_OVFLOW

Rule condition expression

```
AND(
      IF(DB_PCT_BYTES_FS_DOVF,GT,
        &1
      )
      IF(DB_PCT_BYTES_FS_IOVF,LT,
        &2
      )
    )
```

Rule condition description

Specify thresholds on the percentage of free spaces in the DOVF section (DB_PCT_BYTES_FS_DOVF) and in the IOVF section (DB_PCT_BYTES_FS_IOVF) of a DEDB area.

```
   DB_PCT_BYTES_FS_DOVF: &1
   DB_PCT_BYTES_FS_IOVF: &2
```

An exception is issued if the first threshold is exceeded and the second threshold has fallen below the defined percentage.

Rule exception expression

- EXCEPTION_CLASS(DEDB_FREE_SPACE_AVAIL_IN_OVFLOW)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

Free spaces in DOVF and IOVF are used inefficiently in area %RESOURCE%.

Data elements being evaluated for this rule

```
DB_PCT_BYTES_FS_DOVF &1
DB_PCT_BYTES_FS_IOVF &2
```

Rule threshold sets

Table 90: Rule threshold sets for IBM.DEDB_DEDB_FS.60

Threshold set name	Threshold values
LOW	&1 = 30, &2 = 50
MED	&1 = 30, &2 = 30
HIGH	&1 = 30, &2 = 20

Rule: IBM.DEDB_FS.70

IBM.DEDB_DEDB_FS.70 is a simple rule for calculating free spaces in RAA, DOVF, and IOVF.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.DEDB_DEDB_FS.70

Rule description

Free spaces in RAA, DOVF, and IOVF

Resource types supported

DEDB

Exception class

DEDB_FREE_SPACE_IN_RAA_VS_OVFLOW

Rule condition expression

```
AND(
      IF(DB_PCT_BYTES_FS_RAA,GT,
        &1
      )
      OR(
        IF(DB_PCT_BYTES_FS_DOVF,LT,
          &2
        )
        IF(DB_PCT_BYTES_FS_IOVF,LT,
          &3
        )
      )
    )
```

Rule condition description

Specify thresholds on the percentage of free spaces in the RAA BASE section (DB_PCT_BYTES_FS_RAA), in the DOVF section (DB_PCT_BYTES_FS_DOVF), and in the IOVF section (DB_PCT_BYTES_FS_IOVF) of a DEDB area.

```
   DB_PCT_BYTES_FS_RAA : &1
   DB_PCT_BYTES_FS_DOVF: &2
   DB_PCT_BYTES_FS_IOVF: &3
```

An exception is issued if the first threshold is exceeded and either the second or third threshold has fallen below the defined percentage.

Rule exception expression

- EXCEPTION_CLASS(DEDB_FREE_SPACE_IN_RAA_VS_OVFLOW)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

Free spaces in RAA, DOVF, and IOVF are used inefficiently in area %RESOURCE%.

Data elements being evaluated for this rule

```
DB_PCT_BYTES_FS_RAA  &1
DB_PCT_BYTES_FS_DOVF &2
DB_PCT_BYTES_FS_IOVF &3
```

Rule threshold sets

Table 91: Rule threshold sets for IBM.DEDB_DEDB_FS.70

Threshold set name	Threshold values
LOW	&1 = 20, &2 = 30, &3 = 80
MED	&1 = 20, &2 = 20, &3 = 80
HIGH	&1 = 20, &2 = 10, &3 = 50

Rule: IBM.DEDB_FS.80

IBM.DEDB_DEDB_FS.80 is a simple rule for calculating the percentage of free space in SDEP part.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.DEDB_DEDB_FS.80

Rule description

Percent of free space in SDEP part

Resource types supported

DEDB

Exception class

DEDB_FREE_SPACE_AVAIL_IN_SDEP

Rule condition expression

```
OR(
      IF(DB_PCT_BYTES_FS_SDEP,LT,
        &1
      )
    )
```

Rule condition description

Specify a threshold on the percentage of free space in the sequential dependent segment (SDEP) part of a DEDB area.

```
DB_PCT_BYTES_FS_SDEP: &1
```

An exception is issued if the percentage falls below the threshold.

If the SDEP is not defined for the database, this rule is ignored.

Rule exception expression

- EXCEPTION_CLASS(DEDB_FREE_SPACE_AVAIL_IN_SDEP)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The percentage of free space in the SDEP fell below a threshold in area %RESOURCE%.

Data elements being evaluated for this rule

```
DB_PCT_BYTES_FS_SDEP &1
```

Rule threshold sets

Table 92: Rule threshold sets for IBM.DEDB_DEDB_FS.80

Threshold set name	Threshold values
LOW	&1 = 75
MED	&1 = 50
HIGH	&1 = 40

Rule: IBM.DEDB_FS.81

IBM.DEDB_FS.81 is a simple rule for evaluating the percentage of free space in the sequential dependent (SDEP) portion of a DEDB area.

Rule template version

The rule template version is indicated by a 4-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.DEDB_FS.81

Rule description

Percentage of free space in the sequential dependent (SDEP) portion of a DEDB area. This rule can also trigger an action (such as an SDEP extension of the subject area).

> **Important:** This rule is not included in any of the IBM®-supplied REORG Domain policies. You can use this rule in any of the following ways:

- Replace a similar rule in an existing REORG Domain policy
- Add this rule to one of the existing REORG Domain policies
- Create a REORG Domain policy and add this rule along with other rules

Resource types supported

DEDB

Exception class

DEDB_SDEP_NEEDS_TO_BE_EXTENDED

Rule condition expression

```
OR(
   IF(DB_PCT_BYTES_FS_SDEP,LT,
    &1
   )
  )
```

Rule condition description

Specify a threshold on the percentage of free space in the sequential dependent segment (SDEP) portion of a DEDB area.

```
DB_PCT_BYTES_FS_SDEP: &1
```

An exception is issued if the percentage falls below the threshold.

Important: If you want to trigger a utility action to extend the SDEP section of the subject area, use this rule instead of IBM.DEDB_FS.80.

Rule exception expression

- EXCEPTION_CLASS(DEDB_SDEP_NEEDS_TO_BE_EXTENDED)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The percentage of free space in the SDEP section fell below a threshold in area %RESOURCE%.

Data elements being evaluated for this rule

```
DB_PCT_BYTES_FS_SDEP &1
```

Rule threshold sets

Table 93: Rule threshold sets for IBM.DEDB_RFS.81

Threshold set name	Threshold values
LOW	&1 = 75
MED	&1 = 50
HIGH	&1 = 40

Rule: IBM.DEDB_OVERFLOW.10

IBM.DEDB_OVERFLOW.10 is a simple rule for calculating the percentage of UOWs that are using DOVF CIs.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.DEDB_OVERFLOW.10

Rule description

Percent of UOWs that are using DOVF CIs

Resource types supported

DEDB

Exception class

DEDB_EXCESS_PCT_UOWS_USING_DOVF

Rule condition expression

```
OR(
      IF(DB_PCT_NUM_UOW_USE_DOVF,GT,
        &1
      )
    )
```

Rule condition description

Specify a threshold on the percentage of the number of UOWs that are using CIs in the DOVF section of a DEDB area.

```
DB_PCT_NUM_UOW_USE_DOVF: &1
```

An exception is issued if the threshold is exceeded.

Rule exception expression

- EXCEPTION_CLASS(DEDB_EXCESS_PCT_UOWS_USING_DOVF)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The percentage of UOWs that are using DOVF exceeded a threshold in area %RESOURCE%.

Data elements being evaluated for this rule

```
DB_PCT_NUM_UOW_USE_DOVF &1
```

Rule threshold sets

Table 94: Rule threshold sets for IBM.DEDB_OVERFLOW.10

Threshold set name	Threshold values
LOW	&1 = 20

Threshold set name	Threshold values
MED	&1 = 30
HIGH	&1 = 40

Rule: IBM.DEDB_OVERFLOW.20

IBM.DEDB_OVERFLOW.20 is a simple rule for calculating the percentage of UOWs that are using IOVF CIs.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.DEDB_OVERFLOW.20

Rule description

Percent of UOWs that are using IOVF CIs

Resource types supported

DEDB

Exception class

DEDB_EXCESS_PCT_UOWS_USING_IOVF

Rule condition expression

```
OR(
      IF(DB_PCT_NUM_UOW_USE_IOVF,GT,
        &1
      )
    )
```

Rule condition description

Specify a threshold on the percentage of the number of UOWs that are using CIs in the IOVF section of a DEDB area.

```
DB_PCT_NUM_UOW_USE_IOVF: &1
```

An exception is issued if the threshold is exceeded.

Rule exception expression

- EXCEPTION_CLASS(DEDB_EXCESS_PCT_UOWS_USING_IOVF)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The percentage of UOWs that are using IOVF exceeded a threshold in area %RESOURCE%.

Data elements being evaluated for this rule

```
DB_PCT_NUM_UOW_USE_IOVF &1
```

Rule threshold sets

Table 95: Rule threshold sets for IBM.DEDB_OVERFLOW.20

Threshold set name	Threshold values
LOW	&1 = 10
MED	&1 = 20
HIGH	&1 = 30

Rule: IBM.DEDB_OVERFLOW.30

IBM.DEDB_OVERFLOW.30 is a simple rule for calculating the number of UOWs using IOVF CIs.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.DEDB_OVERFLOW.30

Rule description

Number of UOWs using IOVF CIs

Resource types supported

DEDB

Exception class

DEDB_EXCESS_NUM_UOWS_USING_IOVF

Rule condition expression

```
OR(
      IF(DB_NUM_UOW_USE_IOVF,GT,
        &1
      )
    )
```

Rule condition description

Specify a threshold on the number of UOWs that are using at least one CI in the IOVF section of a DEDB area.

```
DB_NUM_UOW_USE_IOVF: &1
```

An exception is issued if the threshold is exceeded.

Because the default threshold value is a dummy high value, the threshold is never exceeded. You must modify the threshold value to a non-dummy value to effectively enable this rule.

Rule exception expression

- EXCEPTION_CLASS(DEDB_EXCESS_NUM_UOWS_USING_IOVF)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The number of UOWs using IOVF CIs exceeded a threshold in area %RESOURCE%.

Data elements being evaluated for this rule

```
DB_NUM_UOW_USE_IOVF &1
```

Rule threshold sets

Table 96: Rule threshold sets for IBM.DEDB_OVERFLOW.30

Threshold set name	Threshold values
LOW	&1 = 32766
MED	&1 = 32766
HIGH	&1 = 32766

Rule: IBM.DEDB_OVERFLOW.40

IBM.DEDB_OVERFLOW.40 is a simple rule for calculating the average use of IOVF CIs per UOW.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.DEDB_OVERFLOW.40

Rule description

Average use of IOVF CIs per UOW

Resource types supported

DEDB

Exception class

DEDB_EXCESS_AVG_IOVF_CI_PER_UOW

Rule condition expression

```
OR(
      IF(DB_AVG_NUM_IOVFCI_BY_UOW,GT,
        &1
      )
    )
```

Rule condition description

Specify a threshold on the average number of IOVF CIs used by a UOW in a DEDB area.

```
DB_AVG_NUM_IOVFCI_BY_UOW: &1
```

An exception is issued if the threshold is exceeded.

Because the default threshold value is a dummy high value, the threshold is never exceeded. You must modify the threshold value to a non-dummy value to effectively enable this rule.

Rule exception expression

- EXCEPTION_CLASS(DEDB_EXCESS_AVG_IOVF_CI_PER_UOW)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The average use of IOVF CIs per UOW exceeded a threshold in area %RESOURCE%.

Data elements being evaluated for this rule

```
DB_AVG_NUM_IOVFCI_BY_UOW &1
```

Rule threshold sets

Table 97: Rule threshold sets for IBM.DEDB_OVERFLOW.40

Threshold set name	Threshold values
LOW	&1 = 8388608
MED	&1 = 8388608
HIGH	&1 = 8388608

Rule: IBM.DEDB_OVERFLOW.50

IBM.DEDB_OVERFLOW.50 is a simple rule for calculating the maximum use of IOVF CIs by a UOW.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.DEDB_OVERFLOW.50

Rule description

Maximum use of IOVF CIs by a UOW

Resource types supported

DEDB

Exception class

DEDB_UOW_USING_EXCESSIVE_IOVF_CI

Rule condition expression

```
OR(
      IF(DB_MAX_NUM_IOVFCI_BY_UOW,GT,
        &1
      )
    )
```

Rule condition description

Specify a threshold on the maximum number of IOVF CIs used by a UOW in a DEDB area.

```
DB_MAX_NUM_IOVFCI_BY_UOW: &1
```

An exception is issued if the threshold is exceeded.

Because the default threshold value is a dummy high value, the threshold is never exceeded. You must modify the threshold value to a non-dummy value to effectively enable this rule.

Rule exception expression

- EXCEPTION_CLASS(DEDB_UOW_USING_EXCESSIVE_IOVF_CI)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The maximum use of IOVF CIs by a UOW exceeded a threshold in area %RESOURCE%.

Data elements being evaluated for this rule

```
DB_MAX_NUM_IOVFCI_BY_UOW &1
```

Rule threshold sets

Table 98: Rule threshold sets for IBM.DEDB_OVERFLOW.50

Threshold set name	Threshold values
LOW	&1 = 8388608
MED	&1 = 8388608
HIGH	&1 = 8388608

Rule: IBM.DEDB_OVERFLOW.60

IBM.DEDB_OVERFLOW.60 is a simple rule for calculating the minimum use of IOVF CIs by a UOW.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.DEDB_OVERFLOW.60

Rule description

Minimum use of IOVF CIs by a UOW

Resource types supported

DEDB

Exception class

DEDB_EXCESS_MIN_IOVF_CI_PER_UOW

Rule condition expression

```
OR(
      IF(DB_MIN_NUM_IOVFCI_BY_UOW,GT,
        &1
      )
    )
```

Rule condition description

Specify a threshold on the minimum number of IOVF CIs used by a UOW in a DEDB area.

```
DB_MIN_NUM_IOVFCI_BY_UOW: &1
```

An exception is issued if the threshold is exceeded.

Because the default threshold value is a dummy high value, the threshold is never exceeded. You must modify the threshold value to a non-dummy value to effectively enable this rule.

Rule exception expression

- EXCEPTION_CLASS(DEDB_EXCESS_MIN_IOVF_CI_PER_UOW)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The minimum use of IOVF CIs by a UOW exceeded a threshold in area %RESOURCE%.

Data elements being evaluated for this rule

```
DB_MIN_NUM_IOVFCI_BY_UOW &1
```

Rule threshold sets

Table 99: Rule threshold sets for IBM.DEDB_OVERFLOW.60

Threshold set name	Threshold values
LOW	&1 = 1.0
MED	&1 = 2.0
HIGH	&1 = 3.0

Rule: IBM.DEDB_OVERFLOW.70

IBM.DEDB_OVERFLOW.70 is a simple rule for calculating the percentage of IOVF CIs used.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.DEDB_OVERFLOW.70

Rule description

Percent of IOVF CIs used

Resource types supported

DEDB

Exception class

DEDB_EXCESSIVE_IOVF_CI_USED

Rule condition expression

```
OR(
      IF(DB_PCT_NUM_IOVFCI_USED,GT,
        &1
      )
    )
```

Rule condition description

Specify a threshold on the percentage of the number of CIs used in the IOVF of a DEDB area.

```
DB_PCT_NUM_IOVFCI_USED: &1
```

An exception is issued if the threshold is exceeded.

Because the default threshold value is a dummy high value, the threshold is never exceeded. You must modify the threshold value to a non-dummy value to effectively enable this rule.

Rule exception expression

- EXCEPTION_CLASS(DEDB_EXCESSIVE_IOVF_CI_USED)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The maximum use of IOVF CIs by a UOW exceeded a threshold in area %RESOURCE%.

Data elements being evaluated for this rule

```
DB_PCT_NUM_IOVFCI_USED &1
```

Rule threshold sets

Table 100: Rule threshold sets for IBM.DEDB_OVERFLOW.70

Threshold set name	Threshold values
LOW	&1 = 50
MED	&1 = 60
HIGH	&1 = 70

Rule: IBM.DEDB_OVERFLOW.80

IBM.DEDB_OVERFLOW.80 is a simple rule for calculating the percentage of RAP CIs using overflow.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.DEDB_OVERFLOW.80

Rule description

Percent of RAP CIs using overflow

Resource types supported

DEDB

Exception class

DEDB_EXCESS_RAP_CI_USING_OVFLOW

Rule condition expression

```
OR(
      IF(DB_PCT_NUM_RAPCI_OVFL,GT,
        &1
      )
    )
```

Rule condition description

Specify a threshold on the percentage of the number of RAP CIs that are using CIs in the DOVF section or the IOVF section of a DEDB area.

```
DB_PCT_NUM_RAPCI_OVFL: &1
```

An exception is issued if the threshold is exceeded.

Rule exception expression

- EXCEPTION_CLASS(DEDB_EXCESS_RAP_CI_USING_OVFLOW)
- EXCEPTION_LEVEL(WARNING)

– EXCEPTION_MESSAGE

Rule message template

The percentage of RAP CIs using overflow exceeded a threshold in area %RESOURCE%.

Data elements being evaluated for this rule

```
DB_PCT_NUM_RAPCI_OVFL &1
```

Rule threshold sets

Table 101: Rule threshold sets for IBM.DEDB_OVERFLOW.80

Threshold set name	Threshold values
LOW	&1 = 20
MED	&1 = 30
HIGH	&1 = 40

Rule: IBM.DEDB_OVERFLOW.90

IBM.DEDB_OVERFLOW.90 is a simple rule for calculating the percentage of database records using IOVF.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.DEDB_OVERFLOW.90

Rule description

Percent of database records using IOVF

Resource types supported

DEDB

Exception class

DEDB_EXCESSIVE_DBREC_USING_IOVF

Rule condition expression

```
OR(
      IF(DB_PCT_NUM_DBREC_IOVF,GT,
        &1
      )
    )
```

Rule condition description

Specify a threshold on the percentage of database records that are using CIs in the IOVF section of a DEDB area.

```
DB_PCT_NUM_DBREC_IOVF: &1
```

An exception is issued if the threshold is exceeded.

Rule exception expression

- EXCEPTION_CLASS(DEDB_EXCESSIVE_DBREC_USING_IOVF)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The percentage of DB records using IOVF exceeded a threshold in area %RESOURCE%.

Data elements being evaluated for this rule

```
DB_PCT_NUM_DBREC_IOVF &1
```

Rule threshold sets

Table 102: Rule threshold sets for IBM.DEDB_OVERFLOW.90

Threshold set name	Threshold values
LOW	&1 = 10
MED	&1 = 15
HIGH	&1 = 20

Rule: IBM.DEDB_RFS.10

IBM.DEDB_RFS.10 is a simple rule for evaluating the number of UOWs that match the RFS condition.

Rule template version

The rule template version is indicated by a 4-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.DEDB_RFS.10

Rule description

Number of UOWs that match the RFS condition.

Important: This rule is not included in any of the IBM®-supplied REORG Domain policies. You can use this rule in any of the following ways:

- Replace a similar rule in an existing REORG Domain policy
- Add this rule to one of the existing REORG Domain policies

- Create a REORG Domain policy and add this rule along with other rules

Resource types supported

DEDB

Exception class

DEDB_EXCESSIVE_UOWS_MATCH_COND

Rule condition expressions

```
OR(
   IF(DB_NUM_UOW_RFS_COND,GT,
    &1
   )
  )
```

Rule condition description

Specify a threshold on the number of UOWs that match the RBASEFS or the RDOVFFS condition.

```
DB_NUM_UOW_RFS_COND: &1
```

An exception is issued if the threshold is exceeded.

Because the default threshold value is a dummy high value, the threshold is never exceeded. You must modify the threshold value to a non-dummy value to effectively enable this rule.

Requirement: If you want to trigger a utility action to reorganize the subject area, use IBM.DEDB_RFS.11 instead of this rule.

Rule exception expression

- EXCEPTION_CLASS(DEDB_EXCESSIVE_UOWS_MATCH_COND)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The number of UOWs that match the RBASEFS or the RDOVFFS condition exceeded a threshold in area %RESOURCE%.

Data elements being evaluated for this rule

```
DB_NUM_UOW_RFS_COND &1
```

Rule threshold sets

Table 103: Rule threshold sets for IBM.DEDB_RFS.10

Threshold set name	Threshold values
LOW	&1 = 32766
MED	&1 = 32766
HIGH	&1 = 32766

Rule: IBM.DEDB_RFS.11

IBM.DEDB_RFS.11 is a simple rule for evaluating the number of UOWs that match the RFS condition.

Rule template version

The rule template version is indicated by a 4-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.DEDB_RFS.11

Rule description

Number of UOWs that match the RFS condition. This rule can also trigger an action (such as a reorganization).

> **Important:** This rule is not included in any of the IBM®-supplied REORG Domain policies. You can use this rule in any of the following ways:
>
> - Replace a similar rule in an existing REORG Domain policy
> - Add this rule to one of the existing REORG Domain policies
> - Create a REORG Domain policy and add this rule along with other rules

Resource types supported

DEDB

Exception class

DEDB_NEEDS_TO_BE_REORGANIZED

Rule condition expression

```
OR(
   IF(DB_NUM_UOW_RFS_COND,GT,
    &1
   )
  )
```

Rule condition description

Specify a threshold on the number of UOWs that match the RBASEFS or the RDOVFFS condition.

```
DB_NUM_UOW_RFS_COND: &1
```

An exception is issued if the threshold is exceeded.

Because the default threshold value is a dummy high value, the threshold is never exceeded. You must modify the threshold value to a non-dummy value to effectively enable this rule.

> **Requirement:** If you want to trigger a utility action to reorganize the subject area, use this rule instead of IBM.DEDB_RFS.10.

Rule exception expressions

- EXCEPTION_CLASS(DEDB_NEEDS_TO_BE_REORGANIZED)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The number of UOWs that match the RBASEFS or the RDOVFFS condition exceeded a threshold in area %RESOURCE%.

Data elements being evaluated for this rule

```
DB_NUM_UOW_RFS_COND &1
```

Rule threshold sets

Table 104: Rule threshold sets for IBM.DEDB_RFS.11

Threshold set name	Threshold values
LOW	&1 = 32766
MED	&1 = 32766
HIGH	&1 = 32766

Rule: IBM.DEDB_RFS.20

IBM.DEDB_RFS.20 is a simple rule for evaluating the percentage of UOWs that match the RFS condition.

Rule template version

The rule template version is indicated by a 4-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.DEDB_RFS.20

Rule description

Percentage of UOWs that match the RFS condition.

Important: This rule is not included in any of the IBM®-supplied REORG Domain policies. You can use this rule in any of the following ways:

- Replace a similar rule in an existing REORG Domain policy
- Add this rule to one of the existing REORG Domain policies
- Create a REORG Domain policy and add this rule along with other rules

Resource types supported

DEDB

Exception class

DEDB_EXCESS_PCT_UOWS_MATCH_COND

Rule condition expression

```
OR(
   IF(DB_PCT_NUM_UOW_RFS_COND,GT,
    &1
   )
  )
```

Rule condition description

Specify a threshold on the percentage of UOWs that match the RBASEFS or the RDOVFFS condition.

```
DB_PCT_NUM_UOW_RFS_COND: &1
```

An exception is issued if the threshold is exceeded.

> **Important:** If you want to trigger a utility action to reorganize the subject area, use IBM.DEDB_RFS.21 instead of this rule.

Rule exception expression

- EXCEPTION_CLASS(DEDB_EXCESS_PCT_UOWS_MATCH_COND)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The percentage of UOWs that match the RBASEFS or the RDOVFFS condition exceeded a threshold in area %RESOURCE%.

Data elements being evaluated for this rule

```
DB_PCT_NUM_UOW_RFS_COND &1
```

Rule threshold sets

Table 105: Rule threshold sets for IBM.DEDB_RFS.20

Threshold set name	Threshold values
LOW	&1 = 1
MED	&1 = 5
HIGH	&1 = 10

Rule: IBM.DEDB_RFS.21

IBM.DEDB_RFS.21 is a simple rule for evaluating the percentage of UOWs that match the RFS condition.

Rule template version

The rule template version is indicated by a 4-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.DEDB_RFS.21

Rule description

Percent of UOWs that match the RFS condition. This rule can also trigger an action (such as a reorganization).

> **Important:** This rule is not included in any of the IBM®-supplied REORG Domain policies. You can use this rule in any of the following ways:
>
> - Replace a similar rule in an existing REORG Domain policy
> - Add this rule to one of the existing REORG Domain policies
> - Create a REORG Domain policy and add this rule along with other rules

Resource types supported

DEDB

Exception class

DEDB_NEEDS_TO_BE_REORGANIZED

Rule condition expression

```
OR(
   IF(DB_PCT_NUM_UOW_RFS_COND,GT,
    &1
   )
  )
```

Rule condition description

Specify a threshold on the number of UOWs that match the RBASEFS condition or the RDOVFFS condition.

```
DB_PCT_NUM_UOW_RFS_COND: &1
```

An exception is issued if the threshold is exceeded.

> **Requirement:** If you want to trigger a utility action to reorganize the subject area, use this rule instead of IBM.DEDB_RFS.20.

Rule exception expression

- EXCEPTION_CLASS(DEDB_NEEDS_TO_BE_REORGANIZED)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The percentage of UOWs that match the RBASEFS or the RDOVFFS condition exceeded a threshold in area %RESOURCE%.

Data elements being evaluated for this rule

```
DB_PCT_NUM_UOW_RFS_COND &1
```

Rule threshold sets

Table 106: Rule threshold sets for IBM.DEDB_RFS.21

Threshold set name	Threshold values
LOW	&1 = 1
MED	&1 = 5
HIGH	&1 = 10

Rule: IBM.DEDB_ROOT_IO.10

IBM.DEDB_ROOT_IO.10 is a simple rule for calculating the average number of I/Os per root segment.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.DEDB_ROOT_IO.10

Rule description

Average number of I/Os per root segment

Resource types supported

DEDB

Exception class

DEDB_EXCESSIVE_AVG_NUM_ROOT_IO

Rule condition expression

```
OR(
      IF(DB_AVG_ROOT_IO,GT,
        &1
      )
    )
```

Rule condition description

Specify a threshold on the average number of I/Os that are required to read a root segment in a DEDB area.

```
DB_AVG_ROOT_IO: &1
```

An exception is issued if the threshold is exceeded.

Rule exception expression

- EXCEPTION_CLASS(DEDB_EXCESSIVE_AVG_NUM_ROOT_IO)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The average number of I/Os per root segment exceeded a threshold in area %RESOURCE%.

Data elements being evaluated for this rule

```
DB_AVG_ROOT_IO &1
```

Rule threshold sets

Table 107: Rule threshold sets for IBM.DEDB_ROOT_IO.10

Threshold set name	Threshold values
LOW	&1 = 1.3
MED	&1 = 1.4
HIGH	&1 = 1.5

Rule: IBM.DEDB_ROOT_IO.20

IBM.DEDB_ROOT_IO.20 is a simple rule for calculating the maximum number of I/Os per root segment.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.DEDB_ROOT_IO.20

Rule description

Maximum number of I/Os per root segment

Resource types supported

DEDB

Exception class

DEDB_ROOT_SEGMENT_WITH_EXCESS_IO

Rule condition expression

```
OR(
      IF(DB_MAX_ROOT_IO,GT,
        &1
      )
    )
```

Rule condition description

Specify a threshold on the maximum number of I/Os that are required to read a root segment in a DEDB area.

```
DB_MAX_ROOT_IO: &1
```

An exception is issued if the threshold is exceeded.

Rule exception expression

- EXCEPTION_CLASS(DEDB_ROOT_SEGMENT_WITH_EXCESS_IO)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The maximum number of I/Os per root segment exceeded a threshold in area %RESOURCE%.

Data elements being evaluated for this rule

```
DB_MAX_ROOT_IO &1
```

Rule threshold sets

Table 108: Rule threshold sets for IBM.DEDB_ROOT_IO.20

Threshold set name	Threshold values
LOW	&1 = 4.0
MED	&1 = 5.0
HIGH	&1 = 6.0

Rule: IBM.DEDB_SEGM_CNT.10

IBM.DEDB_SEGM_CNT.10 is a simple rule for evaluating the number of segment occurrences.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.DEDB_SEGM_CNT.10

Rule description

Number of segment occurrences

Resource types supported

DEDB

Exception class

EXCESSIVE_SEGMENT_OCCURRENCES

Rule condition expression

```
OR(
      IF(DB_NUM_SEG,GE,
        &1
      )
    )
```

Rule condition description

Specify a threshold on the number of segment occurrences in a DEDB area.

```
DB_NUM_SEG: &1
```

An exception is issued if the threshold is reached or exceeded.

Because the default threshold value is a dummy high value, the threshold is never exceeded. You must modify the threshold value to a non-dummy value to effectively enable this rule.

Rule exception expression

- EXCEPTION_CLASS(EXCESSIVE_SEGMENT_OCCURRENCES)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The number of segment occurrences exceeded a threshold in area %RESOURCE%.

Data elements being evaluated for this rule

```
DB_NUM_SEG &1
```

Rule threshold sets

Table 109: Rule threshold sets for IBM.DEDB_SEGM_CNT.10

Threshold set name	Threshold values
LOW	&1 = 4294967295
MED	&1 = 4294967295
HIGH	&1 = 4294967295

Rule: IBM.DEDB_SYN_LEN.10

IBM.DEDB_SYN_LEN.10 is a simple rule for calculating the average length of RAP synonym chains.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.DEDB_SYN_LEN.10

Rule description

Average length of RAP synonym chains

Resource types supported

DEDB

Exception class

DEDB_EXCESSIVE_AVG_LEN_SYNONYMS

Rule condition expression

```
OR(
      IF(DB_AVG_LEN_SYNONYM_CHAIN,GT,
        &1
      )
    )
```

Rule condition description

Specify a threshold on the average length of RAP synonym chains in a DEDB area.

```
DB_AVG_LEN_SYNONYM_CHAIN: &1
```

An exception is issued if the threshold is exceeded.

Because the default threshold value is a dummy high value, the threshold is never exceeded. You must modify the threshold value to a non-dummy value to effectively enable this rule.

Rule exception expression

- EXCEPTION_CLASS(DEDB_EXCESSIVE_AVG_LEN_SYNONYMS)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The average length of RAP synonym chains exceeded a threshold in area %RESOURCE%.

Data elements being evaluated for this rule

```
DB_AVG_LEN_SYNONYM_CHAIN &1
```

Rule threshold sets

Table 110: Rule threshold sets for IBM.DEDB_SYN_LEN.10

Threshold set name	Threshold values
LOW	&1 = 29496729
MED	&1 = 29496729
HIGH	&1 = 29496729

Rule: IBM.DEDB_SYN_LEN.20

IBM.DEDB_SYN_LEN.20 is a simple rule for evaluating the maximum length of RAP synonym chains.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.DEDB_SYN_LEN.20

Rule description

Maximum length of RAP synonym chains

Resource types supported

DEDB

Exception class

DEDB_LONG_SYNONYM_CHAIN

Rule condition expression

```
OR(
      IF(DB_MAX_LEN_SYNONYM_CHAIN,GT,
        &1
      )
    )
```

Rule condition description

Specify a threshold on the maximum length of RAP synonym chains in a DEDB area.

```
DB_MAX_LEN_SYNONYM_CHAIN: &1
```

An exception is issued if the threshold is exceeded.

Because the default threshold value is a dummy high value, the threshold is never exceeded. You must modify the threshold value to a non-dummy value to effectively enable this rule.

Rule exception expression

- EXCEPTION_CLASS(DEDB_LONG_SYNONYM_CHAIN)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The maximum length of RAP synonym chains exceeded a threshold in area %RESOURCE%.

Data elements being evaluated for this rule

```
DB_MAX_LEN_SYNONYM_CHAIN &1
```

Rule threshold sets

Table 111: Rule threshold sets for IBM.DEDB_SYN_LEN.20

Threshold set name	Threshold values
LOW	&1 = 29496729
MED	&1 = 29496729

Threshold set name	Threshold values
HIGH	&1 = 29496729

Rule: IBM.FFDB_FRAGDFSE.10

IBM.FFDB_FRAGDFSE.10 is a rule for evaluating the percentage of fragmented free space elements in a full-function database.

Rule template version

The rule template version is indicated by a 4-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.FFDB_FRAGDFSE.10

Rule description

Percentage of fragmented free space elements in a full-function database.

Resource types supported

- HDAM
- HIDAM
- PHDAM
- PHIDAM
- HISAM
- SHISAM

Exception class

FRAGMENTED_FREE_SPACE_ELEMENTS

Rule condition expression

```
OR(
     AOR(
       IF(DB_PCT_NUM_FRAGD_FSE,GT,
         &1
       )
     )
   )
```

Rule condition description

Specify a threshold on the percentage of fragmented free space elements in a data set.

```
DB_PCT_NUM_FRAGD_FSE: &1
```

A fragmented free space element is an element that cannot hold the largest segment in the data set.

An exception is issued if the threshold is exceeded in one of the data sets of the database or partition.

Rule exception expression

- EXCEPTION_CLASS(FRAGMENTED_FREE_SPACE_ELEMENTS)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The percentage of fragmented free space elements in a data set of %RESOURCE% exceeded a threshold.

Data elements being evaluated for this rule

```
DB_PCT_NUM_FRAGD_FSE &1
```

Rule threshold sets

Table 112: Rule threshold sets for IBM.FFDB_FRAGDFSE.10

Threshold set name	Threshold values
LOW	&1 = 20
MED	&1 = 30
HIGH	&1 = 40

Rule: IBM.FFDB_NREUSFSE.10

IBM.FFDB_NREUSFSE.10 is a rule for evaluating the percentage of non-reusable free space elements in a full-function database.

Rule template version

The rule template version is indicated by a 4-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.FFDB_NREUSFSE.10

Rule description

Percentage of non-reusable free space elements in a full-function database.

Resource types supported

- HDAM
- HIDAM
- PHDAM
- PHIDAM
- HISAM
- SHISAM

Exception class

NONREUSABLE_FREE_SPACE_ELEMENTS

Rule condition expression

```
OR(
      AOR(
        IF(DB_PCT_NUM_NOREUSE_FSE,GT,
          &1
        )
      )
    )
```

Rule condition description

Specify a threshold on the average percentage, per block or CI (VSAM control interval), of free space elements whose lengths are shorter than that of the smallest segment in a data set.

```
DB_PCT_NUM_NOREUSE_FSE: &1
```

An exception is issued if the threshold is exceeded in one of the data sets of the database or partition.

Rule exception expression

- EXCEPTION_CLASS(NONREUSABLE_FREE_SPACE_ELEMENTS)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The percentage of non-reusable free space elements in one of the data sets of %RESOURCE% has increased.

Data elements being evaluated for this rule

```
DB_PCT_NUM_NOREUSE_FSE &1
```

Rule threshold sets

Table 113: Rule threshold sets for IBM.FFDB_NREUSFSE.10

Threshold set name	Threshold values
LOW	&1 = 20
MED	&1 = 30
HIGH	&1 = 40

Rule: IBM.FRAGMENTATION.10

IBM.FRAGMENTATION.10 is a simple rule for evaluating the statistics of Free Space Elements (FSE) in HD database data sets.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.FRAGMENTATION.10

Rule description

Fragmented free space in HD DB data sets

Resource types supported

The following resource types are supported by this rule.

- HDAM
- HIDAM
- PHDAM
- PHIDAM

Exception class

FRAGMENTED_FREE_SPACES

Rule condition expression

```
OR(
  AOR(
    IF(DB_AVG_NUM_FSE,GE,
      &1
    )
    IF(DB_AVG_NUM_NOREUSE_FSE,GE,
      &2
    )
    IF(DB_NUM_FSE,GE,
      &3
    )
    IF(DB_NUM_FSE_MIN,GE,
      &4
    )
    IF(DB_NUM_FSE_MAX,GE,
      &5
    )
  )
)
```

Rule condition description

Specify various thresholds on free space elements (FSEs).

The following thresholds can be used in this rule:

1. Average number of FSEs per database data set block:

   ```
   DB_AVG_NUM_FSE: &1
   ```

2. Average number of non-reusable FSEs per database data set block:

   ```
   DB_AVG_NUM_NOREUSE_FSE: &2
   ```

3. Total number of FSEs in a database data set:

   ```
   DB_NUM_FSE: &3
   ```

4. Total number of FSEs that can hold the defined smallest segment in the data set:

   ```
   DB_NUM_FSE_MIN: &4
   ```

5. Total number of FSEs that can hold the defined largest segment in the data set:

   ```
   DB_NUM_FSE_MAX: &5
   ```

An exception is issued if one or more of these thresholds are reached or exceeded in one of the database data sets.

You can apply this rule to a non-partitioned HD database or a PHDAM/PHIDAM partition.

Rule exception expression

- EXCEPTION_CLASS(FRAGMENTED_FREE_SPACES)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The fragmentation of free space in %RESOURCE% has increased

Data elements being evaluated for this rule

```
DB_AVG_NUM_FSE                  &1
DB_AVG_NUM_NOREUSE_FSE          &2
DB_NUM_FSE                      &3
DB_NUM_FSE_MIN                  &4
DB_NUM_FSE_MAX                  &5
```

The following data element values are evaluated for each data set that composes the database or the HALDB partition:

- The variable &1 specifies a threshold for the data element value of DB_AVG_NUM_FSE for the data set.
- The variable &2 specifies a threshold for the data element value of DB_AVG_NUM_NOREUSE_FSE for the data set.
- The variable &3 specifies a threshold for the data element value of DB_NUM_FSE for the data set.
- The variable &4 specifies a threshold for the data element value of DB_NUM_FSE_MIN for the data set.
- The variable &5 specifies a threshold for the data element value of DB_NUM_FSE_MAX for the data set.

Rule threshold sets

Table 114: Rule threshold sets for IBM.FRAGMENTATION.10

Threshold set name	Threshold values
LOW	&1 = 5 &2 = 5 &3 = 2147483648 &4 = 2147483648 &5 = 2147483648
MED	&1 = 10 &2 = 10 &3 = 2147483648 &4 = 2147483648 &5 = 2147483648
HIGH	&1 = 20 &2 = 20 &3 = 2147483648 &4 = 2147483648 &5 = 2147483648

The default threshold values for the variables &3, &4, and &5 are never reached nor exceeded.

It is expected that each of these threshold values be changed only if you want to monitor the data element value that correspond to the variable.

Rule: IBM.FREE_SPACES.10

IBM.FREE_SPACES.10 is a simple rule for evaluating the IMS free space availability

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.FREE_SPACES.10

Rule description

Availability of IMS free space.

> **Important:** This rule is not included in any of the IBM®-supplied REORG Domain policies. You can use this rule in any of the following ways:
>
> - Replace a similar rule in an existing REORG Domain policy
> - Add this rule to one of the existing REORG Domain policies
> - Create a REORG Domain policy and add this rule along with other rules

Resource types supported

The following resource types are supported by this rule.

- HDAM
- HIDAM
- PHDAM
- PHIDAM
- HISAM
- SHISAM

Exception class

FREE_SPACE_AVAILABILITY

Rule condition expression

```
OR(
  AOR(
    IF(DB_BYTES_SEG,GE,
      &1
    )
    IF(DB_PCT_BYTES_SEG,GE,
      &2
    )
    IF(DB_BYTES_FREE_SPACE,LE,
      &3
    )
    IF(DB_PCT_BYTES_FREE_SPACE,LE,
      &4
    )
  )
)
```

Rule condition description

Specify thresholds on data volume and free space.

The following thresholds can be used in this rule:

1. Total number of bytes used by segment data:

   ```
   DB_BYTES_SEG: &1
   ```

2. Percentage of bytes used by segment data:

   ```
   DB_PCT_BYTES_SEG: &2
   ```

3. Total number of free space bytes:

   ```
   DB_BYTES_FREE_SPACE: &3
   ```

4. Percentage of total free space bytes:

   ```
   DB_PCT_BYTES_FREE_SPACE: &4
   ```

An exception is issued if either:

- Thresholds “1” on page 265 or “2” on page 265 are reached or exceeded.
- Thresholds “3” on page 265 or “4” on page 265 are reached or fallen below the defined value in one of the database data sets.

You can apply this rule to a non-partitioned database or a HALDB partition, with the exception of an index or PSINDEX partition.

Rule exception expression

- EXCEPTION_CLASS(FREE_SPACE_AVAILABILITY)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

IMS space utilization statistics of %RESOURCE% has reached or crossed a threshold

Data elements being evaluated for this rule

```
DB_BYTES_SEG              &1
DB_PCT_BYTES_SEG          &2
DB_BYTES_FREE_SPACE       &3
DB_PCT_BYTES_FREE_SPACE   &4
```

The following data element values are evaluated for each data set that composes the database or the HALDB partition:

- The variable &1 specifies a threshold for the data element value of DB_BYTES_SEG for the data set.
- The variable &2 specifies a threshold for the data element value of DB_PCT_BYTES_SEG for the data set.
- The variable &3 specifies a threshold for the data element value of DB_BYTES_FREE_SPACE for the data set.
- The variable &4 specifies a threshold for the data element value of DB_PCT_BYTES_FREE_SPACE for the data set.

Rule threshold sets

Table 115: Rule threshold sets for IBM.FREE_SPACES.10

Threshold set name	Threshold values
LOW	&1 = 8589934592 &2 = 70 &3 = 0 &4 = 30
MED	&1 = 8589934592 &2 = 80 &3 = 0 &4 = 20
HIGH	&1 = 8589934592 &2 = 90 &3 = 0 &4 = 10

The default threshold values for the variable &1 are never reached nor exceeded.

It is expected that these values be changed only if you want to monitor the total number of bytes of segment data in each data set of the database or the partition.

Rule: IBM.HDAM_OVERFLOW.10

IBM.HDAM_OVERFLOW.10 is a simple rule for evaluating the percentage of overflow data in an HDAM or PHDAM database.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.HDAM_OVERFLOW.10

Rule description

Percent of segment data overflow

Resource types supported

The following resource types are supported by this rule.

- HDAM
- PHDAM

Exception class

EXCESSIVE_HDAM_OVERFLOW

Rule condition expression

```
OR(
  IF(DB_PCT_BYTES_OVFL,GE,
    &1
```

```
  )
)
```

Rule condition description

Specify a threshold on the percentage of the percentage of the total bytes of segment occurrences in the overflow area of an HDAM database or a PHDAM partition:

```
DB_PCT_BYTES_OVFL: &1
```

An exception is issued if the threshold is reached or exceeded.

Rule exception expression

- EXCEPTION_CLASS(EXCESSIVE_HDAM_OVERFLOW)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

Overflow data in %RESOURCE% has increased

Data elements being evaluated for this rule

```
DB_PCT_BYTES_OVFL &1
```

The variable &1 specifies a threshold for the data element value of DB_PCT_BYTES_OVFL for the HDAM database or the PHDAM partition.

Rule threshold sets

Table 116: Rule threshold sets for IBM.HDAM_OVERFLOW.10

Threshold set name	Threshold values
LOW	&1 = 40
MED	&1 = 50
HIGH	&1 = 60

Rule: IBM.HDAM_SYN_LEN.10

IBM.HDAM_SYN_LEN.10 is a rule for evaluating the average length of HDAM RAP synonym chains.

Rule template version

The rule template version is indicated by a 4-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.HDAM_SYN_LEN.10

Rule description

Average length of HDAM RAP synonym chains.

Resource types supported

- HDAM
- PHDAM

Exception class

HDAM_AVG_SYNONYM_CHAIN_LENGTH

Rule condition expression

```
OR(
      IF(DB_AVG_LEN_SYNONYM_CHAIN,GT,
        &1
      )
    )
```

Rule condition description

Specify a threshold on the average length of RAP synonym chains in an HDAM database or a PHDAM partition.

```
DB_AVG_LEN_SYNONYM_CHAIN: &1
```

An exception is issued if the threshold is exceeded.

> **Important:** To activate this rule, you must specify SENSOR_HOME=YES for the DB Sensor.

Rule exception expression

- EXCEPTION_CLASS(HDAM_AVG_SYNONYM_CHAIN_LENGTH)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The average length of RAP synonym chains exceeded a threshold in %RESOURCE%.

Data elements being evaluated for this rule

```
DB_AVG_LEN_SYNONYM_CHAIN &1
```

Rule threshold sets

Table 117: Rule threshold sets for IBM.HDAM_SYN_LEN.10

Threshold set name	Threshold values
LOW	&1 = 3
MED	&1 = 4
HIGH	&1 = 5

Rule: IBM.HISAM_SEG_DEL.10

IBM.HISAM_SEG_DEL.10 is a simple rule for evaluating the percentage of deleted segments in a HISAM database.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.HISAM_SEG_DEL.10

Rule description

Percent deleted segments in a HISAM database.

Resource types supported

The following resource types are supported by this rule.

– HISAM

Exception class

EXCESSIVE_HISAM_DELETE_SEGM

Rule condition expression

```
OR(
  IF(DB_PCT_NUM_DELSEG.1,GT,
     &1
  )
  IF(DB_PCT_NUM_DELSEG.2,GT,
     &2
  )
)
```

Rule condition description

Specify thresholds on the percentage of deleted segment occurrences (DB_PCT_NUM_DELSEG) for both the primary data set and the overflow data set of a HISAM database:

– For the primary data set:

```
&1
```

– For the overflow data set:

```
&2
```

An exception is issued if one of these thresholds is reached. If the overflow data set is not defined for the database, only the threshold for the primary data set is evaluated.

Rule exception expression

– EXCEPTION_CLASS(EXCESSIVE_HISAM_DELETE_SEGM)

– EXCEPTION_LEVEL(WARNING)

– EXCEPTION_MESSAGE

Rule message template

Many segments of the HISAM database %RESOURCE% are marked as deleted.

Data elements being evaluated for this rule

```
DB_PCT_NUM_DELSEG &1
DB_PCT_NUM_DELSEG &2
```

The variables &1 and &2 specify thresholds for the data element values of DB_PCT_NUM_DELSEG for the primary data set and the overflow data set, if it exists, of the HISAM database respectively.

Rule threshold sets

Table 118: Rule threshold sets for IBM.HISAM_SEG_DEL.10

Threshold set name	Threshold values
LOW	&1 = 5 &2 = 5
MED	&1 = 10 &2 = 10
HIGH	&1 = 20 &2 = 20

Rule: IBM.IX_NUM_SEGM.10

IBM.IX_NUM_SEGM.10 is a simple rule for calculating the total number of index pointer segments.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.IX_NUM_SEGM.10

Rule description

Total number of index pointer segments

Resource types supported

The following resource types are supported by this rule:

- INDEX
- PHIDAM
- PSINDEX

Exception class

NUMBER_OF_INDEX_POINTER_SEGMENTS

Rule condition expression

```
OR(
      IF(DBX_NUM_IPS,GE,
        &1
      )
    )
```

Rule condition description

Specify a threshold on the number of occurrences of index pointer segments.

```
DBX_NUM_IPS: &1
```

An exception is issued if the threshold is exceeded.

You can apply this rule to a HIDAM primary index, a secondary index, a PHIDAM primary index, or a PSINDEX partition.

Rule exception expression

- EXCEPTION_CLASS(NUMBER_OF_INDEX_POINTER_SEGMENTS)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The number of index pointer segments reached or exceeded a threshold in %RESOURCE%.

Data elements being evaluated for this rule

```
DBX_NUM_IPS &1
```

Rule threshold sets

Table 119: Rule threshold sets for IBM.IX_NUM_SEGM.10

Threshold set name	Threshold values
LOW	&1 = 2147483648
MED	&1 = 2147483648
HIGH	&1 = 2147483648

Rule: IBM.IX_OVERFLOW.10

IBM.IX_OVERFLOW.10 is a simple rule for calculating the total number of index pointer segments in overflow.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.IX_OVERFLOW.10

Rule description

Index pointer segments in overflow

Resource types supported

The following resource types are supported by this rule:

- INDEX
- PSINDEX

Exception class

EXCESSIVE_INDEX_OVERFLOW

Rule condition expression

```
OR(
      IF(DBX_NUM_IPS_OVFL,GE,
        &1
      )
      IF(DBX_PCT_IPS_OVFL,GE,
        &2
      )
    )
```

Rule condition description

Specify thresholds on the amount of index pointer segment occurrences in the overflow data set. You can specify the thresholds by a number (DBX_NUM_IPS_OVFL), by a percentage (DBX_PCT_IPS_OVFL), or both.

```
DBX_NUM_IPS_OVFL: &1
DBX_PCT_IPS_OVFL: &2
```

An exception is issued if the threshold is exceeded.

You can apply this rule to a secondary index or a PSINDEX partition.

Rule exception expression

- EXCEPTION_CLASS(EXCESSIVE_INDEX_OVERFLOW)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The amount of index pointer segments in overflow reached or exceeded a threshold in %RESOURCE%.

Data elements being evaluated for this rule

```
DBX_NUM_IPS_OVFL &1
DBX_PCT_IPS_OVFL &2
```

Rule threshold sets

Table 120: Rule threshold sets for IBM.IX_OVERFLOW.10

Threshold set name	Threshold values
LOW	&1 = 2147483648, &2 = 100
MED	&1 = 2147483648, &2 = 100
HIGH	&1 = 2147483648, &2 = 100

Rule: IBM.IX_EXTENTS.10

IBM.IX_EXTENTS.10 is a simple rule for evaluating the availability of index data set extents.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.IX_EXTENTS.10

Rule description

Availability of index data set extents

Resource types supported

The following resource types are supported by this rule:

- INDEX
- PSINDEX

Exception class

INDEX_EXTENTS_AVAILABILITY

Rule condition expression

```
OR(
      AOR(
        AAND(
          IF(DBX_FLAG_SMS,IS,N)
          IF(DBX_AVAIL_EXT_LESS_100,IS,Y)
          IF(DBX_NUM_AVAIL_EXT,LE,
            &1
          )
        )
        AAND(
          IF(DBX_FLAG_SMS,IS,Y)
          IF(DBX_NUM_UNUSED_VOL_CAND,LE,
            &2
          )
          IF(DBX_AVAIL_EXT_LESS_100,IS,Y)
          IF(DBX_NUM_AVAIL_EXT,LE,
            &3
          )
        )
      )
    )
```

Rule condition description

Specify a threshold on the estimated number of extents that are available on the DASD volumes that are assigned for an index data set (DBX_NUM_AVAIL_EXT). The threshold must be in the range of 0 - 99. For an SMS-managed data set, also specify a threshold on the number of candidate volumes (DBX_NUM_UNUSED_VOL_CAND).

1. For a non-SMS-managed data set, an exception is issued if DBX_NUM_AVAIL_EXT of one of database data sets is less than or equal to the following threshold.

   ```
   &1
   ```

2. For an SMS-managed data set, an exception is issued if DBX_NUM_UNUSED_VOL_CAND is less than or equal to

   ```
   &2
   ```

   and DBX_NUM_AVAIL_EXT is less than or equal to

   ```
   &3
   ```

   for one of the index data sets.

You can apply this rule to a HIDAM primary index, a secondary index, or a PSINDEX partition.

Use the rule IBM.IX_EXTENTS.11 for a PHIDAM primary index.

Rule exception expression

- EXCEPTION_CLASS(INDEX_EXTENTS_AVAILABILITY)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The number of available extents for an index data set of %RESOURCE% is inadequate.

Data elements being evaluated for this rule

```
DBX_NUM_AVAIL_EXT       &1
DBX_NUM_UNUSED_VOL_CAND &2
DBX_NUM_AVAIL_EXT       &3
```

Rule threshold sets

Table 121: Rule threshold sets for IBM.IX_EXTENTS.10

Threshold set name	Threshold values
LOW	&1 = 5, &2 = 0, &3 = 5
MED	&1 = 3, &2 = 0, &3 = 3
HIGH	&1 = 1, &2 = 0, &3 = 1

Rule: IBM.IX_EXTENTS.11

IBM.IX_EXTENTS.11 is a simple rule for evaluating the availability of PHIDAM primary index extents.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.IX_EXTENTS.11

Rule description

Availability of PHIDAM primary index extents

Resource types supported

PHIDAM

Exception class

INDEX_EXTENTS_AVAILABILITY

Rule condition expression

```
OR(
      AND(
        IF(DBX_FLAG_SMS,IS,N)
        IF(DBX_AVAIL_EXT_LESS_100,IS,Y)
        IF(DBX_NUM_AVAIL_EXT,LE,
          &1
        )
      )
      AND(
        IF(DBX_FLAG_SMS,IS,Y)
        IF(DBX_NUM_UNUSED_VOL_CAND,LE,
          &2
        )
        IF(DBX_AVAIL_EXT_LESS_100,IS,Y)
        IF(DBX_NUM_AVAIL_EXT,LE,
          &3
        )
      )
    )
```

Rule condition description

Specify a threshold on the estimated number of extents that are available on the DASD volumes that are assigned for the PHIDAM primary index (DBX_NUM_AVAIL_EXT). The threshold must be in the range of 0 - 99. For an SMS-managed data set, also specify a threshold on the number of candidate volumes (DBX_NUM_UNUSED_VOL_CAND).

1. If the data set is not SMS-managed, an exception is issued if DBX_NUM_AVAIL_EXT of one of database data sets is less than or equal to the following threshold.

   ```
   &1
   ```

2. If the data set is SMS-managed, an exception is issued if DBX_NUM_UNUSED_VOL_CAND is less than or equal to

   ```
   &2
   ```

   and DBX_NUM_AVAIL_EXT is less than or equal to

   ```
   &3
   ```

   for one of the index data sets.

You can apply this rule only to a PHIDAM primary index.

Use the ruleIBM.IX_EXTENTS.10 for a HIDAM primary index, a secondary index, or a PSINDEX partition.

Rule exception expression

- EXCEPTION_CLASS(INDEX_EXTENTS_AVAILABILITY)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The number of available extents for the primary index of %RESOURCE% is inadequate.

Data elements being evaluated for this rule

```
DBX_NUM_AVAIL_EXT       &1
DBX_NUM_UNUSED_VOL_CAND &2
DBX_NUM_AVAIL_EXT       &3
```

Rule threshold sets

Table 122: Rule threshold sets for IBM.IX_EXTENTS.11

Threshold set name	Threshold values
LOW	&1 = 5, &2 = 0, &3 = 5
MED	&1 = 3, &2 = 0, &3 = 3
HIGH	&1 = 1, &2 = 0, &3 = 1

Rule: IBM.IX_GROWTH.10

IBM.IX_GROWTH.10 is a simple rule for evaluating the data set size of an index and its overflow.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.IX_GROWTH.10

Rule description

Data set size of an index and its overflow

Resource types supported

The following resource types are supported by this rule:

- INDEX
- PSINDEX

Exception class

INDEX_SIZE_GROWTH

Rule condition expression

```
OR(
      AOR(
        IF(DBX_NUM_DBDS_BLOCKS,GE,
          &1
        )
        IF(DBX_PCT_OF_MAX_DS_SIZE,GE,
          &2
        )
        IF(DBX_RBA_HIGH_ALLOC,GE,
          &3
        )
        IF(DBX_RBA_HIGH_USED,GE,
          &4
        )
      )
    )
```

Rule condition description

Specify thresholds on the index data set size.

You can use the following thresholds in this rule:

1. Number of data set blocks

```
DBX_NUM_DBDS_BLOCKS    : &1
```

2. Percentage of maximum data set size

```
DBX_PCT_OF_MAX_DS_SIZE: &2
```

3. High-Allocated-RBA (in decimal expression)

```
DBX_RBA_HIGH_ALLOC     : &3
```

4. High-Used-RBA (in decimal expression)

```
DBX_RBA_HIGH_USED      : &4
```

An exception is issued if one or more of these thresholds are reached or exceeded in one of the data sets.

You can apply this rule to a HIDAM primary index, a secondary index, or a PSINDEX partition.

Use the ruleIBM.IX_GROWTH.11 for a PHIDAM primary index.

Rule exception expression

- EXCEPTION_CLASS(INDEX_SIZE_GROWTH)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The size of an index data set reached or exceeded a threshold in %RESOURCE%.

Data elements being evaluated for this rule

```
DBX_NUM_DBDS_BLOCKS    &1
DBX_PCT_OF_MAX_DS_SIZE &2
DBX_RBA_HIGH_ALLOC     &3
DBX_RBA_HIGH_USED      &4
```

Rule threshold sets

Table 123: Rule threshold sets for IBM.IX_GROWTH.10

Threshold set name	Threshold values
LOW	&1 = 16777216, &2 = 60, &3 = 6442450944, &4 = 6442450944
MED	&1 = 16777216, &2 = 80, &3 = 6442450944, &4 = 6442450944
HIGH	&1 = 16777216, &2 = 90, &3 = 6442450944, &4 = 6442450944

Rule: IBM.IX_GROWTH.11

IBM.IX_GROWTH.11 is a simple rule for evaluating the data set size of a PHIDAM primary index.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.IX_GROWTH.11

Rule description

Data set size of a PHIDAM primary index

Resource types supported

PHIDAM

Exception class

INDEX_SIZE_GROWTH

Rule condition expression

```
OR(
      IF(DBX_NUM_DBDS_BLOCKS,GE,
        &1
      )
      IF(DBX_PCT_OF_MAX_DS_SIZE,GE,
        &2
      )
      IF(DBX_RBA_HIGH_ALLOC,GE,
        &3
      )
      IF(DBX_RBA_HIGH_USED,GE,
        &4
      )
    )
```

Rule condition description

Specify thresholds on the data set size of the PHIDAM primary index.

You can use the following thresholds in this rule:

1. Number of data set blocks

   ```
   DBX_NUM_DBDS_BLOCKS   : &1
   ```

2. Percentage of maximum data set size

   ```
   DBX_PCT_OF_MAX_DS_SIZE: &2
   ```

3. High-Allocated-RBA (in decimal expression)

   ```
   DBX_RBA_HIGH_ALLOC    : &3
   ```

4. High-Used-RBA (in decimal expression)

```
DBX_RBA_HIGH_USED     : &4
```

An exception is issued if one or more of these thresholds are reached or exceeded.

You can apply this rule only to a PHIDAM primary index.

Use the ruleIBM.IX_GROWTH.10 for a HIDAM primary index, a secondary index, or a PSINDEX partition.

Rule exception expression

- EXCEPTION_CLASS(INDEX_SIZE_GROWTH)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The size of the primary index data set reached or exceeded a threshold in %RESOURCE%.

Data elements being evaluated for this rule

```
DBX_NUM_DBDS_BLOCKS    &1
DBX_PCT_OF_MAX_DS_SIZE &2
DBX_RBA_HIGH_ALLOC     &3
DBX_RBA_HIGH_USED      &4
```

Rule threshold sets

Table 124: Rule threshold sets for IBM.IX_GROWTH.11

Threshold set name	Threshold values
LOW	&1 = 16777216, &2 = 60, &3 = 6442450944, &4 = 6442450944
MED	&1 = 16777216, &2 = 80, &3 = 6442450944, &4 = 6442450944
HIGH	&1 = 16777216, &2 = 90, &3 = 6442450944, &4 = 6442450944

Rule: IBM.IX_GROWTH.20

IBM.IX_GROWTH.20 is a simple rule for evaluating the data growth in an index and its overflow.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.IX_GROWTH.20

Rule description

Data growth in an index and its overflow

Resource types supported

The following resource types are supported by this rule:

- INDEX
- PSINDEX

Exception class

GROWING_INDEX_WITH_DATA_FULL

Rule condition expression

```
OR(
      AAND(
        IF(DBX_PCT_OF_MAX_DS_SIZE,GE,
          &1
        )
        IF(DBX_PCT_UNUSED_BYTES,LE,
          &2
        )
      )
    )
```

Rule condition description

Specify a threshold on the percentage of the maximum data set size (DBX_PCT_OF_MAX_DS_SIZE) and a threshold on the percentage of the free space in the data set (DBX_PCT_UNUSED_BYTES) for an index data set.

```
DBX_PCT_OF_MAX_DS_SIZE: &1
DBX_PCT_UNUSED_BYTES  : &2
```

An exception is issued if the first threshold is reached or exceeded and the second threshold has reached or fallen below the defined value in any of the index data sets. An exception indicates the possibility that the data set is approaching the size limitation of 4 GB.

You can apply this rule to a HIDAM primary index, a secondary index, or a PSINDEX partition.

Use the ruleIBM.IX_GROWTH.21 for a PHIDAM primary index.

Rule exception expression

- EXCEPTION_CLASS(GROWING_INDEX_WITH_DATA_FULL)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The size of an index data set is approaching its limit in %RESOURCE%.

Data elements being evaluated for this rule

```
DBX_PCT_OF_MAX_DS_SIZE &1
DBX_PCT_UNUSED_BYTES   &2
```

Rule threshold sets

Table 125: Rule threshold sets for IBM.IX_GROWTH.20

Threshold set name	Threshold values
LOW	&1 = 75, &2 = 10
MED	&1 = 85, &2 = 10

Threshold set name	Threshold values
HIGH	&1 = 90, &2 = 10

Rule: IBM.IX_GROWTH.21

IBM.IX_GROWTH.21 is a simple rule for evaluating the data growth in a PHIDAM primary index.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.IX_GROWTH.21

Rule description

Data growth in a PHIDAM primary index

Resource types supported

PHIDAM

Exception class

GROWING_INDEX_WITH_DATA_FULL

Rule condition expression

```
OR(
      AND(
        IF(DBX_PCT_OF_MAX_DS_SIZE,GE,
          &1
        )
        IF(DBX_PCT_UNUSED_BYTES,LE,
          &2
        )
      )
    )
```

Rule condition description

Specify a threshold on the percentage of the maximum data set size (DBX_PCT_OF_MAX_DS_SIZE) and a threshold on the percentage of the free space in the data set (DBX_PCT_UNUSED_BYTES) for the primary index data set.

```
DBX_PCT_OF_MAX_DS_SIZE: &1
DBX_PCT_UNUSED_BYTES  : &2
```

An exception is issued if the first threshold is reached or exceeded and the second threshold has reached or fallen below the defined value in the index data set. An exception indicates the possibility that the size of data set is approaching the 4 GB limit.

You can apply this rule only to a PHIDAM primary index.

Use the ruleIBM.IX_GROWTH.20 for a HIDAM primary index, a secondary index, or a PSINDEX partition.

Rule exception expression

- EXCEPTION_CLASS(GROWING_INDEX_WITH_DATA_FULL)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The primary index data set is approaching its size limit in %RESOURCE%.

Data elements being evaluated for this rule

```
DBX_PCT_OF_MAX_DS_SIZE &1
DBX_PCT_UNUSED_BYTES   &2
```

Rule threshold sets

Table 126: Rule threshold sets for IBM.IX_GROWTH.21

Threshold set name	Threshold values
LOW	&1 = 75, &2 = 10
MED	&1 = 85, &2 = 10
HIGH	&1 = 90, &2 = 10

Rule: IBM.IX_CICA_SPLIT.10

IBM.IX_CICA_SPLIT.10 is a simple rule for evaluating the percentage of CI or CA splits in an index primary data set.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.IX_CICA_SPLIT.10

Rule description

CI or CA splits in an index primary data set

Resource types supported

The following resource types are supported by this rule:

- INDEX
- PSINDEX

Exception class

EXCESSIVE_INDEX_CI_OR_CA_SPLITS

Rule condition expression

```
OR(
      IF(DBX_PCT_NUM_CI_SPLIT.1,GE,
        &1
      )
      IF(DBX_PCT_NUM_CA_SPLIT.1,GE,
        &2
      )
    )
```

Rule condition description

Specify thresholds on the percentage of the number of CI splits (DBX_PCT_NUM_CI_SPLIT) and the percentage of the number of CA splits (DBX_PCT_NUM_CA_SPLIT) of the primary data set of an index.

```
DBX_PCT_NUM_CI_SPLIT: &1
DBX_PCT_NUM_CA_SPLIT: &2
```

An exception is issued if one of these thresholds is reached or exceeded.

You can apply this rule to a HIDAM primary index, a secondary index, or a PSINDEX partition.

Use the ruleIBM.IX_CICA_SPLIT.11 for a PHIDAM primary index.

Rule exception expression

- EXCEPTION_CLASS(EXCESSIVE_INDEX_CI_OR_CA_SPLITS)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The number of CI/CA splits of the index primary data set is increasing in %RESOURCE%.

Data elements being evaluated for this rule

```
DBX_PCT_NUM_CI_SPLIT &1
DBX_PCT_NUM_CA_SPLIT &2
```

Rule threshold sets

Table 127: Rule threshold sets for IBM.IX_CICA_SPLIT.10

Threshold set name	Threshold values
LOW	&1 = 20, &2 = 20
MED	&1 = 30, &2 = 30
HIGH	&1 = 40, &2 = 40

Rule: IBM.IX_CICA_SPLIT.11

IBM.IX_CICA_SPLIT.11 is a simple rule for evaluating the percentage of CI or CA splits in a PHIDAM primary index.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.IX_CICA_SPLIT.11

Rule description

CI or CA splits in a PHIDAM primary index

Resource types supported

PHIDAM

Exception class

EXCESSIVE_INDEX_CI_OR_CA_SPLITS

Rule condition expression

```
OR(
      IF(DBX_PCT_NUM_CI_SPLIT,GE,
        &1
      )
      IF(DBX_PCT_NUM_CA_SPLIT,GE,
        &2
      )
    )
```

Rule condition description

Specify thresholds on the percentage of the number of CI splits (DBX_PCT_NUM_CI_SPLIT) and the percentage of the number of CA splits (DBX_PCT_NUM_CA_SPLIT) of the primary index data set of PHIDAM.

```
DBX_PCT_NUM_CI_SPLIT: &1
DBX_PCT_NUM_CA_SPLIT: &2
```

An exception is issued if one of these thresholds is reached or exceeded.

You can apply this rule only to a PHIDAM primary index.

Use the rule IBM.IX_CICA_SPLIT.10 for a HIDAM primary index, a secondary index, or a PSINDEX partition.

Rule exception expression

- EXCEPTION_CLASS(EXCESSIVE_INDEX_CI_OR_CA_SPLITS)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The number of CI/CA splits of the primary index data set is increasing in %RESOURCE%.

Data elements being evaluated for this rule

```
DBX_PCT_NUM_CI_SPLIT &1
DBX_PCT_NUM_CA_SPLIT &2
```

Rule threshold sets

Table 128: Rule threshold sets for IBM.IX_CICA_SPLIT.11

Threshold set name	Threshold values
LOW	&1 = 20, &2 = 20
MED	&1 = 30, &2 = 30

Threshold set name	Threshold values
HIGH	&1 = 40, &2 = 40

Rule: IBM.LAST_REORG.10

IBM.LAST_REORG.10 is a rule for evaluating the number of days that have elapsed since the last reorganization.

Rule template version

The rule template version is indicated by a 4-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.LAST_REORG.10

Rule description

Number of days since the last reorganization.

Resource types supported

- HDAM
- HIDAM
- PHDAM
- PHIDAM
- HISAM
- SHISAM
- DEDB

Exception class

DAYS_PASSED_SINCE_LAST_REORG

Rule condition expression

```
OR(
      IF(DB_DAYS_SINCE_LAST_REORG,GT
        &1
      )
    )
```

Rule condition description

Specify a threshold on the number of days that have passed since the last reorganization.

```
 DB_DAYS_SINCE_LAST_REORG: &1
```

An exception is issued if the threshold is exceeded.

Rule exception expression

- EXCEPTION_CLASS(DAYS_PASSED_SINCE_LAST_REORG)

- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

No reorganization has been performed on %RESOURCE% for a while.

Data elements being evaluated for this rule

```
DB_DAYS_SINCE_LAST_REORG &1
```

Rule threshold sets

Table 129: Rule threshold sets for IBM.LAST_REORG.10

Threshold set name	Threshold values
LOW	&1 = 60
MED	&1 = 180
HIGH	&1 = 365

Rule: IBM.NUM_DBRECORDS.10

IBM.NUM_DBRECORDS.10 is a simple rule for evaluating the number of database records.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.NUM_DBRECORDS.10

Rule description

Total number of database records.

Resource types supported

The following resource types are supported by this rule.

- HDAM
- HIDAM
- PHDAM
- PHIDAM
- HISAM
- SHISAM

Exception class

NUMBER_OF_DB_RECORDS

Rule condition expression

```
OR(
  IF(DB_NUM_ROOT,GE,
    &1
  )
)
```

Rule condition description

Specify a threshold on the total number of root segment occurrences in the database or the partition:

```
DB_NUM_ROOT: &1
```

An exception is issued if the threshold is reached or exceeded. The threshold can be used to measure the growth of the number of database records.

You can apply this rule to a non-partitioned database or a HALDB partition, with the exception of an index or PSINDEX partition.

Rule exception expression

- EXCEPTION_CLASS(NUMBER_OF_DB_RECORDS)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The number of database records in %RESOURCE% has reached or exceeded a threshold

Data elements being evaluated for this rule

```
DB_NUM_ROOT         &1
```

The variable &1 specifies a threshold for the data element value of DB_NUM_ROOT for the database or the HALDB partition.

Rule threshold sets

Table 130: Rule threshold sets for IBM.NUM_DBRECORDS.10

Threshold set name	Threshold values
LOW	&1 = 4294967295
MED	&1 = 4294967295
HIGH	&1 = 4294967295

The default threshold values for the variable &1 are never reached nor exceeded.

It is expected that these values be changed only if you want to monitor the number of database records in the database or the HALDB partition.

Rule: IBM.RAA_DENSITY.10

IBM.RAA_DENSITY.10 is a simple rule for evaluating the data volume in the Root Addressable Area of an HDAM or PHDAM database.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.RAA_DENSITY.10

Rule description

Volume of data in the RAA of HDAM or PHDAM.

> **Important:** This rule is not included in any of the IBM®-supplied REORG Domain policies. You can use this rule in any of the following ways:
>
> - Replace a similar rule in an existing REORG Domain policy
> - Add this rule to one of the existing REORG Domain policies
> - Create a REORG Domain policy and add this rule along with other rules

Resource types supported

The following resource types are supported by this rule.

- HDAM
- PHDAM

Exception class

DATA_VOLUME_IN_HDAM_RAA

Rule condition expression

```
OR(
  IF(DB_BYTES_SEG_RAA,GE,
    &1
  )
)
```

Rule condition description

Specify a threshold on the total bytes of segment occurrences in the root addressable area:

```
DB_BYTES_SEG_RAA: &1
```

An exception is issued if the threshold is reached or exceeded.

You can apply this rule to an HDAM database or a PHDAM partition.

Rule exception expression

- EXCEPTION_CLASS(DATA_VOLUME_IN_HDAM_RAA)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The data volume in the Root Addressable Area of %RESOURCE% has increased

Data elements being evaluated for this rule

```
DB_BYTES_SEG_RAA  &1
```

The variable &1 specifies a threshold for the data element value of DB_BYTES_SEG_RAA for the HDAM database or the PHDAM partition.

Rule threshold sets

Table 131: Rule threshold sets for IBM.RAA_DENSITY.10

Threshold set name	Threshold values
LOW	&1 = 8589934592
MED	&1 = 8589934592
HIGH	&1 = 8589934592

The default threshold values for the variable &1 are never reached nor exceeded.

It is expected that these values be changed only if you want to monitor the total number of bytes in the RAA.

Rule: IBM.RANDOMIZING.10

IBM.RANDOMIZING.10 is a simple rule for evaluating the imbalanced HDAM or PHDAM randomizing.

> **Note:** Imbalanced randomizing refers to Root Anchor Points (RAPs) in an HDAM database or PHDAM partition that are not evenly used in terms of both the RAP usage ratio and the average number of synonyms that occur in each RAP used.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.RANDOMIZING.10

Rule description

Imbalanced randomizing of root segments.

Resource types supported

The following resource types are supported by this rule.

- HDAM
- PHDAM

Exception class

IMBALANCED_RANDOMIZING

Rule condition expression

```
AND(
  IF(DB_PCT_NUM_UNUSED_RAP,GE,
    &1
  )
  IF(DB_PCT_NUM_SYNONYM,GE,
    &2
```

```
   )
)
```

Rule condition description

Specify thresholds on the percentage of unused root anchor points (DB_PCT_NUM_UNUSED_RAP) and the percentage of root segments on synonym chains (DB_PCT_NUM_SYNONYM):

```
DB_PCT_NUM_UNUSED_RAP: &1
DB_PCT_NUM_SYNONYM: &2
```

An exception is issued if both of these thresholds are reached or exceeded. This condition indicates imbalanced randomizing.

You can apply this rule to an HDAM database or a PHDAM partition.

Rule exception expression

- EXCEPTION_CLASS(IMBALANCED_RANDOMIZING)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

Imbalanced randomizing and inefficient use of RAPs have increased in %RESOURCE%

Data elements being evaluated for this rule

```
DB_PCT_NUM_UNUSED_RAP: &1
DB_PCT_NUM_SYNONYM   : &2
```

The following data element values are evaluated for the HDAM database or the PHDAM partition:

- The variable &1 specifies a threshold for the data element value of DB_PCT_NUM_UNUSED_RAP.
- The variable &2 specifies a threshold for the data element value of DB_PCT_NUM_SYNONYM.

Rule threshold sets

Table 132: Rule threshold sets for IBM.RANDOMIZING.10

Threshold set name	Threshold values
LOW	&1 = 20 &2 = 20
MED	&1 = 30 &2 = 30
HIGH	&1 = 40 &2 = 40

Rule: IBM.RAP_SYNONYMS.10

IBM.RAP_SYNONYMS.10 is a simple rule for evaluating the number and the percentage of synonyms for an HDAM or PHDAM database.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.RAP_SYNONYMS.10

Rule description

Number of synonym root segments

Resource types supported

The following resource types are supported by this rule.

- HDAM
- PHDAM

Exception class

EXCESSIVE_RAP_SYNONYMS

Rule condition expression

```
OR(
  IF(DB_NUM_SYNONYM,GE,
    &1
  )
  IF(DB_PCT_NUM_SYNONYM,GE,
    &2
  )
)
```

Rule condition description

Specify thresholds on the amount of root segment occurrences involved in synonym chains of HDAM/PHDAM randomizing. The thresholds can be specified by a number (DB_NUM_SYNONYM) and a percentage (DB_PCT_NUM_SYNONYM):

```
DB_NUM_SYNONYM: &1
DB_PCT_NUM_SYNONYM: &2
```

An exception is issued if one of these thresholds is reached or exceeded:

1. By default, only a threshold on DB_PCT_NUM_SYNONYM is active. If you want to use a threshold on DB_NUM_SYNONYM, set an appropriate value.
2. If you want to monitor imbalanced randomizing, use the rule IBM.RANDOMIZING.10 instead of this rule.

Rule exception expression

- EXCEPTION_CLASS(EXCESSIVE_RAP_SYNONYMS)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The number of synonyms in randomizing has increased in %RESOURCE%

Data elements being evaluated for this rule

```
 DB_NUM_SYNONYM    : &1
 DB_PCT_NUM_SYNONYM: &2
```

The following data element values are evaluated for the HDAM database or the PHDAM partition:

- The variable &1 specifies a threshold for the data element value of DB_NUM_SYNONYM.
- The variable &2 specifies a threshold for the data element value of DB_PCT_NUM_SYNONYM.

Rule threshold sets

Table 133: Rule threshold sets for IBM.RAP_SYNONYMS.10

Threshold set name	Threshold values
LOW	&1 = 4294967295 &2 = 10
MED	&1 = 4294967295 &2 = 20
HIGH	&1 = 4294967295 &2 = 30

The default threshold values for the variable &1 are never reached nor exceeded.

It is expected that these values be changed only if you want to monitor the number, rather than or in addition to the percentage, of synonyms.

Rule: IBM.ROOT_OVERFLOW.10

IBM.ROOT_OVERFLOW.10 is a simple rule for evaluating the number and the percentage of overflowed HDAM or PHDAM roots.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.ROOT_OVERFLOW.10

Rule description

Number of overflowed root segments.

Resource types supported

The following resource types are supported by this rule.

- HDAM
- PHDAM

Exception class

EXCESSIVE_HDAM_ROOTS_OVERFLOW

Rule condition expression

```
OR(
  IF(DB_NUM_ROOT_OVFL,GE,
    &1
  )
  IF(DB_PCT_NUM_ROOT_OVFL,GE,
    &2
  )
)
```

Rule condition description

Specify thresholds on the amount of root segment occurrences located in the overflow area of an HDAM database or a PHDAM partition. The thresholds can be specified by a number (DB_NUM_ROOT_OVFL) and a percentage (DB_PCT_NUM_ROOT_OVFL):

```
DB_NUM_ROOT_OVFL: &1
DB_PCT_NUM_ROOT_OVFL: &2
```

An exception is issued if one of these thresholds is reached or exceeded.

> **Tip:** By default, only a threshold on DB_PCT_NUM_ROOT_OVFL is active. If you want to use a threshold on DB_NUM_ROOT_OVFL, set an appropriate value.

Rule exception expression

- EXCEPTION_CLASS(EXCESSIVE_HDAM_ROOTS_OVERFLOW)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The number or the percentage of roots in the overflow part in %RESOURCE% has increased

Data elements being evaluated for this rule

```
DB_NUM_ROOT_OVFL        &1
DB_PCT_NUM_ROOT_OVFL    &2
```

The following data element values are evaluated for the HDAM database or the PHDAM partition:

- The variable &1 specifies a threshold for the data element value of DB_NUM_ROOT_OVFL.
- The variable &2 specifies a threshold for the data element value of DB_PCT_NUM_ROOT_OVFL.

Rule threshold sets

Table 134: Rule threshold sets for IBM.ROOT_OVERFLOW.10

Threshold set name	Threshold values
LOW	&1 = 1073741824 &2 = 40
MED	&1 = 1073741824 &2 = 50
HIGH	&1 = 1073741824 &2 = 60

The default threshold values for the variable &1 are never reached nor exceeded.

It is expected that these values be changed only if you want to monitor the number, rather than or in addition to the percentage, of root segments in the overflow.

Rule: IBM.ROOTS_NOTHOME.10

IBM.ROOTS_NOTHOME.10 is a simple rule for evaluating the number and the percentage of the roots that are not in home blocks.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.ROOTS_NOTHOME.10

Rule description

Number of roots not in home blocks.

Resource types supported

The following resource types are supported by this rule.

- HDAM
- PHDAM

Exception class

EXCESSIVE_HDAM_ROOTS_NOT_HOME

Rule condition expression

```
OR(
  IF(DB_NUM_ROOT_NOHOME,GE,
    &1
  )
  IF(DB_PCT_NUM_ROOT_NOHOME,GE,
    &2
  )
)
```

Rule condition description

Specify thresholds on the amount of root segment occurrences that are not located in their home blocks. The thresholds can be specified by a number (DB_NUM_ROOT_NOHOME) and a percentage (DB_PCT_NUM_ROOT_NOHOME):

```
DB_NUM_ROOT_NOHOME: &1
DB_PCT_NUM_ROOT_NOHOME: &2
```

An exception is issued if one of these thresholds is reached or exceeded.

You can apply this rule to an HDAM database or a PHDAM partition.

> **Tip:** By default, only a threshold on DB_PCT_NUM_ROOT_NOHOME is active. If you want to use a threshold on DB_NUM_ROOT_NOHOME, set an appropriate value.

Rule exception expression

- EXCEPTION_CLASS(EXCESSIVE_HDAM_ROOTS_NOT_HOME)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The number of roots not in their home blocks in %RESOURCE% has increased

Data elements being evaluated for this rule

```
DB_NUM_ROOT_NOHOME    : &1
DB_PCT_NUM_ROOT_NOHOME: &2
```

The following data element values are evaluated for the HDAM database or the PHDAM partition:

- The variable &1 specifies a threshold for the data element value of DB_NUM_ROOT_NOHOME.
- The variable &2 specifies a threshold for the data element value of DB_PCT_NUM_ROOT_NOHOME.

Rule threshold sets

Table 135: Rule threshold sets for IBM.ROOTS_NOTHOME.10

Threshold set name	Threshold values
LOW	&1 = 4294967295 &2 = 10
MED	&1 = 4294967295 &2 = 20
HIGH	&1 = 4294967295 &2 = 30

The default threshold values for the variable &1 are never reached nor exceeded.

It is expected that these values be changed only if you want to monitor the number, rather than or in addition to the percentage, of root segments that are not in their home blocks.

Rule: IBM.SEGM_COUNT.10

IBM.SEGM_COUNT.10 is a simple rule for evaluating the number of segment occurrences.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.SEGM_COUNT.10

Rule description

Number of segment occurrences.

Important: This rule is not included in any of the IBM®-supplied REORG Domain policies. You can use this rule in any of the following ways:

- Replace a similar rule in an existing REORG Domain policy
- Add this rule to one of the existing REORG Domain policies
- Create a REORG Domain policy and add this rule along with other rules

Resource types supported

The following resource types are supported by this rule.

- HDAM
- HIDAM
- PHDAM
- PHIDAM
- HISAM
- SHISAM

Exception class

EXCESSIVE_SEGMENT_OCCURRENCES

Rule condition expression

```
OR(
  AOR(
    IF(DB_NUM_SEG,GE,
      &1
    )
  )
)
```

Rule condition description

Specify a threshold on the total number of segment occurrences in a database data set:

```
DB_NUM_SEG: &1
```

An exception is issued if the threshold is reached or exceeded in one of the database data sets.

You can apply this rule to a non-partitioned database or a HALDB partition, with the exception of an index or PSINDEX partition.

Rule exception expression

- EXCEPTION_CLASS(EXCESSIVE_SEGMENT_OCCURRENCES)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The number of segments in a data set of %RESOURCE% has reached or exceeded a threshold

Data elements being evaluated for this rule

```
DB_NUM_SEG &1
```

The variable &1 specifies a threshold for the data element value of DB_NUM_SEG for each data set of the database or the HALDB partition.

Rule threshold sets

Table 136: Rule threshold sets for IBM.SEGM_COUNT.10

Threshold set name	Threshold values
LOW	&1 = 4294967295
MED	&1 = 4294967295
HIGH	&1 = 4294967295

The default threshold values for the variable &1 is never reached nor exceeded.

It is expected that these values be changed only if you want to monitor the total number of segments in each data set of the database or the HALDB partition.

Rule: IBM.SEGM_SPREAD.10

IBM.SEGM_SPREAD.10 is a simple rule for evaluating the segment scattering.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.SEGM_SPREAD.10

Rule description

Scattered segment occurrences.

Resource types supported

The following resource types are supported by this rule.

- HDAM
- HIDAM
- PHDAM
- PHIDAM

Exception class

EXCESSIVE_SEGMENT_SCATTERING

Rule condition expression

```
OR(
  AOR(
    IF(DB_PCT_NUM_PTR_DIFF_BLK,GE,
      &1
    )
    IF(DB_NUM_PTR_DIFF_BLK,GE,
      &2
    )
  )
)
```

Rule condition description

Specify thresholds on the amount of physical pointers that point to a different database block. The thresholds can be specified by a percentage (DB_PCT_NUM_PTR_DIFF_BLK) and a number (DB_NUM_PTR_DIFF_BLK):

```
DB_PCT_NUM_PTR_DIFF_BLK: &1
DB_NUM_PTR_DIFF_BLK: &2
```

An exception is issued if one of these thresholds is reached or exceeded in one of the database data sets.

You can apply this rule to a non-partitioned HD database or a PHDAM/PHIDAM partition.

Tip: By default, only a threshold on DB_PCT_NUM_PTR_DIFF_BLK is active. If you want to use a threshold on DB_NUM_PTR_DIFF_BLK, set an appropriate value.

Rule exception expression

- EXCEPTION_CLASS(EXCESSIVE_SEGMENT_SCATTERING)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

A data set of %RESOURCE% has many pointers that point to other blocks or CIs.

Data elements being evaluated for this rule

```
DB_PCT_NUM_PTR_DIFF_BLK: &1
DB_NUM_PTR_DIFF_BLK    : &2
```

The following data element values are evaluated for each data set that composes the database or the HALDB partition:

- The variable &1 specifies a threshold for the data element value of DB_PCT_NUM_PTR_DIFF_BLK for the data set.
- The variable &2 specifies a threshold for the data element value of DB_NUM_PTR_DIFF_BLK for the data set.

Rule threshold sets

Table 137: Rule threshold sets for IBM.SEGM_SPREAD.10

Threshold set name	Threshold values
LOW	&1 = 20 &2 = 2147483648
MED	&1 = 30 &2 = 2147483648
HIGH	&1 = 40 &2 = 2147483648

The default threshold values for the variable &2 are never reached nor exceeded.

It is expected that these values be changed only if you want to monitor the number rather than or in addition to the percentage.

Rule: IBM.SLACK_BYTES.10

IBM.SLACK_BYTES.10 is a simple rule for evaluating the statistics on the slack bytes.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.SLACK_BYTES.10

Rule description

Slack byte occurrences.

Resource types supported

The following resource types are supported by this rule.

- HDAM
- HIDAM
- PHDAM
- PHIDAM

Exception class

EXCESSIVE_SLACK_BYTES

Rule condition expression

```
OR(
  AOR(
    IF(DB_AVG_NUM_UNIDENTIFIED,GE,
      &1
    )
    IF(DB_NUM_UNIDENTIFIED,GE,
      &2
    )
    IF(DB_BYTES_UNIDENTIFIED,GE,
      &3
    )
  )
)
```

Rule condition description

Specify thresholds on the amount of slack-byte elements in a database data set. The thresholds can be specified on the average number of slack-byte elements per database block (DB_AVG_NUM_UNIDENTIFIED), the total number of slack-byte elements in a data set (DB_NUM_UNIDENTIFIED), and the total number of bytes consumed by slack bytes in a data set (DB_BYTES_UNIDENTIFIED):

```
DB_AVG_NUM_UNIDENTIFIED: &1
DB_NUM_UNIDENTIFIED:     &2
DB_BYTES_UNIDENTIFIED:   &3
```

An exception is issued if one of these thresholds is reached or exceeded in one of the database data sets.

You can apply this rule to a non-partitioned HD database or a PHDAM/PHIDAM partition.

> **Tip:** A slack-byte element is a sequence of bytes that is identified neither as a segment nor a free space. It is a space that is not reused by IMS.

Rule exception expression

- EXCEPTION_CLASS(EXCESSIVE_SLACK_BYTES)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The number of unidentified bytes in a data set of %RESOURCE% has reached or exceeded a threshold

Data elements being evaluated for this rule

```
DB_AVG_NUM_UNIDENTIFIED &1
DB_NUM_UNIDENTIFIED     &2
DB_BYTES_UNIDENTIFIED   &3
```

The following data element values are evaluated for each data set that composes the database or the HALDB partition:

- The variable &1 specifies a threshold for the data element value of DB_AVG_NUM_UNIDENTIFIED for the data set.
- The variable &2 specifies a threshold for the data element value of DB_NUM_UNIDENTIFIED for the data set.
- The variable &3 specifies a threshold for the data element value of DB_BYTES_UNIDENTIFIED for the data set.

Rule threshold sets

Table 138: Rule threshold sets for IBM.SLACK_BYTES.10

Threshold set name	Threshold values
LOW	&1 = 20 &2 = 2147483648 &3 = 8589934592
MED	&1 = 30 &2 = 2147483648 &3 = 8589934592
HIGH	&1 = 40 &2 = 2147483648 &3 = 8589934592

The default threshold values for the variable &2 and &3 are never reached nor exceeded.

It is expected that these values be changed only if you want to monitor the number or the total number of bytes, rather than or in addition to the percentage, of the unidentified data in each data set of the database or the HALDB partition.

Rule: IBM.UNUSED_RAPS.10

IBM.UNUSED_RAPS.10 is a simple rule for evaluating the number and the percentage of unused RAPs in an HDAM or PHDAM database.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.UNUSED_RAPS.10

Rule description

Percentage of unused root anchor points.

Important: This rule is not included in any of the IBM®-supplied REORG Domain policies. You can use this rule in any of the following ways:

- Replace a similar rule in an existing REORG Domain policy
- Add this rule to one of the existing REORG Domain policies
- Create a REORG Domain policy and add this rule along with other rules

Resource types supported

The following resource types are supported by this rule.

- HDAM
- PHDAM

Exception class

EXCESSIVE_UNUSED_RAPS

Rule condition expression

```
OR(
  IF(DB_NUM_UNUSED_RAP,GE,
    &1
  )
  IF(DB_PCT_NUM_UNUSED_RAP,GE,
    &2
  )
)
```

Rule condition description

Specify thresholds on the amount of unused root anchor points in an HDAM database or a PHDAM partition. The thresholds can be specified by a number (DB_NUM_UNUSED_RAP) and a percentage (DB_PCT_NUM_UNUSED_RAP):

```
DB_NUM_UNUSED_RAP    : &1
DB_PCT_NUM_UNUSED_RAP: &2
```

An exception is issued if one of these thresholds is reached or exceeded.

Tips:

- By default, only a threshold on DB_PCT_NUM_UNUSED_RAP is active. If you want to use a threshold on DB_NUM_UNUSED_RAP, set an appropriate value.
- If you want to monitor imbalanced randomizing, use the rule IBM.RANDOMIZING.10 instead of this rule.

Rule exception expression

- EXCEPTION_CLASS(EXCESSIVE_UNUSED_RAPS)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The number or the percentage of unused RAPs in %RESOURCE% has increased

Data elements being evaluated for this rule

```
DB_NUM_UNUSED_RAP       &1
DB_PCT_NUM_UNUSED_RAP   &2
```

The following data element values are evaluated for the HDAM database or the PHDAM partition:

- The variable &1 specifies a threshold for the data element value of DB_NUM_UNUSED_RAP.
- The variable &2 specifies a threshold for the data element value of DB_PCT_NUM_UNUSED_RAP.

Rule threshold sets

Table 139: Rule threshold sets for IBM.UNUSED_RAPS.10

Threshold set name	Threshold values
LOW	&1 = 4278189825 &2 = 10
MED	&1 = 4278189825 &2 = 20
HIGH	&1 = 4278189825 &2 = 30

The default threshold values for the variable &1 are never reached nor exceeded.

It is expected that these values be changed only if you want to monitor the number, rather than or in addition to the percentage, of unused RAPs.

Rule: IBM.VL_SEGM_SPLIT.10

IBM.VL_SEGM_SPLIT.10 is a simple rule for evaluating the number and the percentage of variable-length split segments.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

REORG

Rule template type

STANDARD

Rule template name

IBM.VL_SEGM_SPLIT.10

Rule description

Number of variable-length split segments.

Resource types supported

The following resource types are supported by this rule.

- HDAM
- HIDAM
- PHDAM
- PHIDAM

Exception class

EXCESSIVE_VL_SPLIT_SEGMENTS

Rule condition expression

```
OR(
  AOR(
    IF(DB_PCT_NUM_VLSEG_SPLIT,GE,
      &1
    )
    IF(DB_NUM_VLSEG_SPLIT,GE,
      &2
    )
  )
)
```

Rule condition description

Specify thresholds on the amount of variable-length split segments in a database data set. The thresholds can be specified by a percentage (DB_PCT_NUM_VLSEG_SPLIT) and a number (DB_NUM_VLSEG_SPLIT):

```
DB_PCT_NUM_VLSEG_SPLIT: &1
DB_NUM_VLSEG_SPLIT    : &2
```

An exception is issued if one of these thresholds is reached or exceeded in one of the database data sets.

You can apply this rule to a non-partitioned HD database or a PHDAM/PHIDAM partition.

> **Tip:** By default, only a threshold on DB_PCT_NUM_VLSEG_SPLIT is active. If you want to use a threshold on DB_NUM_VLSEG_SPLIT, set an appropriate value.

Rule exception expression

- EXCEPTION_CLASS(EXCESSIVE_VL_SPLIT_SEGMENTS)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The number of variable-length split segments in %RESOURCE% has increased

Data elements being evaluated for this rule

```
DB_PCT_NUM_VLSEG_SPLIT   &1
DB_NUM_VLSEG_SPLIT       &2
```

The following data element values are evaluated for each data set that composes the database or the HALDB partition:

- The variable &1 specifies a threshold for the data element value of DB_PCT_NUM_VLSEG_SPLIT for the data set.
- The variable &2 specifies a threshold for the data element value of DB_NUM_VLSEG_SPLIT for the data set.

Rule threshold sets

Table 140: Rule threshold sets for IBM.VL_SEGM_SPLIT.10

Threshold set name	Threshold values
LOW	&1 = 20 &2 = 4294967295
MED	&1 = 30 &2 = 4294967295
HIGH	&1 = 40 &2 = 4294967295

The default threshold values for the variable &2 are never reached nor exceeded.

It is expected that these values be changed only if you want to monitor the number rather than or in addition to the percentage.

Domain REORG policies

The domain REORG policies are used to evaluate the database state, and specify how Policy Services responds to any events that reach or exceed the threshold values specified for the state.

Policy template version

The policy template version is indicated by a four-byte integer value.

Maintenance messages

A descriptive message within the rule that describes the maintenance history information for this policy.

The initial maintenance message is blank because at initial product installation no maintenance has been applied to the policy.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this policy.

Template original name

The original name of this policy template.

The name always begins with IBM.

Policy domain

Defines the domain for which this policy is intended to be used.

For IMS Database Reorganization Expert, the domain name is REORG.

Policy template type

Defines the policy template type.

Currently, there is only one type: Basic

Policy name

The policy name is same as the name that appears in the title line and is also the same as the template original name.

Policy description

Defines in words what database functionality this policy monitors.

Action description

Show exceptions and associated severity and actions.

Notify reference list

Policies are shipped with no notification lists provided.

You must create your own notification list or lists, and then update this policy to provide one or more of these notification lists.

The list you provide is where the summary notification message is sent.

Resource type list

The resource types are all IMS-supported Hierarchical Direct Access Methods.

Rule list

List of rules associated with this policy. The policy monitors the evaluation of all these rules and takes action when any rule threshold is met or exceeded (exception).

Rule list history

The initial rule list history is blank because no maintenance has been applied to the rule list for this policy.

When maintenance is applied, this field contains information provided by IBM® that describes the addition, deletion, or changes to the rule list for this policy.

Policy: IBM.DBDTYPE.DEDB

IBM.DBDTYPE.DEDB is a predefined IBM® basic policy for DEDB databases.

Policy template version

The policy template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the policy.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this policy.

Template original name

IBM.DBDTYPE.DEDB

Policy domain

REORG

Policy template type

BASIC

Policy name

IBM.DBDTYPE.DEDB

Policy description

DEDB policy

Action description

The action for all exceptions of all severity levels for DEDB is MESSAGE. For a list of the correspondence between exception classes and their originating rules, see “Domain REORG exceptions” on page 338.

Notify reference list

Policies are shipped with no notification lists provided.

You must create your own notification list or lists, and then update this policy to provide one or more notification lists.

Resource type list

The following resource types are supported by this policy:

– DEDB

Rule list

The following table summarizes the default rules used in this policy.

SKIPEVAL means that the evaluation of this rule is skipped if any data that is referred to in the rule cannot be made available at the time of the policy evaluation.

Table 141: Rule list for IBM.DBDTYPE.DEDB

Rule	Threshold set	Severity level	If comparison data is missing:
IBM.DEDB_DBREC_IO.10	HIGH	CRITICAL	SKIPEVAL
IBM.DEDB_DBREC_IO.20	HIGH	CRITICAL	SKIPEVAL
IBM.DEDB_DBRECCNT.10	HIGH	CRITICAL	SKIPEVAL
IBM.DEDB_FS.10	HIGH	CRITICAL	SKIPEVAL
IBM.DEDB_FS.20	HIGH	CRITICAL	SKIPEVAL

Rule	Threshold set	Severity level	If comparison data is missing:
IBM.DEDB_FS.30	HIGH	CRITICAL	SKIPEVAL
IBM.DEDB_FS.40	HIGH	CRITICAL	SKIPEVAL
IBM.DEDB_FS.50	HIGH	CRITICAL	SKIPEVAL
IBM.DEDB_FS.60	HIGH	CRITICAL	SKIPEVAL
IBM.DEDB_FS.70	HIGH	CRITICAL	SKIPEVAL
IBM.DEDB_FS.80	HIGH	CRITICAL	SKIPEVAL
IBM.DEDB_OVERFLOW.10	HIGH	CRITICAL	SKIPEVAL
IBM.DEDB_OVERFLOW.20	HIGH	CRITICAL	SKIPEVAL
IBM.DEDB_OVERFLOW.30	HIGH	CRITICAL	SKIPEVAL
IBM.DEDB_OVERFLOW.40	HIGH	CRITICAL	SKIPEVAL
IBM.DEDB_OVERFLOW.50	HIGH	CRITICAL	SKIPEVAL
IBM.DEDB_OVERFLOW.60	HIGH	CRITICAL	SKIPEVAL
IBM.DEDB_OVERFLOW.70	HIGH	CRITICAL	SKIPEVAL
IBM.DEDB_OVERFLOW.80	HIGH	CRITICAL	SKIPEVAL
IBM.DEDB_OVERFLOW.90	HIGH	CRITICAL	SKIPEVAL
IBM.DEDB_ROOT_IO.10	HIGH	CRITICAL	SKIPEVAL
IBM.DEDB_ROOT_IO.20	HIGH	CRITICAL	SKIPEVAL
IBM.DEDB_SEGM_CNT.10	HIGH	CRITICAL	SKIPEVAL
IBM.DEDB_SYN_LEN.10	HIGH	CRITICAL	SKIPEVAL
IBM.DEDB_SYN_LEN.20	HIGH	CRITICAL	SKIPEVAL
IBM.DEDB_DBREC_IO.10	MED	SEVERE	SKIPEVAL
IBM.DEDB_DBREC_IO.20	MED	SEVERE	SKIPEVAL
IBM.DEDB_DBRECCNT.10	MED	SEVERE	SKIPEVAL
IBM.DEDB_FS.10	MED	SEVERE	SKIPEVAL
IBM.DEDB_FS.20	MED	SEVERE	SKIPEVAL
IBM.DEDB_FS.30	MED	SEVERE	SKIPEVAL
IBM.DEDB_FS.40	MED	SEVERE	SKIPEVAL
IBM.DEDB_FS.50	MED	SEVERE	SKIPEVAL
IBM.DEDB_FS.60	MED	SEVERE	SKIPEVAL
IBM.DEDB_FS.70	MED	SEVERE	SKIPEVAL

Rule	Threshold set	Severity level	If comparison data is missing:
IBM.DEDB_FS.80	MED	SEVERE	SKIPEVAL
IBM.DEDB_OVERFLOW.10	MED	SEVERE	SKIPEVAL
IBM.DEDB_OVERFLOW.20	MED	SEVERE	SKIPEVAL
IBM.DEDB_OVERFLOW.30	MED	SEVERE	SKIPEVAL
IBM.DEDB_OVERFLOW.40	MED	SEVERE	SKIPEVAL
IBM.DEDB_OVERFLOW.50	MED	SEVERE	SKIPEVAL
IBM.DEDB_OVERFLOW.60	MED	SEVERE	SKIPEVAL
IBM.DEDB_OVERFLOW.70	MED	SEVERE	SKIPEVAL
IBM.DEDB_OVERFLOW.80	MED	SEVERE	SKIPEVAL
IBM.DEDB_OVERFLOW.90	MED	SEVERE	SKIPEVAL
IBM.DEDB_ROOT_IO.10	MED	SEVERE	SKIPEVAL
IBM.DEDB_ROOT_IO.20	MED	SEVERE	SKIPEVAL
IBM.DEDB_SEGM_CNT.10	MED	SEVERE	SKIPEVAL
IBM.DEDB_SYN_LEN.10	MED	SEVERE	SKIPEVAL
IBM.DEDB_SYN_LEN.20	MED	SEVERE	SKIPEVAL
IBM.DEDB_DBREC_IO.10	LOW	WARNING	SKIPEVAL
IBM.DEDB_DBREC_IO.20	LOW	WARNING	SKIPEVAL
IBM.DEDB_DBRECCNT.10	LOW	WARNING	SKIPEVAL
IBM.DEDB_FS.10	LOW	WARNING	SKIPEVAL
IBM.DEDB_FS.20	LOW	WARNING	SKIPEVAL
IBM.DEDB_FS.30	LOW	WARNING	SKIPEVAL
IBM.DEDB_FS.40	LOW	WARNING	SKIPEVAL
IBM.DEDB_FS.50	LOW	WARNING	SKIPEVAL
IBM.DEDB_FS.60	LOW	WARNING	SKIPEVAL
IBM.DEDB_FS.70	LOW	WARNING	SKIPEVAL
IBM.DEDB_FS.80	LOW	WARNING	SKIPEVAL
IBM.DEDB_OVERFLOW.10	LOW	WARNING	SKIPEVAL
IBM.DEDB_OVERFLOW.20	LOW	WARNING	SKIPEVAL
IBM.DEDB_OVERFLOW.30	LOW	WARNING	SKIPEVAL
IBM.DEDB_OVERFLOW.40	LOW	WARNING	SKIPEVAL

Rule	Threshold set	Severity level	If comparison data is missing:
IBM.DEDB_OVERFLOW.50	LOW	WARNING	SKIPEVAL
IBM.DEDB_OVERFLOW.60	LOW	WARNING	SKIPEVAL
IBM.DEDB_OVERFLOW.70	LOW	WARNING	SKIPEVAL
IBM.DEDB_OVERFLOW.80	LOW	WARNING	SKIPEVAL
IBM.DEDB_OVERFLOW.90	LOW	WARNING	SKIPEVAL
IBM.DEDB_ROOT_IO.10	LOW	WARNING	SKIPEVAL
IBM.DEDB_ROOT_IO.20	LOW	WARNING	SKIPEVAL
IBM.DEDB_SEGM_CNT.10	LOW	WARNING	SKIPEVAL
IBM.DEDB_SYN_LEN.10	LOW	WARNING	SKIPEVAL
IBM.DEDB_SYN_LEN.20	LOW	WARNING	SKIPEVAL

Rule list history

The initial rule list history is blank because no maintenance has been applied to the rule list for this policy.

When maintenance is applied, this field contains information provided by IBM® that describes the addition, deletion, or changes to the rule list for this policy.

Policy: IBM.DBDTYPE.FFDB

IBM.DBDTYPE.FFDB is a predefined IBM® basic policy for full function databases.

Policy template version

The policy template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the policy.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this policy.

Template original name

IBM.DBDTYPE.FFDB

Policy domain

REORG

Policy template type

BASIC

Policy name

IBM.DBDTYPE.FFDB

Policy description

Full-function database policy

Action description

The following table summarizes exception class and severity level pairs that result in REORG action.

Table 142: REORG action description for exceptions detected by IBM.DBDTYPE.FFDB		
Action	**Exception class**	**Severity**
REORG	GROWING_DBDS_WITH_FREE_SPACES	CRITICAL
REORG	FRAGMENTED_FREE_SPACES	CRITICAL
REORG	EXCESSIVE_SLACK_BYTES	CRITICAL
REORG	EXCESSIVE_VL_SPLIT_SEGMENTS	CRITICAL
REORG	EXCESSIVE_CI_OR_CA_SPLITS	CRITICAL
REORG	EXCESSIVE_HISAM_DELETE_SEGM	CRITICAL

Note: If an exception and severity pair is not found in this table, the default action for that pair is MESSAGE. For a list of the correspondence between exception classes and their originating rules, see "Domain REORG exceptions" on page 338.

Notify reference list

Policies are shipped with no notification lists provided.

You must create your own notification list or lists, and then update this policy to provide one or more notification lists.

Resource type list

The following resource types are supported by this policy:

- HDAM
- HIDAM
- PHDAM
- PHIDAM
- HISAM
- SHISAM

Rule list

The following table summarizes the default rules used in this policy.

SKIPEVAL means that the evaluation of this rule is skipped if any data that is referred to in the rule cannot be made available at the time of the policy evaluation.

EVALUATE means that the evaluation of this rule is made even if a data that is referred to in the rule cannot be made available at the time of the policy evaluation. The comparison of the unavailable data with the threshold value defined for it returns the default result that is determined by the rule condition expression.

Table 143: Rule list for IBM.DBDTYPE.FFDB			
Rule	**Threshold set**	**Severity level**	**If comparison data is missing:**
IBM.NUM_DBRECORDS.10	HIGH	CRITICAL	SKIPEVAL
IBM.AVG_DBREC_LEN.10	HIGH	CRITICAL	SKIPEVAL
IBM.DBDS_EXTENTS.10	HIGH	CRITICAL	EVALUATE
IBM.DBDS_GROWTH.20	HIGH	CRITICAL	SKIPEVAL
IBM.DBDS_GROWTH.30	HIGH	CRITICAL	SKIPEVAL

Rule	Threshold set	Severity level	If comparison data is missing:
IBM.FRAGMENTATION.10	HIGH	CRITICAL	SKIPEVAL
IBM.VL_SEGM_SPLIT.10	HIGH	CRITICAL	SKIPEVAL
IBM.SLACK_BYTES.10	HIGH	CRITICAL	SKIPEVAL
IBM.SEGM_SPREAD.10	HIGH	CRITICAL	SKIPEVAL
IBM.RANDOMIZING.10	HIGH	CRITICAL	SKIPEVAL
IBM.RAP_SYNONYMS.10	HIGH	CRITICAL	SKIPEVAL
IBM.ROOTS_NOTHOME.10	HIGH	CRITICAL	SKIPEVAL
IBM.HDAM_OVERFLOW.10	HIGH	CRITICAL	SKIPEVAL
IBM.ROOT_OVERFLOW.10	HIGH	CRITICAL	SKIPEVAL
IBM.CICA_SPLITS.10	HIGH	CRITICAL	SKIPEVAL
IBM.HISAM_SEG_DEL.10	HIGH	CRITICAL	EVALUATE
IBM.NUM_DBRECORDS.10	MED	SEVERE	SKIPEVAL
IBM.AVG_DBREC_LEN.10	MED	SEVERE	SKIPEVAL
IBM.DBDS_EXTENTS.10	MED	SEVERE	EVALUATE
IBM.DBDS_GROWTH.20	MED	SEVERE	SKIPEVAL
IBM.DBDS_GROWTH.30	MED	SEVERE	SKIPEVAL
IBM.FRAGMENTATION.10	MED	SEVERE	SKIPEVAL
IBM.VL_SEGM_SPLIT.10	MED	SEVERE	SKIPEVAL
IBM.SLACK_BYTES.10	MED	SEVERE	SKIPEVAL
IBM.SEGM_SPREAD.10	MED	SEVERE	SKIPEVAL
IBM.RANDOMIZING.10	MED	SEVERE	SKIPEVAL
IBM.RAP_SYNONYMS.10	MED	SEVERE	SKIPEVAL
IBM.ROOTS_NOTHOME.10	MED	SEVERE	SKIPEVAL
IBM.HDAM_OVERFLOW.10	MED	SEVERE	SKIPEVAL
IBM.ROOT_OVERFLOW.10	MED	SEVERE	SKIPEVAL
IBM.CICA_SPLITS.10	MED	SEVERE	SKIPEVAL
IBM.HISAM_SEG_DEL.10	MED	SEVERE	EVALUATE
IBM.NUM_DBRECORDS.10	LOW	WARNING	SKIPEVAL
IBM.AVG_DBREC_LEN.10	LOW	WARNING	SKIPEVAL
IBM.DBDS_EXTENTS.10	LOW	WARNING	EVALUATE

Rule	Threshold set	Severity level	If comparison data is missing:
IBM.DBDS_GROWTH.20	LOW	WARNING	SKIPEVAL
IBM.DBDS_GROWTH.30	LOW	WARNING	SKIPEVAL
IBM.FRAGMENTATION.10	LOW	WARNING	SKIPEVAL
IBM.VL_SEGM_SPLIT.10	LOW	WARNING	SKIPEVAL
IBM.SLACK_BYTES.10	LOW	WARNING	SKIPEVAL
IBM.SEGM_SPREAD.10	LOW	WARNING	SKIPEVAL
IBM.RANDOMIZING.10	LOW	WARNING	SKIPEVAL
IBM.RAP_SYNONYMS.10	LOW	WARNING	SKIPEVAL
IBM.ROOTS_NOTHOME.10	LOW	WARNING	SKIPEVAL
IBM.HDAM_OVERFLOW.10	LOW	WARNING	SKIPEVAL
IBM.ROOT_OVERFLOW.10	LOW	WARNING	SKIPEVAL
IBM.CICA_SPLITS.10	LOW	WARNING	SKIPEVAL
IBM.HISAM_SEG_DEL.10	LOW	WARNING	EVALUATE

Rule list history

The initial rule list history is blank because no maintenance has been applied to the rule list for this policy.

When maintenance is applied, this field contains information provided by IBM® that describes the addition, deletion, or changes to the rule list for this policy.

Policy: IBM.DBDTYPE.FFDBALL

IBM.DBDTYPE.FFDBALL is a predefined IBM® basic policy for full function databases and index databases.

Policy template version

The policy template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the policy.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this policy.

Template original name

IBM.DBDTYPE.FFDBALL

Policy domain

REORG

Policy template type

BASIC

Policy name

IBM.DBDTYPE.FFDBALL

Policy description

Full-function database and index policy

Action description

The following table summarizes exception class and severity level pairs that result in REORG action.

Table 144: REORG action description for exceptions detected by IBM.DBDTYPE.FFDBALL

Action	Exception class	Severity
REORG	GROWING_DBDS_WITH_FREE_SPACES	CRITICAL
REORG	FRAGMENTED_FREE_SPACES	CRITICAL
REORG	EXCESSIVE_SLACK_BYTES	CRITICAL
REORG	EXCESSIVE_VL_SPLIT_SEGMENTS	CRITICAL
REORG	EXCESSIVE_CI_OR_CA_SPLITS	CRITICAL
REORG	EXCESSIVE_HISAM_DELETE_SEGM	CRITICAL
REORG	DAYS_PASSED_SINCE_LAST_REORG	CRITICAL
INDEXBLD	EXCESSIVE_INDEX_CI_OR_CA_SPLITS	CRITICAL

Note: If an exception and severity pair is not found in this table, the default action for that pair is MESSAGE. For a list of the correspondence between exception classes and their originating rules, see "Domain REORG exceptions" on page 338.

Notify reference list

Policies are shipped with no notification lists provided.

You must create your own notification list or lists, and then update this policy to provide one or more notification lists.

Resource type list

The following resource types are supported by this policy:

- HDAM
- HIDAM
- PHDAM
- PHIDAM
- HISAM
- SHISAM

Rule list

The following table summarizes the default rules used in this policy.

SKIPEVAL means that the evaluation of this rule is skipped if any data that is referred to in the rule cannot be made available at the time of the policy evaluation.

EVALUATE means that the evaluation of this rule is made even if a data that is referred to in the rule cannot be made available at the time of the policy evaluation. The comparison of the unavailable data with the threshold value defined for it returns the default result that is determined by the rule condition expression.

Table 145: Rule list for IBM.DBDTYPE.FFDBALL

Rule	Threshold set	Severity level	If comparison data is missing:
IBM.NUM_DBRECORDS.10	HIGH	CRITICAL	SKIPEVAL

Rule	Threshold set	Severity level	If comparison data is missing:
IBM.AVG_DBREC_LEN.10	HIGH	CRITICAL	SKIPEVAL
IBM.DBDS_EXTENTS.10	HIGH	CRITICAL	EVALUATE
IBM.DBDS_GROWTH.20	HIGH	CRITICAL	SKIPEVAL
IBM.DBDS_GROWTH.30	HIGH	CRITICAL	SKIPEVAL
IBM.FRAGMENTATION.10	HIGH	CRITICAL	SKIPEVAL
IBM.VL_SEGM_SPLIT.10	HIGH	CRITICAL	SKIPEVAL
IBM.SLACK_BYTES.10	HIGH	CRITICAL	SKIPEVAL
IBM.SEGM_SPREAD.10	HIGH	CRITICAL	SKIPEVAL
IBM.RANDOMIZING.10	HIGH	CRITICAL	SKIPEVAL
IBM.RAP_SYNONYMS.10	HIGH	CRITICAL	SKIPEVAL
IBM.ROOTS_NOTHOME.10	HIGH	CRITICAL	SKIPEVAL
IBM.HDAM_OVERFLOW.10	HIGH	CRITICAL	SKIPEVAL
IBM.ROOT_OVERFLOW.10	HIGH	CRITICAL	SKIPEVAL
IBM.CICA_SPLITS.10	HIGH	CRITICAL	SKIPEVAL
IBM.HISAM_SEG_DEL.10	HIGH	CRITICAL	EVALUATE
IBM.IX_NUM_SEGM.10	HIGH	CRITICAL	SKIPEVAL
IBM.IX_OVERFLOW.10	HIGH	CRITICAL	SKIPEVAL
IBM.IX_EXTENTS.10	HIGH	CRITICAL	EVALUATE
IBM.IX_GROWTH.10	HIGH	CRITICAL	SKIPEVAL
IBM.IX_GROWTH.20	HIGH	CRITICAL	SKIPEVAL
IBM.IX_CICA_SPLIT.10	HIGH	CRITICAL	SKIPEVAL
IBM.IX_EXTENTS.11	HIGH	CRITICAL	EVALUATE
IBM.IX_GROWTH.11	HIGH	CRITICAL	SKIPEVAL
IBM.IX_GROWTH.21	HIGH	CRITICAL	SKIPEVAL
IBM.IX_CICA_SPLIT.11	HIGH	CRITICAL	SKIPEVAL
IBM.NUM_DBRECORDS.10	MED	SEVERE	SKIPEVAL
IBM.AVG_DBREC_LEN.10	MED	SEVERE	SKIPEVAL
IBM.DBDS_EXTENTS.10	MED	SEVERE	EVALUATE
IBM.DBDS_GROWTH.20	MED	SEVERE	SKIPEVAL
IBM.DBDS_GROWTH.30	MED	SEVERE	SKIPEVAL

Rule	Threshold set	Severity level	If comparison data is missing:
IBM.FRAGMENTATION.10	MED	SEVERE	SKIPEVAL
IBM.VL_SEGM_SPLIT.10	MED	SEVERE	SKIPEVAL
IBM.SLACK_BYTES.10	MED	SEVERE	SKIPEVAL
IBM.SEGM_SPREAD.10	MED	SEVERE	SKIPEVAL
IBM.RANDOMIZING.10	MED	SEVERE	SKIPEVAL
IBM.RAP_SYNONYMS.10	MED	SEVERE	SKIPEVAL
IBM.ROOTS_NOTHOME.10	MED	SEVERE	SKIPEVAL
IBM.HDAM_OVERFLOW.10	MED	SEVERE	SKIPEVAL
IBM.ROOT_OVERFLOW.10	MED	SEVERE	SKIPEVAL
IBM.CICA_SPLITS.10	MED	SEVERE	SKIPEVAL
IBM.HISAM_SEG_DEL.10	MED	SEVERE	EVALUATE
IBM.IX_NUM_SEGM.10	MED	SEVERE	SKIPEVAL
IBM.IX_OVERFLOW.10	MED	SEVERE	SKIPEVAL
IBM.IX_EXTENTS.10	MED	SEVERE	EVALUATE
IBM.IX_GROWTH.10	MED	SEVERE	SKIPEVAL
IBM.IX_GROWTH.20	MED	SEVERE	SKIPEVAL
IBM.IX_CICA_SPLIT.10	MED	SEVERE	SKIPEVAL
IBM.IX_EXTENTS.11	MED	SEVERE	EVALUATE
IBM.IX_GROWTH.11	MED	SEVERE	SKIPEVAL
IBM.IX_GROWTH.21	MED	SEVERE	SKIPEVAL
IBM.IX_CICA_SPLIT.11	MED	SEVERE	SKIPEVAL
IBM.NUM_DBRECORDS.10	LOW	WARNING	SKIPEVAL
IBM.AVG_DBREC_LEN.10	LOW	WARNING	SKIPEVAL
IBM.DBDS_EXTENTS.10	LOW	WARNING	EVALUATE
IBM.DBDS_GROWTH.20	LOW	WARNING	SKIPEVAL
IBM.DBDS_GROWTH.30	LOW	WARNING	SKIPEVAL
IBM.FRAGMENTATION.10	LOW	WARNING	SKIPEVAL
IBM.VL_SEGM_SPLIT.10	LOW	WARNING	SKIPEVAL
IBM.SLACK_BYTES.10	LOW	WARNING	SKIPEVAL
IBM.SEGM_SPREAD.10	LOW	WARNING	SKIPEVAL

Rule	Threshold set	Severity level	If comparison data is missing:
IBM.RANDOMIZING.10	LOW	WARNING	SKIPEVAL
IBM.RAP_SYNONYMS.10	LOW	WARNING	SKIPEVAL
IBM.ROOTS_NOTHOME.10	LOW	WARNING	SKIPEVAL
IBM.HDAM_OVERFLOW.10	LOW	WARNING	SKIPEVAL
IBM.ROOT_OVERFLOW.10	LOW	WARNING	SKIPEVAL
IBM.CICA_SPLITS.10	LOW	WARNING	SKIPEVAL
IBM.HISAM_SEG_DEL.10	LOW	WARNING	EVALUATE
IBM.IX_NUM_SEGM.10	LOW	WARNING	SKIPEVAL
IBM.IX_OVERFLOW.10	LOW	WARNING	SKIPEVAL
IBM.IX_EXTENTS.10	LOW	WARNING	EVALUATE
IBM.IX_GROWTH.10	LOW	WARNING	SKIPEVAL
IBM.IX_GROWTH.20	LOW	WARNING	SKIPEVAL
IBM.IX_CICA_SPLIT.10	LOW	WARNING	SKIPEVAL
IBM.IX_EXTENTS.11	LOW	WARNING	EVALUATE
IBM.IX_GROWTH.11	LOW	WARNING	SKIPEVAL
IBM.IX_GROWTH.21	LOW	WARNING	SKIPEVAL
IBM.IX_CICA_SPLIT.11	LOW	WARNING	SKIPEVAL

Rule list history

The initial rule list history is blank because no maintenance has been applied to the rule list for this policy.

When maintenance is applied, this field contains information provided by IBM® that describes the addition, deletion, or changes to the rule list for this policy.

Policy: IBM.DBDTYPE.HDAM

IBM.DBDTYPE.HDAM is a predefined IBM® basic policy for HDAM databases.

Policy template version

The policy template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the policy.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this policy.

Template original name

IBM.DBDTYPE.HDAM

Policy domain

REORG

Policy template type

BASIC

Policy name

IBM.DBDTYPE.HDAM

Policy description

HDAM database policy.

Action description

The following table summarizes exception class and severity level pairs that result in REORG action.

Table 146: REORG action description for exceptions detected by IBM.DBDTYPE.HDAM

Action	Exception class	Severity
REORG	GROWING_DBDS_WITH_FREE_SPACES	CRITICAL
REORG	FRAGMENTED_FREE_SPACES	CRITICAL
REORG	EXCESSIVE_SLACK_BYTES	CRITICAL
REORG	EXCESSIVE_VL_SPLIT_SEGMENTS	CRITICAL

Note: If an exception and severity pair is not found in this table, the default action for that pair is MESSAGE. For a list of the correspondence between exception classes and their originating rules, see "Domain REORG exceptions" on page 338.

Notify reference list

Policies are shipped with no notification lists provided.

You must create your own notification list or lists, and then update this policy to provide one or more notification lists.

Resource types supported

The following resource types are supported by this policy:

- HDAM

Rule list

The following table summarizes the default rules used in this policy.

SKIPEVAL means that the evaluation of this rule is skipped if any data that is referred to in the rule cannot be made available at the time of the policy evaluation.

EVALUATE means that the evaluation of this rule is made even if a data that is referred to in the rule cannot be made available at the time of the policy evaluation. The comparison of the unavailable data with the threshold value defined for it returns the default result that is determined by the rule condition expression.

Table 147: Rule list for IBM.DBDTYPE.HDAM

Rule	Threshold set	Severity level	If comparison data is missing:
IBM.NUM_DBRECORDS.10	HIGH	CRITICAL	SKIPEVAL
IBM.AVG_DBREC_LEN.10	HIGH	CRITICAL	SKIPEVAL
IBM.DBDS_EXTENTS.10	HIGH	CRITICAL	EVALUATE
IBM.DBDS_GROWTH.20	HIGH	CRITICAL	SKIPEVAL
IBM.DBDS_GROWTH.30	HIGH	CRITICAL	SKIPEVAL

Rule	Threshold set	Severity level	If comparison data is missing:
IBM.FRAGMENTATION.10	HIGH	CRITICAL	SKIPEVAL
IBM.VL_SEGM_SPLIT.10	HIGH	CRITICAL	SKIPEVAL
IBM.SLACK_BYTES.10	HIGH	CRITICAL	SKIPEVAL
IBM.SEGM_SPREAD.10	HIGH	CRITICAL	SKIPEVAL
IBM.RANDOMIZING.10	HIGH	CRITICAL	SKIPEVAL
IBM.RAP_SYNONYMS.10	HIGH	CRITICAL	SKIPEVAL
IBM.ROOTS_NOTHOME.10	HIGH	CRITICAL	SKIPEVAL
IBM.HDAM_OVERFLOW.10	HIGH	CRITICAL	SKIPEVAL
IBM.ROOT_OVERFLOW.10	HIGH	CRITICAL	SKIPEVAL
IBM.NUM_DBRECORDS.10	MED	SEVERE	SKIPEVAL
IBM.AVG_DBREC_LEN.10	MED	SEVERE	SKIPEVAL
IBM.DBDS_EXTENTS.10	MED	SEVERE	EVALUATE
IBM.DBDS_GROWTH.20	MED	SEVERE	SKIPEVAL
IBM.DBDS_GROWTH.30	MED	SEVERE	SKIPEVAL
IBM.FRAGMENTATION.10	MED	SEVERE	SKIPEVAL
IBM.VL_SEGM_SPLIT.10	MED	SEVERE	SKIPEVAL
IBM.SLACK_BYTES.10	MED	SEVERE	SKIPEVAL
IBM.SEGM_SPREAD.10	MED	SEVERE	SKIPEVAL
IBM.RANDOMIZING.10	MED	SEVERE	SKIPEVAL
IBM.RAP_SYNONYMS.10	MED	SEVERE	SKIPEVAL
IBM.ROOTS_NOTHOME.10	MED	SEVERE	SKIPEVAL
IBM.HDAM_OVERFLOW.10	MED	SEVERE	SKIPEVAL
IBM.ROOT_OVERFLOW.10	MED	SEVERE	SKIPEVAL
IBM.NUM_DBRECORDS.10	LOW	WARNING	SKIPEVAL
IBM.AVG_DBREC_LEN.10	LOW	WARNING	SKIPEVAL
IBM.DBDS_EXTENTS.10	LOW	WARNING	EVALUATE
IBM.DBDS_GROWTH.20	LOW	WARNING	SKIPEVAL
IBM.DBDS_GROWTH.30	LOW	WARNING	SKIPEVAL
IBM.FRAGMENTATION.10	LOW	WARNING	SKIPEVAL
IBM.VL_SEGM_SPLIT.10	LOW	WARNING	SKIPEVAL

Rule	Threshold set	Severity level	If comparison data is missing:
IBM.SLACK_BYTES.10	LOW	WARNING	SKIPEVAL
IBM.SEGM_SPREAD.10	LOW	WARNING	SKIPEVAL
IBM.RANDOMIZING.10	LOW	WARNING	SKIPEVAL
IBM.RAP_SYNONYMS.10	LOW	WARNING	SKIPEVAL
IBM.ROOTS_NOTHOME.10	LOW	WARNING	SKIPEVAL
IBM.HDAM_OVERFLOW.10	LOW	WARNING	SKIPEVAL
IBM.ROOT_OVERFLOW.10	LOW	WARNING	SKIPEVAL

Rule list history

The initial rule list history is blank because no maintenance has been applied to the rule list for this policy.

When maintenance is applied, this field contains information provided by IBM® that describes the addition, deletion, or changes to the rule list for this policy.

Policy: IBM.DBDTYPE.HDDB

IBM.DBDTYPE.HDDB is a predefined IBM® basic policy for HD databases.

Policy template version

The policy template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the policy.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this policy.

Template original name

IBM.DBDTYPE.HDDB

Policy domain

REORG

Policy template type

BASIC

Policy name

IBM.DBDTYPE.HDDB

Policy description

HD database policy.

Action description

The following table summarizes exception class and severity level pairs that result in REORG action.

Table 148: REORG action description for exceptions detected by IBM.DBDTYPE.HDDB

Action	Exception class	Severity
REORG	GROWING_DBDS_WITH_FREE_SPACES	CRITICAL
REORG	FRAGMENTED_FREE_SPACES	CRITICAL

Action	Exception class	Severity
REORG	EXCESSIVE_SLACK_BYTES	CRITICAL
REORG	EXCESSIVE_VL_SPLIT_SEGMENTS	CRITICAL

Note: If an exception and severity pair is not found in this table, the default action for that pair is MESSAGE. For a list of the correspondence between exception classes and their originating rules, see "Domain REORG exceptions" on page 338.

Notify reference list

Policies are shipped with no notification lists provided.

You must create your own notification list or lists, and then update this policy to provide one or more notification lists.

Resource types supported

The following resource types are supported by this policy:

- HDAM
- PHDAM
- HIDAM
- PHIDAM

Rule list

The following table summarizes the default rules used in this policy.

SKIPEVAL means that the evaluation of this rule is skipped if any data that is referred to in the rule cannot be made available at the time of the policy evaluation.

EVALUATE means that the evaluation of this rule is made even if a data that is referred to in the rule cannot be made available at the time of the policy evaluation. The comparison of the unavailable data with the threshold value defined for it returns the default result that is determined by the rule condition expression.

Table 149: Rule list for IBM.DBDTYPE.HDDB

Rule	Threshold set	Severity level	If comparison data is missing:
IBM.NUM_DBRECORDS.10	HIGH	CRITICAL	SKIPEVAL
IBM.AVG_DBREC_LEN.10	HIGH	CRITICAL	SKIPEVAL
IBM.DBDS_EXTENTS.10	HIGH	CRITICAL	EVALUATE
IBM.DBDS_GROWTH.20	HIGH	CRITICAL	SKIPEVAL
IBM.DBDS_GROWTH.30	HIGH	CRITICAL	SKIPEVAL
IBM.FRAGMENTATION.10	HIGH	CRITICAL	SKIPEVAL
IBM.VL_SEGM_SPLIT.10	HIGH	CRITICAL	SKIPEVAL
IBM.SLACK_BYTES.10	HIGH	CRITICAL	SKIPEVAL
IBM.SEGM_SPREAD.10	HIGH	CRITICAL	SKIPEVAL
IBM.RANDOMIZING.10	HIGH	CRITICAL	SKIPEVAL
IBM.RAP_SYNONYMS.10	HIGH	CRITICAL	SKIPEVAL

Rule	Threshold set	Severity level	If comparison data is missing:
IBM.ROOTS_NOTHOME.10	HIGH	CRITICAL	SKIPEVAL
IBM.HDAM_OVERFLOW.10	HIGH	CRITICAL	SKIPEVAL
IBM.ROOT_OVERFLOW.10	HIGH	CRITICAL	SKIPEVAL
IBM.NUM_DBRECORDS.10	MED	SEVERE	SKIPEVAL
IBM.AVG_DBREC_LEN.10	MED	SEVERE	SKIPEVAL
IBM.DBDS_EXTENTS.10	MED	SEVERE	EVALUATE
IBM.DBDS_GROWTH.20	MED	SEVERE	SKIPEVAL
IBM.DBDS_GROWTH.30	MED	SEVERE	SKIPEVAL
IBM.FRAGMENTATION.10	MED	SEVERE	SKIPEVAL
IBM.VL_SEGM_SPLIT.10	MED	SEVERE	SKIPEVAL
IBM.SLACK_BYTES.10	MED	SEVERE	SKIPEVAL
IBM.SEGM_SPREAD.10	MED	SEVERE	SKIPEVAL
IBM.RANDOMIZING.10	MED	SEVERE	SKIPEVAL
IBM.RAP_SYNONYMS.10	MED	SEVERE	SKIPEVAL
IBM.ROOTS_NOTHOME.10	MED	SEVERE	SKIPEVAL
IBM.HDAM_OVERFLOW.10	MED	SEVERE	SKIPEVAL
IBM.ROOT_OVERFLOW.10	MED	SEVERE	SKIPEVAL
IBM.NUM_DBRECORDS.10	LOW	WARNING	SKIPEVAL
IBM.AVG_DBREC_LEN.10	LOW	WARNING	SKIPEVAL
IBM.DBDS_EXTENTS.10	LOW	WARNING	EVALUATE
IBM.DBDS_GROWTH.20	LOW	WARNING	SKIPEVAL
IBM.DBDS_GROWTH.30	LOW	WARNING	SKIPEVAL
IBM.FRAGMENTATION.10	LOW	WARNING	SKIPEVAL
IBM.VL_SEGM_SPLIT.10	LOW	WARNING	SKIPEVAL
IBM.SLACK_BYTES.10	LOW	WARNING	SKIPEVAL
IBM.SEGM_SPREAD.10	LOW	WARNING	SKIPEVAL
IBM.RANDOMIZING.10	LOW	WARNING	SKIPEVAL
IBM.RAP_SYNONYMS.10	LOW	WARNING	SKIPEVAL
IBM.ROOTS_NOTHOME.10	LOW	WARNING	SKIPEVAL
IBM.HDAM_OVERFLOW.10	LOW	WARNING	SKIPEVAL

Rule	Threshold set	Severity level	If comparison data is missing:
IBM.ROOT_OVERFLOW.10	LOW	WARNING	SKIPEVAL

Rule list history

The initial rule list history is blank because no maintenance has been applied to the rule list for this policy.

When maintenance is applied, this field contains information provided by IBM® that describes the addition, deletion, or changes to the rule list for this policy.

Policy: IBM.DBDTYPE.HIDAM

IBM.DBDTYPE.HIDAM is a predefined IBM® basic policy for HIDAM databases.

Policy template version

The policy template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the policy.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this policy.

Template original name

IBM.DBDTYPE.HIDAM

Policy domain

REORG

Policy template type

BASIC

Policy name

IBM.DBDTYPE.HIDAM

Policy description

HIDAM database policy.

Action description

The following table summarizes exception class and severity level pairs that result in REORG action.

Table 150: REORG action description for exceptions detected by IBM.DBDTYPE.HIDAM

Action	Exception class	Severity
REORG	GROWING_DBDS_WITH_FREE_SPACES	CRITICAL
REORG	FRAGMENTED_FREE_SPACES	CRITICAL
REORG	EXCESSIVE_SLACK_BYTES	CRITICAL
REORG	EXCESSIVE_VL_SPLIT_SEGMENTS	CRITICAL

Note: If an exception and severity pair is not found in this table, the default action for that pair is MESSAGE. For a list of the correspondence between exception classes and their originating rules, see “Domain REORG exceptions” on page 338.

Notify reference list

Policies are shipped with no notification lists provided.

You must create your own notification list or lists, and then update this policy to provide one or more notification lists.

Resource types supported

The following resource types are supported by this policy:

– HIDAM

Rule list

The following table summarizes the default rules used in this policy.

SKIPEVAL means that the evaluation of this rule is skipped if any data that is referred to in the rule cannot be made available at the time of the policy evaluation.

EVALUATE means that the evaluation of this rule is made even if a data that is referred to in the rule cannot be made available at the time of the policy evaluation. The comparison of the unavailable data with the threshold value defined for it returns the default result that is determined by the rule condition expression.

Table 151: Rule list for IBM.DBDTYPE.HIDAM

Rule	Threshold set	Severity level	If comparison data is missing:
IBM.NUM_DBRECORDS.10	HIGH	CRITICAL	SKIPEVAL
IBM.AVG_DBREC_LEN.10	HIGH	CRITICAL	SKIPEVAL
IBM.DBDS_EXTENTS.10	HIGH	CRITICAL	EVALUATE
IBM.DBDS_GROWTH.20	HIGH	CRITICAL	SKIPEVAL
IBM.DBDS_GROWTH.30	HIGH	CRITICAL	SKIPEVAL
IBM.FRAGMENTATION.10	HIGH	CRITICAL	SKIPEVAL
IBM.VL_SEGM_SPLIT.10	HIGH	CRITICAL	SKIPEVAL
IBM.SLACK_BYTES.10	HIGH	CRITICAL	SKIPEVAL
IBM.SEGM_SPREAD.10	HIGH	CRITICAL	SKIPEVAL
IBM.NUM_DBRECORDS.10	MED	SEVERE	SKIPEVAL
IBM.AVG_DBREC_LEN.10	MED	SEVERE	SKIPEVAL
IBM.DBDS_EXTENTS.10	MED	SEVERE	EVALUATE
IBM.DBDS_GROWTH.20	MED	SEVERE	SKIPEVAL
IBM.DBDS_GROWTH.30	MED	SEVERE	SKIPEVAL
IBM.FRAGMENTATION.10	MED	SEVERE	SKIPEVAL
IBM.VL_SEGM_SPLIT.10	MED	SEVERE	SKIPEVAL
IBM.SLACK_BYTES.10	MED	SEVERE	SKIPEVAL
IBM.SEGM_SPREAD.10	MED	SEVERE	SKIPEVAL
IBM.NUM_DBRECORDS.10	LOW	WARNING	SKIPEVAL
IBM.AVG_DBREC_LEN.10	LOW	WARNING	SKIPEVAL
IBM.DBDS_EXTENTS.10	LOW	WARNING	EVALUATE

Rule	Threshold set	Severity level	If comparison data is missing:
IBM.DBDS_GROWTH.20	LOW	WARNING	SKIPEVAL
IBM.DBDS_GROWTH.30	LOW	WARNING	SKIPEVAL
IBM.FRAGMENTATION.10	LOW	WARNING	SKIPEVAL
IBM.VL_SEGM_SPLIT.10	LOW	WARNING	SKIPEVAL
IBM.SLACK_BYTES.10	LOW	WARNING	SKIPEVAL
IBM.SEGM_SPREAD.10	LOW	WARNING	SKIPEVAL

Rule list history

The initial rule list history is blank because no maintenance has been applied to the rule list for this policy.

When maintenance is applied, this field contains information provided by IBM® that describes the addition, deletion, or changes to the rule list for this policy.

Policy: IBM.DBDTYPE.HISAM

IBM.DBDTYPE.HISAM is a predefined IBM® basic policy for HISAM databases.

Policy template version

The policy template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the policy.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this policy.

Template original name

IBM.DBDTYPE.HISAM

Policy domain

REORG

Policy template type

BASIC

Policy name

IBM.DBDTYPE.HISAM

Policy description

HISAM database policy.

Action description

The following table summarizes exception class and severity level pairs that result in REORG action.

Table 152: REORG action description for exceptions detected by IBM.DBDTYPE.HISAM

Action	Exception class	Severity
REORG	GROWING_DBDS_WITH_FREE_SPACES	CRITICAL
REORG	EXCESSIVE_CI_OR_CA_SPLITS	CRITICAL
REORG	EXCESSIVE_HISAM_DELETE_SEGM	CRITICAL

Note: If an exception and severity pair is not found in this table, the default action for that pair is MESSAGE. For a list of the correspondence between exception classes and their originating rules, see "Domain REORG exceptions" on page 338.

Resource types supported

The following resource types are supported by this policy:

– HISAM

Notify reference list

Policies are shipped with no notification lists provided.

You must create your own notification list or lists, and then update this policy to provide one or more notification lists.

Rule list

The following table summarizes the default rules used in this policy.

SKIPEVAL means that the evaluation of this rule is skipped if any data that is referred to in the rule cannot be made available at the time of the policy evaluation.

EVALUATE means that the evaluation of this rule is made even if a data that is referred to in the rule cannot be made available at the time of the policy evaluation. The comparison of the unavailable data with the threshold value defined for it returns the default result that is determined by the rule condition expression.

Table 153: Rule list for IBM.DBDTYPE.HISAM

Rule	Threshold set	Severity level	If comparison data is missing:
IBM.NUM_DBRECORDS.10	HIGH	CRITICAL	SKIPEVAL
IBM.AVG_DBREC_LEN.10	HIGH	CRITICAL	SKIPEVAL
IBM.DBDS_EXTENTS.10	HIGH	CRITICAL	EVALUATE
IBM.DBDS_GROWTH.20	HIGH	CRITICAL	SKIPEVAL
IBM.DBDS_GROWTH.30	HIGH	CRITICAL	SKIPEVAL
IBM.CICA_SPLITS.10	HIGH	CRITICAL	SKIPEVAL
IBM.HISAM_SEG_DEL.10	HIGH	CRITICAL	EVALUATE
IBM.NUM_DBRECORDS.10	MED	SEVERE	SKIPEVAL
IBM.AVG_DBREC_LEN.10	MED	SEVERE	SKIPEVAL
IBM.DBDS_EXTENTS.10	MED	SEVERE	EVALUATE
IBM.DBDS_GROWTH.20	MED	SEVERE	SKIPEVAL
IBM.DBDS_GROWTH.30	MED	SEVERE	SKIPEVAL
IBM.CICA_SPLITS.10	MED	SEVERE	SKIPEVAL
IBM.HISAM_SEG_DEL.10	MED	SEVERE	EVALUATE
IBM.NUM_DBRECORDS.10	LOW	WARNING	SKIPEVAL
IBM.AVG_DBREC_LEN.10	LOW	WARNING	SKIPEVAL
IBM.DBDS_EXTENTS.10	LOW	WARNING	EVALUATE

Rule	Threshold set	Severity level	If comparison data is missing:
IBM.DBDS_GROWTH.20	LOW	WARNING	SKIPEVAL
IBM.DBDS_GROWTH.30	LOW	WARNING	SKIPEVAL
IBM.CICA_SPLITS.10	LOW	WARNING	SKIPEVAL
IBM.HISAM_SEG_DEL.10	LOW	WARNING	EVALUATE

Rule list history

The initial rule list history is blank because no maintenance has been applied to the rule list for this policy.

When maintenance is applied, this field contains information provided by IBM® that describes the addition, deletion, or changes to the rule list for this policy.

Policy: IBM.DBDTYPE.INDEX

IBM.DBDTYPE.INDEX is a predefined IBM® basic policy for non-partitioned index databases.

Policy template version

The policy template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the policy.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this policy.

Template original name

IBM.DBDTYPE.INDEX

Policy domain

REORG

Policy template type

BASIC

Policy name

IBM.DBDTYPE.INDEX

Policy description

Index policy for non-partitioned index.

Action description

The following table summarizes exception class and severity level pairs that result in REORG action.

Table 154: REORG action description for exceptions detected by IBM.DBDTYPE.INDEX

Action	Exception class	Severity
INDEXBLD	EXCESSIVE_INDEX_CI_OR_CA_SPLITS	CRITICAL
MESSAGE	*	*

Note: If an exception and severity pair is not found in this table, the default action for that pair is MESSAGE. For a list of the correspondence between exception classes and their originating rules, see “Domain REORG exceptions” on page 338.

Notify reference list

Policies are shipped with no notification lists provided.

You must create your own notification list or lists, and then update this policy to provide one or more notification lists.

Resource type list

The following resource types are supported by this policy:

– INDEX

Rule list

The following table summarizes the default rules used in this policy.

SKIPEVAL means that the evaluation of this rule is skipped if any data that is referred to in the rule cannot be made available at the time of the policy evaluation.

EVALUATE means that the evaluation of this rule is made even if a data that is referred to in the rule cannot be made available at the time of the policy evaluation. The comparison of the unavailable data with the threshold value defined for it returns the default result that is determined by the rule condition expression.

Table 155: Rule list for IBM.DBDTYPE.INDEX

Rule	Threshold set	Severity level	If comparison data is missing:
IBM.IX_NUM_SEGM.10	HIGH	CRITICAL	SKIPEVAL
IBM.IX_OVERFLOW.10	HIGH	CRITICAL	SKIPEVAL
IBM.IX_EXTENTS.10	HIGH	CRITICAL	EVALUATE
IBM.IX_GROWTH.10	HIGH	CRITICAL	SKIPEVAL
IBM.IX_GROWTH.20	HIGH	CRITICAL	SKIPEVAL
IBM.IX_CICA_SPLIT.10	HIGH	CRITICAL	SKIPEVAL
IBM.IX_NUM_SEGM.10	MED	SEVERE	SKIPEVAL
IBM.IX_OVERFLOW.10	MED	SEVERE	SKIPEVAL
IBM.IX_EXTENTS.10	MED	SEVERE	EVALUATE
IBM.IX_GROWTH.10	MED	SEVERE	SKIPEVAL
IBM.IX_GROWTH.20	MED	SEVERE	SKIPEVAL
IBM.IX_CICA_SPLIT.10	MED	SEVERE	SKIPEVAL
IBM.IX_NUM_SEGM.10	LOW	WARNING	SKIPEVAL
IBM.IX_OVERFLOW.10	LOW	WARNING	SKIPEVAL
IBM.IX_EXTENTS.10	LOW	WARNING	EVALUATE
IBM.IX_GROWTH.10	LOW	WARNING	SKIPEVAL
IBM.IX_GROWTH.20	LOW	WARNING	SKIPEVAL
IBM.IX_CICA_SPLIT.10	LOW	WARNING	SKIPEVAL

Rule list history

The initial rule list history is blank because no maintenance has been applied to the rule list for this policy.

When maintenance is applied, this field contains information provided by IBM® that describes the addition, deletion, or changes to the rule list for this policy.

Policy: IBM.DBDTYPE.PHDAM

IBM.DBDTYPE.PHDAM is a predefined IBM® basic policy for PHDAM partitions.

Policy template version

The policy template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the policy.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this policy.

Template original name

IBM.DBDTYPE.PHDAM

Policy domain

REORG

Policy template type

BASIC

Policy name

IBM.DBDTYPE.PHDAM

Policy description

PHDAM partition policy.

Action description

The following table summarizes exception class and severity level pairs that result in REORG action.

Table 156: REORG action description for exceptions detected by IBM.DBDTYPE.PHDAM

Action	Exception class	Severity
REORG	GROWING_DBDS_WITH_FREE_SPACES	CRITICAL
REORG	FRAGMENTED_FREE_SPACES	CRITICAL
REORG	EXCESSIVE_SLACK_BYTES	CRITICAL
REORG	EXCESSIVE_VL_SPLIT_SEGMENTS	CRITICAL

Note: If an exception and severity pair is not found in this table, the default action for that pair is MESSAGE. For a list of the correspondence between exception classes and their originating rules, see "Domain REORG exceptions" on page 338.

Notify reference list

Policies are shipped with no notification lists provided.

You must create your own notification list or lists, and then update this policy to provide one or more notification lists.

Resource type list

The following resource type is supported by this policy:

- PHDAM

Rule list

The following table summarizes the default rules used in this policy.

SKIPEVAL means that the evaluation of this rule is skipped if any data that is referred to in the rule cannot be made available at the time of the policy evaluation.

EVALUATE means that the evaluation of this rule is made even if a data that is referred to in the rule cannot be made available at the time of the policy evaluation. The comparison of the unavailable data with the threshold value defined for it returns the default result that is determined by the rule condition expression.

Table 157: Rule list for IBM.DBDTYPE.PHDAM

Rule	Threshold set	Severity level	If comparison data is missing:
NUM_DBRECORDS.10	HIGH	CRITICAL	SKIPEVAL
AVG_DBREC_LEN.10	HIGH	CRITICAL	SKIPEVAL
DBDS_EXTENTS.10	HIGH	CRITICAL	EVALUATE
DBDS_GROWTH.20	HIGH	CRITICAL	SKIPEVAL
DBDS_GROWTH.30	HIGH	CRITICAL	SKIPEVAL
FRAGMENTATION.10	HIGH	CRITICAL	SKIPEVAL
VL_SEGM_SPLIT.10	HIGH	CRITICAL	SKIPEVAL
SLACK_BYTES.10	HIGH	CRITICAL	SKIPEVAL
SEGM_SPREAD.10	HIGH	CRITICAL	SKIPEVAL
RANDOMIZING.10	HIGH	CRITICAL	SKIPEVAL
RAP_SYNONYMS.10	HIGH	CRITICAL	SKIPEVAL
ROOTS_NOTHOME.10	HIGH	CRITICAL	SKIPEVAL
HDAM_OVERFLOW.10	HIGH	CRITICAL	SKIPEVAL
ROOT_OVERFLOW.10	HIGH	CRITICAL	SKIPEVAL
NUM_DBRECORDS.10	MED	SEVERE	SKIPEVAL
AVG_DBREC_LEN.10	MED	SEVERE	SKIPEVAL
DBDS_EXTENTS.10	MED	SEVERE	EVALUATE
DBDS_GROWTH.20	MED	SEVERE	SKIPEVAL
DBDS_GROWTH.30	MED	SEVERE	SKIPEVAL
FRAGMENTATION.10	MED	SEVERE	SKIPEVAL
VL_SEGM_SPLIT.10	MED	SEVERE	SKIPEVAL
SLACK_BYTES.10	MED	SEVERE	SKIPEVAL
SEGM_SPREAD.10	MED	SEVERE	SKIPEVAL
RANDOMIZING.10	MED	SEVERE	SKIPEVAL
RAP_SYNONYMS.10	MED	SEVERE	SKIPEVAL

Rule	Threshold set	Severity level	If comparison data is missing:
ROOTS_NOTHOME.10	MED	SEVERE	SKIPEVAL
HDAM_OVERFLOW.10	MED	SEVERE	SKIPEVAL
ROOT_OVERFLOW.10	MED	SEVERE	SKIPEVAL
NUM_DBRECORDS.10	LOW	WARNING	SKIPEVAL
AVG_DBREC_LEN.10	LOW	WARNING	SKIPEVAL
DBDS_EXTENTS.10	LOW	WARNING	EVALUATE
DBDS_GROWTH.20	LOW	WARNING	SKIPEVAL
DBDS_GROWTH.30	LOW	WARNING	SKIPEVAL
FRAGMENTATION.10	LOW	WARNING	SKIPEVAL
VL_SEGM_SPLIT.10	LOW	WARNING	SKIPEVAL
SLACK_BYTES.10	LOW	WARNING	SKIPEVAL
SEGM_SPREAD.10	LOW	WARNING	SKIPEVAL
RANDOMIZING.10	LOW	WARNING	SKIPEVAL
RAP_SYNONYMS.10	LOW	WARNING	SKIPEVAL
ROOTS_NOTHOME.10	LOW	WARNING	SKIPEVAL
HDAM_OVERFLOW.10	LOW	WARNING	SKIPEVAL
ROOT_OVERFLOW.10	LOW	WARNING	SKIPEVAL

Rule list history

The initial rule list history is blank because no maintenance has been applied to the rule list for this policy.

When maintenance is applied, this field contains information provided by IBM® that describes the addition, deletion, or changes to the rule list for this policy.

Policy: IBM.DBDTYPE.PHIDAM

IBM.DBDTYPE.PHIDAM is a predefined IBM® basic policy for PHIDAM partitions.

Policy template version

The policy template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the policy.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this policy.

Template original name

IBM.DBDTYPE.PHIDAM

Policy domain

REORG

Policy template type

BASIC

Policy name

IBM.DBDTYPE.PHIDAM

Policy description

PHIDAM partition policy.

Action description

The following table summarizes exception class and severity level pairs that result in REORG action.

Table 158: REORG action description for exceptions detected by IBM.DBDTYPE.PHIDAM

Action	Exception class	Severity
REORG	GROWING_DBDS_WITH_FREE_SPACES	CRITICAL
REORG	FRAGMENTED_FREE_SPACES	CRITICAL
REORG	EXCESSIVE_SLACK_BYTES	CRITICAL
REORG	EXCESSIVE_VL_SPLIT_SEGMENTS	CRITICAL

Note: If an exception and severity pair is not found in this table, the default action for that pair is MESSAGE. For a list of the correspondence between exception classes and their originating rules, see "Domain REORG exceptions" on page 338.

Resource types supported

The following resource types are supported by this policy:

- PHIDAM

Notify reference list

Policies are shipped with no notification lists provided.

You must create your own notification list or lists, and then update this policy to provide one or more notification lists.

Rule list

The following table summarizes the default rules used in this policy.

SKIPEVAL means that the evaluation of this rule is skipped if any data that is referred to in the rule cannot be made available at the time of the policy evaluation.

EVALUATE means that the evaluation of this rule is made even if a data that is referred to in the rule cannot be made available at the time of the policy evaluation. The comparison of the unavailable data with the threshold value defined for it returns the default result that is determined by the rule condition expression.

Table 159: Rule list for IBM.DBDTYPE.PHIDAM

Rule	Threshold set	Severity level	If comparison data is missing:
IBM.NUM_DBRECORDS.10	HIGH	CRITICAL	SKIPEVAL
IBM.AVG_DBREC_LEN.10	HIGH	CRITICAL	SKIPEVAL
IBM.DBDS_EXTENTS.10	HIGH	CRITICAL	EVALUATE
IBM.DBDS_GROWTH.20	HIGH	CRITICAL	SKIPEVAL
IBM.DBDS_GROWTH.30	HIGH	CRITICAL	SKIPEVAL

Rule	Threshold set	Severity level	If comparison data is missing:
IBM.FRAGMENTATION.10	HIGH	CRITICAL	SKIPEVAL
IBM.VL_SEGM_SPLIT.10	HIGH	CRITICAL	SKIPEVAL
IBM.SLACK_BYTES.10	HIGH	CRITICAL	SKIPEVAL
IBM.SEGM_SPREAD.10	HIGH	CRITICAL	SKIPEVAL
IBM.NUM_DBRECORDS.10	MED	SEVERE	SKIPEVAL
IBM.AVG_DBREC_LEN.10	MED	SEVERE	SKIPEVAL
IBM.DBDS_EXTENTS.10	MED	SEVERE	EVALUATE
IBM.DBDS_GROWTH.20	MED	SEVERE	SKIPEVAL
IBM.DBDS_GROWTH.30	MED	SEVERE	SKIPEVAL
IBM.FRAGMENTATION.10	MED	SEVERE	SKIPEVAL
IBM.VL_SEGM_SPLIT.10	MED	SEVERE	SKIPEVAL
IBM.SLACK_BYTES.10	MED	SEVERE	SKIPEVAL
IBM.SEGM_SPREAD.10	MED	SEVERE	SKIPEVAL
IBM.NUM_DBRECORDS.10	LOW	WARNING	SKIPEVAL
IBM.AVG_DBREC_LEN.10	LOW	WARNING	SKIPEVAL
IBM.DBDS_EXTENTS.10	LOW	WARNING	EVALUATE
IBM.DBDS_GROWTH.20	LOW	WARNING	SKIPEVAL
IBM.DBDS_GROWTH.30	LOW	WARNING	SKIPEVAL
IBM.FRAGMENTATION.10	LOW	WARNING	SKIPEVAL
IBM.VL_SEGM_SPLIT.10	LOW	WARNING	SKIPEVAL
IBM.SLACK_BYTES.10	LOW	WARNING	SKIPEVAL
IBM.SEGM_SPREAD.10	LOW	WARNING	SKIPEVAL

Rule list history

The initial rule list history is blank because no maintenance has been applied to the rule list for this policy.

When maintenance is applied, this field contains information provided by IBM® that describes the addition, deletion, or changes to the rule list for this policy.

Policy: IBM.DBDTYPE.PHIDAM.A

IBM.DBDTYPE.PHIDAM.A is a predefined IBM® basic policy for PHIDAM partitions and index databases.

Policy template version

The policy template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the policy.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this policy.

Template original name

IBM.DBDTYPE.PHIDAM.A

Policy domain

REORG

Policy template type

BASIC

Policy name

IBM.DBDTYPE.PHIDAM.A

Policy description

PHIDAM partition policy with index rules

Action description

The following table summarizes exception class and severity level pairs that result in REORG action.

Table 160: REORG action description for exceptions detected by IBM.DBDTYPE.PHIDAM.A

Action	Exception class	Severity
REORG	GROWING_DBDS_WITH_FREE_SPACES	CRITICAL
REORG	FRAGMENTED_FREE_SPACES	CRITICAL
REORG	EXCESSIVE_SLACK_BYTES	CRITICAL
REORG	EXCESSIVE_VL_SPLIT_SEGMENTS	CRITICAL
INDEXBLD	EXCESSIVE_INDEX_CI_OR_CA_SPLITS	CRITICAL
MESSAGE	*	*

Note: If an exception and severity pair is not found in this table, the default action for that pair is MESSAGE. For a list of the correspondence between exception classes and their originating rules, see “Domain REORG exceptions” on page 338.

Notify reference list

Policies are shipped with no notification lists provided.

You must create your own notification list or lists, and then update this policy to provide one or more notification lists.

Resource type list

The following resource types are supported by this policy:

- PHIDAM

Rule list

The following table summarizes the default rules used in this policy.

SKIPEVAL means that the evaluation of this rule is skipped if any data that is referred to in the rule cannot be made available at the time of the policy evaluation.

EVALUATE means that the evaluation of this rule is made even if a data that is referred to in the rule cannot be made available at the time of the policy evaluation. The comparison of the unavailable data with the threshold value defined for it returns the default result that is determined by the rule condition expression.

Table 161: Rule list for IBM.DBDTYPE.PHIDAM.A			
Rule	**Threshold set**	**Severity level**	**If comparison data is missing:**
IBM.NUM_DBRECORDS.10	HIGH	CRITICAL	SKIPEVAL
IBM.AVG_DBREC_LEN.10	HIGH	CRITICAL	SKIPEVAL
IBM.DBDS_EXTENTS.10	HIGH	CRITICAL	EVALUATE
IBM.DBDS_GROWTH.20	HIGH	CRITICAL	SKIPEVAL
IBM.DBDS_GROWTH.30	HIGH	CRITICAL	SKIPEVAL
IBM.FRAGMENTATION.10	HIGH	CRITICAL	SKIPEVAL
IBM.VL_SEGM_SPLIT.10	HIGH	CRITICAL	SKIPEVAL
IBM.SLACK_BYTES.10	HIGH	CRITICAL	SKIPEVAL
IBM.SEGM_SPREAD.10	HIGH	CRITICAL	SKIPEVAL
IBM.IX_NUM_SEGM.10	HIGH	CRITICAL	SKIPEVAL
IBM.IX_EXTENTS.11	HIGH	CRITICAL	EVALUATE
IBM.IX_GROWTH.11	HIGH	CRITICAL	SKIPEVAL
IBM.IX_GROWTH.21	HIGH	CRITICAL	SKIPEVAL
IBM.IX_CICA_SPLIT.11	HIGH	CRITICAL	SKIPEVAL
IBM.NUM_DBRECORDS.10	MED	SEVERE	SKIPEVAL
IBM.AVG_DBREC_LEN.10	MED	SEVERE	SKIPEVAL
IBM.DBDS_EXTENTS.10	MED	SEVERE	EVALUATE
IBM.DBDS_GROWTH.20	MED	SEVERE	SKIPEVAL
IBM.DBDS_GROWTH.30	MED	SEVERE	SKIPEVAL
IBM.FRAGMENTATION.10	MED	SEVERE	SKIPEVAL
IBM.VL_SEGM_SPLIT.10	MED	SEVERE	SKIPEVAL
IBM.SLACK_BYTES.10	MED	SEVERE	SKIPEVAL
IBM.SEGM_SPREAD.10	MED	SEVERE	SKIPEVAL
IBM.IX_NUM_SEGM.10	MED	SEVERE	SKIPEVAL
IBM.IX_EXTENTS.11	MED	SEVERE	EVALUATE
IBM.IX_GROWTH.11	MED	SEVERE	SKIPEVAL
IBM.IX_GROWTH.21	MED	SEVERE	SKIPEVAL
IBM.IX_CICA_SPLIT.11	MED	SEVERE	SKIPEVAL
IBM.NUM_DBRECORDS.10	LOW	WARNING	SKIPEVAL

Rule	Threshold set	Severity level	If comparison data is missing:
IBM.AVG_DBREC_LEN.10	LOW	WARNING	SKIPEVAL
IBM.DBDS_EXTENTS.10	LOW	WARNING	EVALUATE
IBM.DBDS_GROWTH.20	LOW	WARNING	SKIPEVAL
IBM.DBDS_GROWTH.30	LOW	WARNING	SKIPEVAL
IBM.FRAGMENTATION.10	LOW	WARNING	SKIPEVAL
IBM.VL_SEGM_SPLIT.10	LOW	WARNING	SKIPEVAL
IBM.SLACK_BYTES.10	LOW	WARNING	SKIPEVAL
IBM.SEGM_SPREAD.10	LOW	WARNING	SKIPEVAL
IBM.IX_NUM_SEGM.10	LOW	WARNING	SKIPEVAL
IBM.IX_EXTENTS.11	LOW	WARNING	EVALUATE
IBM.IX_GROWTH.11	LOW	WARNING	SKIPEVAL
IBM.IX_GROWTH.21	LOW	WARNING	SKIPEVAL
IBM.IX_CICA_SPLIT.11	LOW	WARNING	SKIPEVAL

Rule list history

The initial rule list history is blank because no maintenance has been applied to the rule list for this policy.

When maintenance is applied, this field contains information provided by IBM® that describes the addition, deletion, or changes to the rule list for this policy.

Policy: IBM.DBDTYPE.PSINDEX

IBM.DBDTYPE.PSINDEX is a predefined IBM® basic policy for PSINDEX partitions.

Policy template version

The policy template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the policy.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this policy.

Template original name

IBM.DBDTYPE.PSINDEX

Policy domain

REORG

Policy template type

BASIC

Policy name

IBM.DBDTYPE.PSINDEX

Policy description

Index policy for PSINDEX partition

Action description

The following table summarizes exception class and severity level pairs that result in REORG action.

Table 162: REORG action description for exceptions detected by IBM.DBDTYPE.PSINDEX

Action	Exception class	Severity
INDEXBLD	EXCESSIVE_INDEX_CI_OR_CA_SPLITS	CRITICAL
MESSAGE	*	*

Note: If an exception and severity pair is not found in this table, the default action for that pair is MESSAGE. For a list of the correspondence between exception classes and their originating rules, see "Domain REORG exceptions" on page 338.

Notify reference list

Policies are shipped with no notification lists provided.

You must create your own notification list or lists, and then update this policy to provide one or more notification lists.

Resource type list

The following resource types are supported by this policy:

- PSINDEX

Rule list

The following table summarizes the default rules used in this policy.

SKIPEVAL means that the evaluation of this rule is skipped if any data that is referred to in the rule cannot be made available at the time of the policy evaluation.

EVALUATE means that the evaluation of this rule is made even if a data that is referred to in the rule cannot be made available at the time of the policy evaluation. The comparison of the unavailable data with the threshold value defined for it returns the default result that is determined by the rule condition expression.

Table 163: Rule list for IBM.DBDTYPE.PSINDEX

Rule	Threshold set	Severity level	If comparison data is missing:
IBM.IX_NUM_SEGM.10	HIGH	CRITICAL	SKIPEVAL
IBM.IX_OVERFLOW.10	HIGH	CRITICAL	SKIPEVAL
IBM.IX_EXTENTS.10	HIGH	CRITICAL	EVALUATE
IBM.IX_GROWTH.10	HIGH	CRITICAL	SKIPEVAL
IBM.IX_GROWTH.20	HIGH	CRITICAL	SKIPEVAL
IBM.IX_CICA_SPLIT.10	HIGH	CRITICAL	SKIPEVAL
IBM.IX_NUM_SEGM.10	MED	SEVERE	SKIPEVAL
IBM.IX_OVERFLOW.10	MED	SEVERE	SKIPEVAL
IBM.IX_EXTENTS.10	MED	SEVERE	EVALUATE
IBM.IX_GROWTH.10	MED	SEVERE	SKIPEVAL
IBM.IX_GROWTH.20	MED	SEVERE	SKIPEVAL

Rule	Threshold set	Severity level	If comparison data is missing:
IBM.IX_CICA_SPLIT.10	MED	SEVERE	SKIPEVAL
IBM.IX_NUM_SEGM.10	LOW	WARNING	SKIPEVAL
IBM.IX_OVERFLOW.10	LOW	WARNING	SKIPEVAL
IBM.IX_EXTENTS.10	LOW	WARNING	EVALUATE
IBM.IX_GROWTH.10	LOW	WARNING	SKIPEVAL
IBM.IX_GROWTH.20	LOW	WARNING	SKIPEVAL
IBM.IX_CICA_SPLIT.10	LOW	WARNING	SKIPEVAL

Rule list history

The initial rule list history is blank because no maintenance has been applied to the rule list for this policy.

When maintenance is applied, this field contains information provided by IBM® that describes the addition, deletion, or changes to the rule list for this policy.

Policy: IBM.DBDTYPE.SHISAM

IBM.DBDTYPE.SHISAM is a predefined IBM® basic policy for SHISAM databases.

Policy template version

The policy template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the policy.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this policy.

Template original name

IBM.DBDTYPE.SHISAM

Policy domain

REORG

Policy template type

BASIC

Policy name

IBM.DBDTYPE.SHISAM

Policy description

SHISAM database policy.

Action description

The following table summarizes exception class and severity level pairs that result in REORG action.

Table 164: REORG action description for exceptions detected by IBM.DBDTYPE.SHISAM

Action	Exception class	Severity
REORG	GROWING_DBDS_WITH_FREE_SPACES	CRITICAL
REORG	EXCESSIVE_CI_OR_CA_SPLITS	CRITICAL

Note: If an exception and severity pair is not found in this table, the default action for that pair is MESSAGE. For a list of the correspondence between exception classes and their originating rules, see "Domain REORG exceptions" on page 338.

Resource types supported

The following resource types are supported by this policy:

- SHISAM

Notify reference list

Policies are shipped with no notification lists provided.

You must create your own notification list or lists, and then update this policy to provide one or more notification lists.

Rule list

The following table summarizes the default rules used in this policy.

SKIPEVAL means that the evaluation of this rule is skipped if any data that is referred to in the rule cannot be made available at the time of the policy evaluation.

EVALUATE means that the evaluation of this rule is made even if a data that is referred to in the rule cannot be made available at the time of the policy evaluation. The comparison of the unavailable data with the threshold value defined for it returns the default result that is determined by the rule condition expression.

Table 165: Rule list for IBM.DBDTYPE.SHISAM

Rule	Threshold set	Severity level	If comparison data is missing:
IBM.NUM_DBRECORDS.10	HIGH	CRITICAL	SKIPEVAL
IBM.AVG_DBREC_LEN.10	HIGH	CRITICAL	SKIPEVAL
IBM.DBDS_EXTENTS.10	HIGH	CRITICAL	EVALUATE
IBM.DBDS_GROWTH.20	HIGH	CRITICAL	SKIPEVAL
IBM.DBDS_GROWTH.30	HIGH	CRITICAL	SKIPEVAL
IBM.CICA_SPLITS.10	HIGH	CRITICAL	SKIPEVAL
IBM.NUM_DBRECORDS.10	MED	SEVERE	SKIPEVAL
IBM.AVG_DBREC_LEN.10	MED	SEVERE	SKIPEVAL
IBM.DBDS_EXTENTS.10	MED	SEVERE	EVALUATE
IBM.DBDS_GROWTH.20	MED	SEVERE	SKIPEVAL
IBM.DBDS_GROWTH.30	MED	SEVERE	SKIPEVAL
IBM.CICA_SPLITS.10	MED	SEVERE	SKIPEVAL
IBM.NUM_DBRECORDS.10	LOW	WARNING	SKIPEVAL
IBM.AVG_DBREC_LEN.10	LOW	WARNING	SKIPEVAL
IBM.DBDS_EXTENTS.10	LOW	WARNING	EVALUATE
IBM.DBDS_GROWTH.20	LOW	WARNING	SKIPEVAL
IBM.DBDS_GROWTH.30	LOW	WARNING	SKIPEVAL

Rule	Threshold set	Severity level	If comparison data is missing:
IBM.CICA_SPLITS.10	LOW	WARNING	SKIPEVAL

Rule list history

The initial rule list history is blank because no maintenance has been applied to the rule list for this policy.

When maintenance is applied, this field contains information provided by IBM® that describes the addition, deletion, or changes to the rule list for this policy.

Domain REORG exceptions

The domain REORG exceptions define the response to any database state that crosses the defined threshold boundaries.

Table 166: Exceptions for the REORG policy domain

Exception class	Exception description	Originating rule
AVERAGE_DB_RECORD_LENGTH	Excessive average length of database records	IBM.AVG_DBREC_LEN.10
DATA_SET_EXTENTS_AVAILABILITY	Limited availability of data set extents	IBM.DBDS_EXTENTS.10
DATA_SET_SIZE_GROWTH	Excessive growth in one or more data sets	IBM.DBDS_GROWTH.10
DATA_VOLUME_IN_HDAM_RAA	Excessive volume of data in root addressable area	IBM.RAA_DENSITY.10
DEDB_FREE_SPACE_AVAIL_IN_RAA	Insufficient free space available in RAA BASE	IBM.DEDB_FS.10
DEDB_FREE_SPACE_AVAIL_IN_DOVF	Insufficient free space available in DOVF	IBM.DEDB_FS.20
DEDB_FREE_SPACE_AVAIL_IN_IOVF	Insufficient free space available in IOVF	IBM.DEDB_FS.30
DEDB_FREE_SPACE_IN_RAA_VS_DOVF	Insufficient free space in DOVF compared to RAA	IBM.DEDB_FS.40
DEDB_FREE_SPACE_IN_RAA_VS_IOVF	Insufficient free space in IOVF compared to RAA	IBM.DEDB_FS.50
DEDB_FREE_SPACE_AVAIL_IN_OVFLOW	Insufficient free space in the overflow part	IBM.DEDB_FS.60
DEDB_FREE_SPACE_IN_RAA_VS_OVFLOW	Insufficient free space in OVFLOW compared to RAA	IBM.DEDB_FS.70
DEDB_FREE_SPACE_AVAIL_IN_SDEP	Insufficient free space available in SDEP	IBM.DEDB_FS.80
DEDB_EXCESSIVE_AVG_NUM_RECORD_IO	Excessive average number of I/Os per DB record	IBM.DEDB_DBREC_IO.10
DEDB_DBRECORD_WITH_EXCESSIVE_IO	DB record that requires excessive number of I/Os	IBM.DEDB_DBREC_IO.20

Exception class	Exception description	Originating rule
DEDB_EXCESSIVE_AVG_NUM_ROOT_IO	Excessive average number of I/Os per root segment	IBM.DEDB_ROOT_IO.10
DEDB_ROOT_SEGMENT_WITH_EXCESS_IO	Root segment that requires excessive number of I/O	IBM.DEDB_ROOT_IO.20
DEDB_EXCESSIVE_AVG_LEN_SYNONYMS	Excessive average length of RAP synonym chains	IBM.DEDB_SYN_LEN.10
DEDB_LONG_SYNONYM_CHAIN	Excessive length of a RAP synonym chain	IBM.DEDB_SYN_LEN.20
DEDB_EXCESS_PCT_UOWS_USING_DOVF	Excessive number of UOWs that use DOVF CIs	IBM.DEDB_OVERFLOW.10
DEDB_EXCESS_PCT_UOWS_USING_IOVF	Excessive percentage of UOWs that use IOVF CIs	IBM.DEDB_OVERFLOW.20
DEDB_EXCESS_NUM_UOWS_USING_IOVF	Excessive number of UOWs that use IOVF CIs	IBM.DEDB_OVERFLOW.30
DEDB_EXCESS_AVG_IOVF_CI_PER_UOW	Excessive average number of IOVF CIs per UOW	IBM.DEDB_OVERFLOW.40
DEDB_UOW_USING_EXCESSIVE_IOVF_CI	UOW that uses excessive number of IOVF CIs	IBM.DEDB_OVERFLOW.50
DEDB_EXCESS_MIN_IOVF_CI_PER_UOW	Excessive use of IOVF CIs by every UOW	IBM.DEDB_OVERFLOW.60
DEDB_EXCESSIVE_IOVF_CI_USED	Excessive number of IOVF CIs used	IBM.DEDB_OVERFLOW.70
DEDB_EXCESS_RAP_CI_USING_OVFLOW	Excessive number of RAP CIs that use overflow	IBM.DEDB_OVERFLOW.80
DEDB_EXCESSIVE_DBREC_USING_IOVF	Excessive number of DB records that use IOVF	IBM.DEDB_OVERFLOW.90
EXCESSIVE_CI_OR_CA_SPLITS	Excessive number of VSAM CI/CA splits	IBM.CICA_SPLITS.10
EXCESSIVE_UNUSED_RAPS	Excessive number of unused root anchor points	IBM.UNUSED_RAPS.10
EXCESSIVE_HDAM_ROOTS_NOT_HOME	Excessive number of roots not in home blocks	IBM.ROOTS_NOTHOME.10
EXCESSIVE_HDAM_OVERFLOW	Excessive volume of data in (P)HDAM overflow area	IBM.HDAM_OVERFLOW.10
EXCESSIVE_HDAM_ROOTS_OVERFLOW	Excessive number of roots in (P)HDAM overflow area	IBM.ROOT_OVERFLOW.10
EXCESSIVE_HISAM_DELETE_SEGM	Excessive number of deleted segments in HISAM	IBM.HISAM_SEG_DEL.10
EXCESSIVE_INDEX_CI_OR_CA_SPLITS	Excessive number of VSAM CI/CA splits	– IBM.IX_CICA_SPLIT.10 – IBM.IX_CICA_SPLIT.11

Exception class	Exception description	Originating rule
EXCESSIVE_INDEX_OVERFLOW	Excessive number of IPSs in overflow	IBM.IX_OVERFLOW.10 **Important:** This rule is not applicable to non-partitioned or PHIDAM primary indexes.
EXCESSIVE_RAP_SYNONYMS	Excessive number of synonyms on root anchor points	IBM.RAP_SYNONYMS.10
EXCESSIVE_SEGMENT_OCCURRENCES	Excessive number of segments in data set(s)	**Full function database resources**: IBM.SEGM_COUNT.10 **DEDB areas**: IBM.DEDB_SEGM_CNT.10
EXCESSIVE_SEGMENT_SCATTERING	Excessive number of extensively scattered segments	IBM.SEGM_SPREAD.10
EXCESSIVE_SLACK_BYTES	Excessive number of slack bytes in data set(s)	IBM.SLACK_BYTES.10
EXCESSIVE_VL_SPLIT_SEGMENTS	Excessive number of variable-length split segments	IBM.VL_SEGM_SPLIT.10
FRAGMENTED_FREE_SPACES	Excessive free space fragmentation in data set(s)	IBM.FRAGMENTATION.10
FREE_SPACE_AVAILABILITY	Insufficient free space available in data set(s)	IBM.FREE_SPACES.10
GROWING_DBDS_WITH_DATA_FULL	Data set(s) full and approaching the size limit	IBM.DBDS_GROWTH.30
GROWING_DBDS_WITH_FREE_SPACES	Large data set with high rate of total free space	IBM.DBDS_GROWTH.20
GROWING_INDEX_WITH_DATA_FULL	Data set(s) full and approaching the size limit	– IBM.IX_GROWTH.20 – IBM.IX_GROWTH.21
IMBALANCED_RANDOMIZING	Imbalanced randomizing and inefficient use of RAPs	IBM.RANDOMIZING.10
INDEX_EXTENTS_AVAILABILITY	Limited availability of data set extents in index	– IBM.IX_EXTENTS.10 – IBM.IX_EXTENTS.11
INDEX_SIZE_GROWTH	Excessive growth in one or more data set	– IBM.IX_GROWTH.10 – IBM.IX_GROWTH.11
NUMBER_OF_DB_RECORDS	Excessive number of database records	**Full function database resources**: IBM.NUM_DBRECORDS.10 **DEDB areas**: IBM.DEDB_DBRECCNT.10

Exception class	Exception description	Originating rule
NUMBER_OF_INDEX_POINTER_SEGMENTS	Excessive number of Index Pointer Segments	IBM.IX_NUM_SEGM.10
DEDB_IOVF_NEEDS_TO_BE_EXTENDED	The IOVF section needs to be extended	IBM.DEDB_FS.31
DEDB_SDEP_NEEDS_TO_BE_EXTENDED	The SDEP section needs to be extended	IBM.DEDB_FS.81
DEDB_EXCESSIVE_UOWS_MATCH_COND	Excessive number of UOWs match the RFS condition	IBM.DEDB_RFS.10
DEDB_EXCESS_PCT_UOWS_MATCH_COND	Excessive percentage of UOWs match the RFS condition	IBM.DEDB_RFS.20
DEDB_NEEDS_TO_BE_REORGANIZED	The area needs to be reorganized	IBM.DEDB_RFS.11 IBM.DEDB_RFS.21
DAYS_PASSED_SINCE_LAST_REORG	Excessive number of days have passed since the last reorganization	IBM.LAST_REORG.10
HDAM_AVG_SYNONYM_CHAIN_LENGTH	Excessive average length of HDAM synonym chains	IBM.HDAM_SYN_LEN.10
FRAGMENTED_FREE_SPACE_ELEMENTS	Excessive percentage of fragmented FSEs	IBM.FFDB_FRAGDFSE.10
NONREUSABLE_FREE_SPACE_ELEMENTS	Excessive percentage of nonreusable FSEs	IBM.FFDB_NREUSFSE.10

Reference: Domain RECOVERY

The topics in this section provide you with supplemental technical references for the Policy Services RECOVERY domain.

Topics:

- "Domain RECOVERY rules" on page 342
- "Domain RECOVERY policies" on page 354
- "Domain RECOVERY exceptions" on page 358
- "Domain RECOVERY actions" on page 359

Domain RECOVERY rules

The domain RECOVERY rules are used to compare the stored data element values against the predefined threshold values that specify the limits for a set of data element values.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

A descriptive message within the rule that describes the maintenance history information for this rule.

The initial maintenance message is blank because at initial product installation no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

Defines the domain for which this rule is intended to be used.

Rule template type

Defines the rule template type.

Currently, there is only one type: Standard

Rule template name

The name of this rule template.

Rule description

Defines in words what database functionality this rule evaluates.

Resource types supported

The resource types are all IMS-supported Hierarchical Direct Access Methods.

Exception class

The exception class represents the type of exception that can be raised by this rule.

Rule condition expression

The actual condition expression that is applied to the list of data elements for this rule.

Rule condition description

Describes in words what the rule condition expression is doing.

Rule exception expression

The rule exception expression consists of the following items:

- Exception class
- Exception level

– Exception message

These lines in the rule template file are used only as the template for building rule definition streams that are included in various policy definition streams. The actual exception severity level for a rule is determined by the enclosing individual policy stream. The EXCEPTION_LEVEL(WARNING) statement is then overridden by the actual exception severity level that the policy creator (IBM® or a user) assigned for a threshold level.

Rule message template

Defines the actual message that is sent to the notification list when the condition is met.

The following condition applies to the default exception messages that are shown in the rule message template section of each rule topic: %RESOURCE% is the IMS database that encountered the exception. %EXCPCOMP% is a list of data sets that encountered the exception.

Data elements being evaluated for this rule

The data element is the smallest named unit of information having predefined attributes.

Rule threshold sets

The set of threshold values that are initially set by IBM®. There are two sets of threshold values:

– Original values set by IBM® that cannot be changed

– Original values initially set by IBM® that can be modified

Rule: IBM.BACKOUT_NEEDED

IBM.BACKOUT_NEEDED is a simple rule for checking RECON BACKOUT NEEDED flag for a database resource.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

RECOVERY

Rule template type

STANDARD

Rule template name

IBM.BACKOUT_NEEDED

Rule description

RECON BACKOUT NEEDED flag for a database resource.

Resource types supported

The following resource types are supported by this rule.

– HDAM

– HIDAM

– HISAM

– SHISAM

– PHDAM

– PHIDAM

– DEDB

– INDEX

– PSINDEX

Exception class

DATABASE_NEEDS_TO_BE_BACKED_OUT

Rule condition expression

```
OR(
  IF(DB_DBRC_BACKOUT_NEEDED,IS,
    &1
  )
)
```

Rule condition description

If the RECON BACKOUT NEEDED flag is set to ON for a database resource, the following data element value will be set to Y and an exception will be reported:

```
    DB_DBRC_BACKOUT_NEEDED: &1
```

You can apply this rule to any non-HALDB database, HALDB partition, or DEDB area.

> **Note:** The threshold value cannot be changed for this rule, and only the exception level can be controlled.

Rule exception expression

– EXCEPTION_CLASS(DATABASE_NEEDS_TO_BE_BACKED_OUT)

– EXCEPTION_LEVEL(WARNING)

– EXCEPTION_MESSAGE

Rule message template

RECON BACKOUT NEEDED flag is turned ON for the database resource %RESOURCE%.

Data elements being evaluated for this rule

```
DB_DBRC_BACKOUT_NEEDED &1
```

Rule threshold sets

Table 167: Rule threshold sets for IBM.BACKOUT_NEEDED

Threshold set name	Threshold values
YES	&1 = Y

Rule: IBM.EEQE_COUNT

IBM.EEQE_COUNT is a simple rule for evaluating the number of Extended Error Queue Elements for each data set of a database resource.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

RECOVERY

Rule template type

STANDARD

Rule template name

IBM.EEQE_COUNT

Rule description

Number of EEQEs for each data set of a DB resource.

Resource types supported

The following resource types are supported by this rule.

- HDAM
- HIDAM
- HISAM
- SHISAM
- PHDAM
- PHIDAM
- DEDB
- INDEX
- PSINDEX

Exception class

DATABASE_NEEDS_TO_BE_RECOVERED

Rule condition expression

```
OR(
  IF(DB_DBRC_EEQE_COUNT,GE,
    &1
   )
)
```

Rule condition description

Specify a threshold on the number of Extended Error Queue Elements for a data set.

```
    DB_DBRC_EEQE_COUNT: &1
```

An exception is issued if the threshold is reached or exceeded in one of the data sets of the database or partition or in a DEDB area.

Rule exception expression

- EXCEPTION_CLASS(DATABASE_NEEDS_TO_BE_RECOVERED)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The number of EEQE has reached or exceeded a threshold for the following data sets of the resource %RESOURCE%: %EXCPCOMP%.

Data elements being evaluated for this rule

```
DB_DBRC_EEQE_COUNT &1
```

Rule threshold sets

Table 168: Rule threshold sets for IBM.EEQE_COUNT

Threshold set name	Threshold values
LOW	&1 = 1
MED	&1 = 2
HIGH	&1 = 3

Rule: IBM.HRS_SINCE_LASTCA

IBM.HRS_SINCE_LASTCA is a simple rule for evaluating the elapsed hours since the last change accumulation performed for a RECON change accumulation group.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

RECOVERY

Rule template type

STANDARD

Rule template name

IBM.HRS_SINCE_LASTCA

Rule description

Elapsed hours since last CA for CAGRP.

Resource types supported

CAGRP

Exception class

CHANGE_ACCUM_NEEDS_TO_BE_DONE

Rule condition expression

```
OR(
   IF(DB_HOURS_SINCE_LASTCA,GE
     &1
   )
)
```

Rule condition description

Specify a threshold on the number of hours since the last time the change accumulation was performed for a change accumulation group.

```
    DB_HOURS_SINCE_LASTCA: &1
```

An exception is issued if the threshold is reached or exceeded.

Rule exception expression

– EXCEPTION_CLASS(CHANGE_ACCUM_NEEDS_TO_BE_DONE)

- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The number of hours since the last CA has reached or exceeded a threshold for the change accumulation group %RESOURCE%.

Data elements being evaluated for this rule

```
DB_HOURS_SINCE_LASTCA &1
```

Rule threshold sets

Table 169: Rule threshold sets for IBM.HRS_SINCE_LASTCA

Threshold set name	Threshold values
LOW	&1 = 12
MED	&1 = 14
HIGH	&1 = 16

Rule: IBM.HRS_SINCE_LASTIC

IBM.HRS_SINCE_LASTIC is a simple rule for evaluating the elapsed hours since the last image copy for a database data set or a DEDB area.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

RECOVERY

Rule template type

STANDARD

Rule template name

IBM.HRS_SINCE_LASTIC

Rule description

Elapsed hours since last IC for DB data sets/DEDB area.

Resource types supported

The following resource types are supported by this rule.

- HDAM
- HIDAM
- HISAM
- SHISAM
- PHDAM
- PHIDAM
- DEDB

- INDEX
- PSINDEX

Exception class

IMAGE_COPY_NEEDS_TO_BE_TAKEN

Rule condition expression

```
OR(
  IF(DB_HOURS_SINCE_LASTIC,GE,
    &1
  )
)
```

Rule condition description

Specify a threshold on the number of hours since the last time the image copy of a data set or area was taken.

```
    DB_HOURS_SINCE_LASTIC: &1
```

An exception is issued if the threshold is reached or exceeded in one of the data sets of the database or the HALDB partition or in the DEDB area.

Rule exception expression

- EXCEPTION_CLASS(IMAGE_COPY_NEEDS_TO_BE_TAKEN)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

Hours since the last IC has reached or exceeded a threshold for the following data sets or area of %RESOURCE%: %EXCPCOMP%.

Data elements being evaluated for this rule

```
DB_HOURS_SINCE_LASTIC &1
```

The variable &1 specifies a threshold for the data element value DB_HOURS_SINCE_LASTIC for the data set or DEDB area.

Rule threshold sets

Table 170: Rule threshold sets for IBM.HRS_SINCE_LASTIC

Threshold set name	Threshold values	Note
LOW	&1 = 264	Elapsed time of 11 days
MED	&1 = 312	Elapsed time of 13 days
HIGH	&1 = 360	Elapsed time of 15 days

Rule: IBM.IC_NEEDED

IBM.IC_NEEDED is a simple rule for checking RECON IC NEEDED flag for a database data set or a DEDB area.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

RECOVERY

Rule template type

STANDARD

Rule template name

IBM.IC_NEEDED

Rule description

RECON IC NEEDED flag for DB data sets/DEDB area.

Resource types supported

The following resource types are supported by this rule.

- HDAM
- HIDAM
- HISAM
- SHISAM
- PHDAM
- PHIDAM
- DEDB
- INDEX
- PSINDEX

Exception class

IMAGE_COPY_NEEDS_TO_BE_TAKEN

Rule condition expression

```
OR(
  IF(DB_DBRC_IC_NEEDED,IS,
    &1
  )
)
```

Rule condition description

If the RECON IC NEEDED flag is set to ON for a database data set or a DEDB area, the following data element value will be set to Y:

```
    DB_DBRC_IC_NEEDED: &1
```

If the value is Y for at least one of the data sets or the area, an exception will be reported.

You can apply this rule to any non-HALDB database, HALDB partition, or DEDB area.

> **Note:** The threshold value cannot be changed for this rule, and only the exception level can be controlled.

Rule exception expression

- EXCEPTION_CLASS(IMAGE_COPY_NEEDS_TO_BE_TAKEN)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The RECON IC NEEDED flag is turned ON for the following data set or data sets of %RESOURCE%: %EXCPCOMP%.

Data elements being evaluated for this rule

```
DB_DBRC_IC_NEEDED &1
```

Rule threshold sets

Table 171: Rule threshold sets for IBM.IC_NEEDED

Threshold set name	Threshold values
YES	&1 = Y

Rule: IBM.IC_RECOMMENDED

IBM.IC_RECOMMENDED is a simple rule for checking RECON IC RECOMMENDED flag for a database data set.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

RECOVERY

Rule template type

STANDARD

Rule template name

IBM.IC_RECOMMENDED

Rule description

RECON IC RECOMMENDED flag for DB data sets/DEDB area.

Resource types supported

The following resource types are supported by this rule.

- HDAM
- HIDAM
- HISAM
- SHISAM
- PHDAM
- PHIDAM
- DEDB
- INDEX
- PSINDEX

Exception class

IMAGE_COPY_NEEDS_TO_BE_TAKEN

Rule condition expression

```
OR(
  IF(DB_DBRC_IC_RECOMMENDED,IS,
    &1
```

```
    )
  )
```

Rule condition description

If the RECON IC RECOMMENDED flag is set to ON for a database data set, the following data element value will be set to Y:

```
    DB_DBRC_IC_RECOMMENDED: &1
```

If the value is Y for at least one of the data sets or the area, an exception will be reported.

You can apply this rule to any non-HALDB database, HALDB partition, or DEDB area.

> **Note:** The threshold value cannot be changed for this rule, and only the exception level can be controlled.

Rule exception expression

- EXCEPTION_CLASS(IMAGE_COPY_NEEDS_TO_BE_TAKEN)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The RECON IC RECOMMENDED flag is turned ON for the following data sets of the database resource %RESOURCE%: %EXCPCOMP%.

Data elements being evaluated for this rule

```
DB_DBRC_IC_RECOMMENDED &1
```

Rule threshold sets

Table 172: Rule threshold sets for IBM.IC_RECOMMENDED

Threshold set name	Threshold values
YES	&1 = Y

Rule: IBM.NOT_IN_CAGRP

IBM.NOT_IN_CAGRP is a simple rule for checking whether all data sets of a full-function database, a HALDB partition, or a DEDB area belong to a change accumulation group.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

RECOVERY

Rule template type

STANDARD

Rule template name

IBM.NOT_IN_CAGRP

Rule description

Data sets not in a CA group.

Resource types supported

The following resource types are supported by this rule.

- HDAM
- HIDAM
- HISAM
- SHISAM
- PHDAM
- PHIDAM
- DEDB
- INDEX
- PSINDEX

Exception class

NOT_A_MEMBER_OF_ANY_CAGRP

Rule condition expression

```
OR(
  IF(DB_IS_IN_A_DBRC_CAGRP,IS,
    &1
  )
)
```

Rule condition description

If a data set of a non-partitioned full-function database, a HALDB partition, or a DEDB area is not included in any change accumulation group defined in the RECON, the following data element value is set for the data set:

```
    DB_IS_IN_A_DBRC_CAGRP = &1
```

If the value N is set for at least one of the data sets or the area, an exception will be reported.

Notes:

- The threshold value cannot be changed for this rule, and only the exception level can be controlled.
- No sensor data for the data element DB_HOURS_SINCE_LASTIC is collected for ILDS and primary index data sets for a HALDB partition and the sensor data for the data element is processed as missing data. This is normal.
- For this rule, you must always specify directive EVALUATE for the ONMISSING option when you use this rule in a policy.

Rule exception expression

- EXCEPTION_CLASS(NOT_A_MEMBER_OF_ANY_CAGRP)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The following data sets of the database resource %RESOURCE% are not included in any CA group: %EXCPCOMP%.

Data elements being evaluated for this rule

```
DB_IS_IN_A_DBRC_CAGRP &1
```

Rule threshold sets

Table 173: Rule threshold sets for IBM.NOT_IN_CAGRP

Threshold set name	Threshold values
NO	&1 = N

Rule: IBM.RECOV_NEEDED

IBM.RECOV_NEEDED is a simple rule for checking RECON RECOV NEEDED flag for a database data set or a DEDB area.

Rule template version

The rule template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the rule.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this rule.

Policy domain

RECOVERY

Rule template type

STANDARD

Rule template name

IBM.RECOV_NEEDED

Rule description

RECON RECOV NEEDED flag for DB data sets/DEDB area.

Resource types supported

The following resource types are supported by this rule.

- HDAM
- HIDAM
- HISAM
- SHISAM
- PHDAM
- PHIDAM
- DEDB
- INDEX
- PSINDEX

Exception class

DATABASE_NEEDS_TO_BE_RECOVERED

Rule condition expression

```
OR(
  IF(DB_DBRC_RECOV_NEEDED,IS,
    &1
```

```
    )
)
```

Rule condition description

If the RECON RECOV NEEDED flag is set to ON for a database data set or a DEDB area, the following data element value will be set to Y:

```
    DB_DBRC_RECOV_NEEDED: &1
```

If the value is Y for at least one of the data sets or the area, an exception will be reported.

You can apply this rule to any non-HALDB database, HALDB partition, or DEDB area.

> **Note:** The threshold value cannot be changed for this rule, and only the exception level can be controlled.

Rule exception expression

- EXCEPTION_CLASS(DATABASE_NEEDS_TO_BE_RECOVERED)
- EXCEPTION_LEVEL(WARNING)
- EXCEPTION_MESSAGE

Rule message template

The RECON RECOV NEEDED flag is turned ON for the following data sets of the database resource %RESOURCE%: %EXCPCOMP%.

Data elements being evaluated for this rule

```
DB_DBRC_RECOV_NEEDED &1
```

Rule threshold sets

Table 174: Rule threshold sets for IBM.RECOV_NEEDED

Threshold set name	Threshold values
YES	&1 = Y

Domain RECOVERY policies

The domain RECOVERY policies are used to evaluate the DBRC state of a full-function database, a HALDB partition, a DEDB area, or a change accumulation group, and specify how Policy Services responds to any events that reach or exceed the threshold values specified for the state.

Policy template version

The policy template version is indicated by a four-byte integer value.

Maintenance messages

A descriptive message within the rule that describes the maintenance history information for this policy.

The initial maintenance message is blank because at initial product installation no maintenance has been applied to the policy.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this policy.

Template original name

The original name of this policy template.

The name always begins with IBM.

Policy domain

Defines the domain for which this policy is intended to be used.

Policy template type

Defines the policy template type.

Currently, there is only one type: Basic

Policy name

The policy name is same as the name that appears in the title line and is also the same as the template original name.

Policy description

Defines in words what database functionality this policy monitors.

Action description

Show exceptions and associated severity and actions.

Notify reference list

Policies are shipped with no notification lists provided.

You must create your own notification list or lists, and then update this policy to provide one or more of these notification lists.

The list you provide is where the summary notification message is sent.

Resource type list

The resource types are all IMS-supported Hierarchical Direct Access Methods.

Rule list

List of rules associated with this policy. The policy monitors the evaluation of all these rules and takes action when any rule threshold is met or exceeded (exception).

Rule list history

The initial rule list history is blank because no maintenance has been applied to the rule list for this policy.

When maintenance is applied, this field contains information provided by IBM® that describes the addition, deletion, or changes to the rule list for this policy.

Policy: IBM.RECOV._DEFAULT

IBM.RECOV._DEFAULT is a predefined IBM® basic policy for recovery preparedness for a non-partitioned full-function database, a HALDB partition, or a DEDB area.

Policy template version

The policy template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the policy.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this policy.

Template original name

IBM.RECOV._DEFAULT

Policy domain

RECOVERY

Policy template type

BASIC

Policy name

IBM.RECOV._DEFAULT

Policy description

Policy for a database, partition, or area.

Action description

The following table summarizes exception class and severity level pairs that result in RECOVERY action.

Table 175: RECOVERY action description for exceptions detected by IBM.RECOV._DEFAULT

Action	Exception class	Severity
IMAGECOPY	IMAGE_COPY_NEEDS_TO_BE_TAKEN	CRITICAL
ADDTOCAGRP	NOT_A_MEMBER_OF_ANY_CAGRP	CRITICAL
DBRECOVERY	DATABASE_NEEDS_TO_BE_RECOVERED	CRITICAL
BACKOUT	DATABASE_NEEDS_TO_BE_BACKED_OUT	CRITICAL

Note: If an exception and severity pair is not found in this table, the default action for that pair is MESSAGE. For a list of the correspondence between exception classes and their originating rules, see "Domain RECOVERY exceptions" on page 358.

Notify reference list

Policies are shipped with no notification lists provided.

You must create your own notification list or lists, and then update this policy to provide one or more notification lists.

Resource type list

The following resource types are supported by this policy:

- HDAM
- HIDAM
- HISAM
- SHISAM
- PHDAM
- PHIDAM
- DEDB
- INDEX
- PSINDEX

Rule list

The following table summarizes the default rules used in this policy.

SKIPEVAL means that the evaluation of this rule is skipped if any data that is referred to in the rule cannot be made available at the time of the policy evaluation.

EVALUATE means that the evaluation of this rule is made even if a data that is referred to in the rule cannot be made available at the time of the policy evaluation. The comparison of the unavailable data with the threshold value defined for it returns the default result that is determined by the rule condition expression.

Table 176: Rule list for IBM.RECOV._DEFAULT

Rule	Threshold set	Severity level	If comparison data is missing:
IBM.HRS_SINCE_LASTIC	HIGH	CRITICAL	EVALUATE

Rule	Threshold set	Severity level	If comparison data is missing:
IBM.HRS_SINCE_LASTIC	MED	SEVERE	EVALUATE
IBM.HRS_SINCE_LASTIC	LOW	WARNING	EVALUATE
IBM.IC_NEEDED	YES	CRITICAL	SKIPEVAL
IBM.IC_RECOMMENDED	YES	CRITICAL	SKIPEVAL
IBM.NOT_IN_CAGRP	NO	CRITICAL	EVALUATE
IBM.RECOV_NEEDED	YES	CRITICAL	SKIPEVAL
IBM.EEQE_COUNT	HIGH	CRITICAL	SKIPEVAL
IBM.EEQE_COUNT	MED	SEVERE	SKIPEVAL
IBM.EEQE_COUNT	LOW	WARNING	SKIPEVAL
IBM.BACKOUT_NEEDED	YES	CRITICAL	SKIPEVAL

Rule list history

The initial rule list history is blank because no maintenance has been applied to the rule list for this policy.

When maintenance is applied, this field contains information provided by IBM® that describes the addition, deletion, or changes to the rule list for this policy.

Policy: IBM.CAGRP._DEFAULT

IBM.CAGRP._DEFAULT is a predefined IBM® basic policy for a change accumulation group defined in RECON.

Policy template version

The policy template version is indicated by a four-byte integer value.

Maintenance messages

The initial maintenance message is blank because no maintenance has been applied to the policy.

When maintenance is applied, this field contains information provided by IBM® that describes the updates made to this policy.

Template original name

IBM.CAGRP._DEFAULT

Policy domain

RECOVERY

Policy template type

BASIC

Policy name

IBM.CAGRP._DEFAULT

Policy description

Policy for a CAGRP.

Action description

The following table summarizes exception class and severity level pairs that result in RECOVERY action.

Table 177: RECOVERY action description for exceptions detected by IBM.CAGRP._DEFAULT		
Action	**Exception class**	**Severity**
CHANGEACCUM	CHANGE_ACCUM_NEEDS_TO_BE_DONE	CRITICAL

Note: If an exception and severity pair is not found in this table, the default action for that pair is MESSAGE. For a list of the correspondence between exception classes and their originating rules, see "Domain RECOVERY exceptions" on page 358.

Notify reference list

Policies are shipped with no notification lists provided.

You must create your own notification list or lists, and then update this policy to provide one or more notification lists.

Resource type list

The following resource types are supported by this policy:

- CAGRP

Rule list

The following table summarizes the default rules used in this policy.

SKIPEVAL means that the evaluation of this rule is skipped if any data that is referred to in the rule cannot be made available at the time of the policy evaluation.

EVALUATE means that the evaluation of this rule is made even if a data that is referred to in the rule cannot be made available at the time of the policy evaluation. The comparison of the unavailable data with the threshold value defined for it returns the default result that is determined by the rule condition expression.

Table 178: Rule list for IBM.CAGRP._DEFAULT			
Rule	**Threshold set**	**Severity level**	**If comparison data is missing:**
IBM.HRS_SINCE_LASTCA	HIGH	CRITICAL	SKIPEVAL
IBM.HRS_SINCE_LASTCA	MED	SEVERE	SKIPEVAL
IBM.HRS_SINCE_LASTCA	LOW	WARNING	SKIPEVAL

Rule list history

The initial rule list history is blank because no maintenance has been applied to the rule list for this policy.

When maintenance is applied, this field contains information provided by IBM® that describes the addition, deletion, or changes to the rule list for this policy.

Domain RECOVERY exceptions

The domain RECOVERY exceptions define the response to any DBRC-managed resource state that crosses the defined threshold boundaries.

Table 179: Exceptions for the RECOVERY policy domain		
Exception class	**Exception description**	**Originating rules**
IMAGE_COPY_NEEDS_TO_BE_TAKEN	At least one data set needs an image copy.	– IBM.HRS_SINCE_LASTIC – IBM.IC_NEEDED – IBM.IC_RECOMMENDED

Exception class	Exception description	Originating rules
NOT_A_MEMBER_OF_ANY_CAGRP	One or more data sets do not belong to any CAGRP.	IBM.NOT_IN_CAGRP
DATABASE_NEEDS_TO_BE_RECOVERED	The database, partition, or area needs recovery.	– IBM.RECOV_NEEDED – IBM.EEQE_COUNT
DATABASE_NEEDS_TO_BE_BACKED_OUT	The database updates need to be backed out.	IBM.BACKOUT_NEEDED
CHANGE_ACCUM_NEEDS_TO_BE_DONE	A new change accumulation is needed for the CAGRP.	IBM.HRS_SINCE_LASTCA

Domain RECOVERY actions

Policy Services RECOVERY domain action processes will return one or more of the following process requests that will result in a passive process as determined by Autonomics Director.

Table 180: Process actions for RECOVERY domain

Keyword for process action	Description
IMAGECOPY	Take an image copy of each data set of the database resource.
CHANGEACCUM	Create a new change accumulation for the change accumulation group.
DBRECOVERY	Perform recover process for the database resource.
ADDTOCAGRP	Add all data sets of the database resource to a DBRC CAGRP.
BACKOUT	Perform backout process for the database updates.

Troubleshooting

The topics in this section provide you with technical references to help you troubleshoot and diagnose Policy Services problems.

Topics:

- "Runtime error messages (BSN)" on page 360
- "RECOVERY domain summary messages (IRO)" on page 480
- "Return and reason codes" on page 483
- "Gathering diagnostic information" on page 522

Runtime error messages (BSN)

Use the information in these messages to help you diagnose and solve Policy Services problems.

Message format

Policy Services messages adhere to the following format:

```
BSNnnnx
```

where:

BSN

Indicates that the message was issued by Policy Services

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.

Module

The Module section indicates which module or modules are affected.

BSN1000E: LOAD OF BSNSCI00 HAS FAILED

Explanation

Unable to load the Policy Services initialization module. This error should not occur.

System action

The requested function is rejected. A return code and a reason code that define the failure are returned to the client.

User response

Check to see if module BSNSCI00 resides in the *hlq*.SHKTLOAD load library. If the module is in the library, you might have an installation problem. Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNSCIF0

BSN1001E: CLIENT REQUESTED FUNCTION (FUNC_CODE) NOT VALID. R15=*hhrrrrrr*.

Explanation

The requested function is invalid.

System action

Policy Services rejected the call from the client. A return code and a reason code that define the failure are returned to the client.

System processing continues.

User response

Restart the client, which is either the IMS Tools client or the user interface client.

If the problem persists, contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNSCIF0

BSN1002E: CLIENT REQUESTED FUNCTION (*func_code*) REJECTED. POLICY SERVICES HAVE NOT BEEN INITIALIZED.

Explanation

The requested function has been rejected. The function being requested is not valid until the client issues the initialization request.

System action

The requested function is rejected. A return code and a reason code that define the failure are returned to the client.

User response

Restart the client, which is either the IMS Tools client or the dialogue client.

If the problem persists, contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNSCIF0

BSN1008E: THE POLICY SERVICES WAS UNABLE TO ALLOCATE WORK STORAGE FOR THE ESTAE ROUTINE

Explanation

Working storage could not be obtained for the ESTAE routine.

System action

Initialization of Policy Services continues and normal processing continues. The ESTAE routine is not active.

User response

This is an internal error. Contact IBM® Software Support and notify them of the IMS Tools product that encountered this problem.

Module

BSNSCIF0

BSN1009E: POLICY SERVICES WAS UNABLE TO CREATE THE ESTAE ROUTINE FOR THE *client_type*.

Explanation

During the initialization of Policy Services, the creation of an ESTAE failed, where *client_type* is:

IMS TOOL

One of the supported IMS Tools products

DIALOGUE

The Policy Services user interface

This error should not occur.

System action

Initialization of Policy Services continues and normal processing continues. The ESTAE routine is not active.

User response

This is an internal error. Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNSCIF0

BSN1501I: THE PES MODULE *module_name* RECEIVED CONTROL WITH FUNCTION *function_code*: RC=*nn*, RSN=*nn*.

Explanation

This message is a policy environment service (PES) message that indicates the module flow and provides the return code and the reason code for each module.

System action

None.

User response

No action is required.

Module

BSNPES10, BSNPES20, BSNPES30, BSNPES40, BSNPESH0, BSNPESI0, BSNPESW0, BSNPESE0, BSNPESK0, BSNPESD0, BSNPESA0, BSNPESQ0, BSNPESL0, BSNPESL1

BSN1503E: PES HAS A CRITICAL ERROR IN MODULE *module_name*: FUNCTION=*function_code*, RC=*nn*, RS=*nn*.

Explanation

An error occurred in the policy environment service (PES) module. This error is an internal IMS Tools error.

System action

The requested function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

See the PES return code and reason code to determine and correct the problem.

If the problem persists, contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNPES00, BSNPES10, BSNPES20, BSNPES30, BSNPES40, BSNPESH0, BSNPESI0, BSNPESW0, BSNPESE0, BSNPESK0, BSNPESD0, BSNPESA0, BSNPESQ0, BSNPESL0, sBSNPESL1

BSN1506E: FOR DOMAIN=*domain_name*, ENVRIONMENT=*environment*, THE FPQSRV FUNCTION=*FPQ_function_code* FAILED IN MODULE *module_name* WITH RC=*nn*, RSN=*nn*. THE FPQSRV DIAGNOSTIC FEEDBACK= WORD1=*word1_first_half-word1_second_half*, WORD2=*word2*, WORD3=*word3*.

Explanation

A repository server function failed in the policy environment service (PES) module. The FPQ function code specifies the repository function name, and the environment variable specifies either the environment type (MAINTENANCE, OPERATION, or HISTORY) or the environment level.

The feedback field includes IBM® diagnostic and debugging information. This error is an internal IMS Tools error.

System action

The requested function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

See the repository service return code and reason code to determine and correct the problem.

If the problem persists, contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNPESH0, BSNPESE0, BSNPESK0, BSNPESD0, BSNPESA0, BSNPESL0, BSNPESL1

BSN1507E: THE PES CONTROL MEMBER HAS ENCOUNTERED AN ERROR WITH THE REPOSITORY.

THE FPQSRV FUNCTION=*func* FAILED IN MODULE *module* WITH RC=*rc*, RSN=*rsn*

Explanation

A repository server function failed in the policy environment service (PES) module.

The FPQ function code specifies the repository function name. Return and reason codes are those returned by the FPQ call and are documented in *IMS Tools Base IMS Tools Knowledge Base User's Guide and Reference*. They are included for IBM® diagnostic and debugging information.

This error is an internal IMS Tools error.

System action

The requested function is rejected. A return code and a reason code that define the failure are returned to the client.

User response

See the description of the repository service return code and reason code in the reference section of *IMS Tools Base IMS Tools Knowledge Base User's Guide and Reference* to determine and correct the problem.

If the problem persists, contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNPESH0

BSN1509E: THE USER HAS INSUFFICIENT ACCESS AUTHORITY TO THE REPOSITORY.

Explanation

The ISPF user or the IMS Tools product does not have the appropriate RACF® access of UPDATE that is required.

System action

The requested function is rejected and Policy Services is terminated.

User response

Either correct the user ID, or update the user ID to have UPDATE access for the IMS Tools KB Input repository.

Module

BSNSCI00

BSN1511I: FOR DOMAIN=*domain_name*, ENVRIONMENT LEVEL=*environment_level*, THE PES *action* STARTED

Explanation

The policy environment service (PES) process (*action*) has started for *domain_name*, *environment_level*, and *recon_ID*.

The variable *action* is one of the following actions:

- GET WORKLIST ITEM SERVICE
- UPDATE WORKLIST ITEM SERVICE
- WORKLIST MAINTENANCE PROCESS
- IMPORT WORKLIST SERVICE
- ADD APARS SERVICE
- ADD PACKAGE SERVICE
- ENVIRONMENT COMMIT PROCESS
- ENVIRONMENT CREATE PROCESS
- ENVIRONMENT DELETE PROCESS
- ENVIRONMENT SELECT PROCESS
- ENVIRONMENT VALIDATE PROCESS

System action

None.

User response

No action is required.

Module

BSNPES20, BSNPES30, BSNPES40

BSN1512I: FOR DOMAIN=*domain_name*, ENVRIONMENT LEVEL=*environment_level*, THE PES action ENDED, RC=*nn*, RSN=*nn*.

Explanation

The policy environment service (PES) process (*action*) has ended for *domain_name*, *environment_level*, and *recon_ID*.

The variable *action* is one of the following actions:

- GET WORKLIST ITEM SERVICE
- UPDATE WORKLIST ITEM SERVICE
- WORKLIST MAINTENANCE PROCESS
- IMPORT WORKLIST SERVICE
- ADD APARS SERVICE
- ADD PACKAGE SERVICE
- ENVIRONMENT COMMIT PROCESS
- ENVIRONMENT CREATE PROCESS
- ENVIRONMENT DELETE PROCESS
- ENVIRONMENT SELECT PROCESS
- ENVIRONMENT VALIDATE PROCESS

System action

None.

User response

No action is required.

Module

BSNPES20, BSNPES30, BSNPES40

BSN1600E: A POCB CONTROL BLOCK COULD NOT BE OBTAINED: RC=*nn*, RSN=*nn*.

Explanation

The request to obtain an internal Policy Control Block (POCB) failed. The REGION parameter does not have enough specified memory for the job.

System action

Policy Services rejects the call from the client, and a return code and a reason code that define the failure are returned to the client. The base rule, policy, or notification list processing completes with an error, and system processing continues.

User response

Specify more memory for the REGION parameter, and then restart the job.

For example, you can specify REGION=0M so that the parameter can use all the main storage that it requires.

Module

BSNASM00

BSN1603E: IMS POLICY SERVICES RETRY OF SYSTEM FAILURE FAILED, AND AN ABEND WAS REQUESTED.

Explanation

An internal Policy Services error has occurred, was resolved by Policy Services recovery, and has occurred a second time. The second occurrence resulted in a termination of Policy Services.

System action

The requested function is rejected. A return code and a reason code that define the failure are returned to the client.

User response

Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNSCIF0

BSN1604E: THE JOURNAL MANAGER UNIT OF WORK COULD NOT BE STARTED FOR THE BSNSC FUNC=ASLK CALL: RC=*nn*, RSN=*nn*, R15=*hhrrrrrr*.

Explanation

The request to start a journal unit of work that represents the start of the Policy Decision Making Report failed.

System action

Policy Services rejects the call from the client, and a return code and a reason code that define the failure are returned to the client. The policy lookup processing that was requested by the Policy Services client completes with an error, and system processing continues.

User response

See the association manager return code and reason code to determine and correct the problem.

For the R15 code, see the client API interface return codes and reason codes.

If the problem persists, contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNASM00

BSN1605I: IMS PSS API TCB ABEND *abend_code-sub_code*, THD=*failing_thread* DIAG= *sdwaflgs/sdwacmpf*

MODULE ID = *modid* EP = *module_entry_point_address*

PSW = *psw_value* OFFSET = *module_offset*

R0-3 *reg0_value reg1_value reg2_value reg3_value*

R4-7 *reg4_value reg5_value reg6_value reg7_value*

R8-11 *reg8_value reg9_value reg10_value reg11_value*

R12-15 *reg12_value reg13_value reg14_value reg15_value*

Explanation

An internal Policy Services error was detected and reported back to the client for a retry option. The retry also failed, so a dump was obtained.

- Line 1 - Abending TCB and abend code
- Line 2 - Abending module ID and EPA
- Line 3 - PSW at abend and module offset

– Line 4-7 - Registers at abend

If the abend is a propagated abend (U4095), or if the abend is being passed down from the parent TCB, then only the first line of the message is issued.

System action

A dump is obtained and the Policy Services client is terminated.

User response

Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNSCIF0

BSN1606E: THE JOURNAL MANAGER UNIT OF WORK COULD NOT BE COMMITTED: RC=*nn*, RSN=*nn*, R15=*hhrrrrrr*.

Explanation

The request to commit a journal unit of work that represents the end of the Policy Decision Making Report failed.

System action

Policy Services rejects the call from the client, and a return code and a reason code that define the failure are returned to the client. The policy lookup processing that was requested by the Policy Services client completes with an error, and system processing continues.

User response

See the association manager return code and reason code to determine and correct the problem.

For the R15 code, see the client API interface return codes and reason codes.

If the problem persists, contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNASM00

BSN1607I: PSW AND REGISTERS AT ABEND ARE NOT AVAILABLE.

Explanation

Policy Services detected an ABEND. However, the PSW and registers are not available.

System action

Error processing continues.

User response

None. This message is informational.

Module

BSNSCIF0

BSN1608E: SDUMP FAILED FOR *nnnn* ABEND, RC=*xx*, RSN=*xx*

Explanation

Policy Services recovery intercepted an ABEND. While trying to request the dump, it failed.

System action

System is terminated.

User response

Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNXEST0

BSN1609I: DAE SUPPRESSED DUMP FOR *nnn* ABEND

Explanation

The dump for the ABEND was suppressed.

System action

The system is terminated.

User response

Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNXEST0

BSN1610E: AN INVALID FUNCTION WAS REQUESTED: FUNCTION=*function_code*.

Explanation

The client issued a request to IMS Policy Services with an invalid function request. The variable *function_code* is the function code passed to Policy Services. This error is an internal problem with the IMS Tools product that made the request.

System action

Policy Services rejects the call from the client, and a return code and a reason code that define the failure are returned to the client. System processing continues.

User response

Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNASM00

BSN1611E: POLICY DATA STORE FUNCTION (*func_code*) HAS FAILED, RC=*nn* RSN=*nn*.

Explanation

A policy data store (PDS) *func_code* call was requested while processing a request to list policies.
In the message text:

func_code

The PDS function code is either:

- LSTP: Autonomics Director has requested a list of policies be returned
- LSTT: Autonomics Director has requested a list of policies be terminated

RC=*nn*

PDS return code

RSN=*nn*

PDS reason code

System action

The original request, either LSTP or LSTT, is terminated and control is returned to the client. System processing continues.

User response

No action is required.

Module

BSNASM00

BSN1612E: NO POLICY NAME WAS PASSED ON THE BSNSC FUNC=ASLK CALL.

Explanation

An IMS Tools product attempted to make a Policy Services lookup request but failed. This error is an internal problem with the IMS Tools product that made the request.

System action

Policy Services rejects the call from the client, and a return code and a reason code that define the failure are returned to the client. The lookup process completes with an error, and system processing continues.

User response

Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNASM00

BSN1614E: AN INVALID POLICY NAME PREFIX OF "IBM" WAS SPECIFIED FOR THE POLICY NAME *policy_name*.

Explanation

An IMS Tools product made an IMS Policy Services request and passed a policy *policy_name* with IBM as a prefix, which is invalid for any client request. This error is an internal problem with the IMS Tools product that made the request.

System action

Policy Services rejects the call from the client, and a return code and a reason code that define the failure are returned to the client. System processing continues.

User response

Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNASM00

BSN1616E: THE POLICY DOMAIN DATA STORE TERMINATION FAILED: RC=*nn*, RSN=*nn*, R15=*hhrrrrrr*.

Explanation

The request to terminate the policy domain data store termination (PDST) failed.

System action

Policy Services termination continues, and if any other service fails, another error message is issued.

User response

See the association manager return code and reason code to determine and correct the problem.

For the R15 code, see the client API interface return codes and reason codes.

If the problem persists, contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNASM00

BSN1622E: A RESOURCE NAME WAS NOT PROVIDED FOR THE REQUEST.

Explanation

The client made a request to Policy Services without passing the required resource name. This error is an internal problem with the IMS Tools product that made the request.

System action

Policy Services rejects the call from the client, and a return code and a reason code that define the failure are returned to the client. System processing continues.

User response

Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNASM00

BSN1624E: A POLICY DATA STORE POLICY OBJECT CONTROL BLOCK WAS NOT PROVIDED.

Explanation

The client function failed to pass a policy data store policy object control block (PDSP). This error is an internal problem with the IMS Tools product that made the request.

System action

Policy Services rejects the call from the client, and a return code and a reason code that define the failure are returned to the client. System processing continues.

User response

Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNASM00

BSN1626E: THE RESOURCE LIST WAS NOT RETURNED BY POLICY DATA STORE.

Explanation

The client made a request to Policy Services for a policy lookup function. While the lookup function was processing, an internal request was made to list the supported resource type. This internal request failed.

This error is an internal problem with the IMS Tools product that made the request.

System action

Policy Services rejects the call from the client, and a return code and a reason code that define the failure are returned to the client. System processing continues.

User response

Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNASM00

BSN1628E: THE RESOURCE TYPE (*resource_type*) THAT WAS DEFINED ON THE CALL DOES NOT MATCH THE RESOURCE TYPES THAT WERE DEFINED FOR THE SELECTED POLICY (*policy_name*).

Explanation

While a client lookup function was processing, the *resource_type* that was passed was determined to be invalid for *policy_name*. The resource type that was specified by the IMS Tools product is incorrect or has not been added to the policy.

System action

Policy Services rejects the call from the client, and a return code and a reason code that define the failure are returned to the client. System processing continues.

User response

If the resource type is correct, add *resource_type* to *policy_name*.

If the resource type is incorrect, configure the IMS Tools product to specify a valid resource type.

Module

BSNASM00

BSN1630E: THE *source* LOCALE ID (*nnnnnnnn*) IS INVALID OR IS NOT DEFINED TO ITKB.

Explanation

An invalid locale ID *nnnnnnnn* was specified or has not been defined to the IMS Tools Knowledge Base (ITKB) as a valid RECON ID.

The variable *source* is INTERNAL or EXTERNAL, which refers to either the internal or external RECONID value.

System action

Policy Services rejects the call from the client, and a return code and a reason code that define the failure are returned to the client. System processing continues.

User response

If the locale ID is BSNGLOBL, use the ITKB service process to automatically generate this locale.

If the locale ID is not BSNGLOBL, this error is an internal IMS Tools error. Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNASM00

BSN1634E: THE LEVEL CHANGE REQUEST IS INVALID. THE SYSTEM IS NOT IN A MAINTENANCE ENVIRONMENT.

Explanation

While the system was not in the maintenance environment, a request to change the environment level was made to Policy Services. However, this request is valid only in the maintenance environment.

System action

Policy Services rejects the call from the client, and a return code and a reason code that define the failure are returned to the client. System processing continues.

User response

A request to change the environment level is normally made only by a Policy Services dialogue session while in maintenance environment. If the problem persists, contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNASM00

BSN1636E: THE DOMAIN NAME (*domain_name*) THAT WAS PASSED IS UNKNOWN TO THE SYSTEM FOR FUNCTION REQUEST *func*.

Explanation

The current operation or maintenance environment does not contain *domain_name*. The domain either has not installed the required items in Policy Services or is currently still in the initial maintenance environment that was created during the installation process.

System action

Policy Services rejects the call from the client, and a return code and a reason code that define the failure are returned to the client. System processing continues.

User response

Verify that the following tasks were completed during the installation of *domain_name*:

- Maintenance was applied to the Policy Domain Table Definition (BSNPDNT0).
- The Policy Domain Table was added for the domain name (BSN*nnnnn*), where *nnnnn* is the domain name that is supplied by the IMS Tools product.
- New policies and rules that are required by the new IMS Tools product were added.

If *domain_name* has not been installed, complete the installation.

If *domain_name* has been installed, promote *domain_name* out of the maintenance environment.

Module

BSNASM00

BSN1637E: THE OPERATION ENVIRONMENT DOES NOT CONTAIN THE DOMAIN *domain_name*.

Explanation

domain_name has been recognized by Policy Services, but the domain has not been fully installed or is currently in the initial maintenance environment that was created during the installation process.

System action

Policy Services rejects the call from the client, and a return code and a reason code that define the failure are returned to the client. System processing continues.

User response

Verify that the following tasks were completed during the installation of *domain_name*:

- Maintenance was applied to the Policy Domain Table Definition (BSNPDNT0).
- The Policy Domain Table was added for the domain name (BSN*nnnnn*), where *nnnnn* is the domain name that is supplied by the IMS Tools product.
- New policies and rules that are required by the new IMS Tools product were added.

If *domain_name* has not been installed, complete the installation.

If *domain_name* has been installed, promote *domain_name* out of the maintenance environment.

Module

BSNASM00

BSN1638E: THE POLICY DOMAIN ENVIRONMENT RECORDS ARE NOT PRESENT.

Explanation

No domains have been defined to Policy Services in the BSNPDNT0 table.

System action

Policy Services rejects the call from the client, and a return code and a reason code that define the failure are returned to the client. System processing continues.

User response

Verify that the following tasks were completed during the installation of *domain_name*:

- Maintenance was applied to the Policy Domain Table Definition (BSNPDNT0).
- The Policy Domain Table was added for the domain name (BSN*nnnnn*), where *nnnnn* is the domain name that is supplied by the IMS Tools product.
- New policies and rules that are required by the new IMS Tools product were added.

If the IMS Tools products have not been installed, complete the installation.

If the installation is complete and the problem persists, contact IBM® Software Support and notify them of the IMS Tools product that encountered this problem.

Module

BSNASM00

BSN1640I: THE DOMAIN *domain_name* IS IN THE MAINTENANCE ENVIRONMENT.

Explanation

A maintenance environment for *domain_name* was requested, but *domain_name* is currently in a maintenance environment.

System action

System processing continues.

User response

No action is required.

Module

BSNASM00

BSN1642E: THE REQUEST TO SELECT A NEW ENVIRONMENT WAS REJECTED. THE DOMAIN *domain_name* IS CURRENTLY IN THE MAINTENANCE ENVIRONMENT.

Explanation

A request was made to select an existing history environment as the new operation environment. The request was rejected because a new operation environment cannot be selected if the domain has an active maintenance environment.

System action

Policy Services rejects the call from the client, and a return code and a reason code that define the failure are returned to the client. System processing continues.

User response

Commit the maintenance environment, and then resubmit your request to make the specified history environment the new operation environment.

Module

BSNASM00

BSN1644E: THE REQUEST TO DELETE DOMAIN *domain_name* FROM THE MAINTENANCE ENVIRONMENT WAS REJECTED. DOMAIN *domain_name* IS NOT PART OF THE MAINTENANCE ENVIRONMENT.

Explanation

domain_name cannot be deleted from the maintenance environment because it is not part of the existing maintenance environment.

System action

Policy Services rejects the call from the client, and a return code and a reason code that define the failure are returned to the client. System processing continues.

User response

If *domain_name* is the domain that you wanted to delete, no action is required. The *domain_name* does not exist.

If *domain_name* is not the domain that you want to delete, select the correct domain that is in the maintenance environment to be deleted.

Module

BSNASM00

BSN1801I: THE ETV MODULE *module_name* RECEIVED CONTROL WITH FUNC=*function_code*: RC=*nn*, RSN=*nn*.

Explanation

This message is a email/texting variable (ETV) message that indicates the module flow with the return code and the reason code for each module.

System action

None.

User response

None. This message is informational.

Module

BSNETVA0, BSNETVG0, BSNETVH0, BSNETVL0, BSNETVR0, BSNETVT0, BSNETVU0

BSN1803E: ETV HAS A CRITICAL ERROR IN MODULE *module_name*: FUNCTION=*function_code*, RC=*nn*, RSN=*nn*.

Explanation

An error occurred in the email/texting variable (ETV) module. This is an internal IMS Tools error.

System action

The requested function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

See the ETV return code and reason code to determine and correct the problem. If the problem persists, contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNETVA0, BSNETVG0, BSNETVH0, BSNETVL0, BSNETVR0, BSNETVT0, BSNETVU0, BSNETV00

BSN1806E: THE ETV REPOSITORY FUNCTION FAILED: DOMAIN=*domain_name*, LEVEL=*environment_level*, LOCALE=*recon_ID*, VAR=*var_name*. THE FPQSRV *FPQ_function_code* FAILED IN MODULE *module_name* WITH RC=*nn*, RSN=*nn*. THE FPQSRV

DIAGNOSTIC FEEDBACK= WORD1=*word1_first_halfword1_second_half*, WORD2=*word2*, WORD3=*word3*.

Explanation

A repository server function failed in the email/texting variable (ETV) module for *environment_level*, *recon_ID*, and *var_name* because of a repository server function failure. The FPQ function code specifies the repository function name.

The feedback field includes IBM® diagnostic and debugging information. This error is an internal IMS Tools error.

System action

The requested function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

See the repository service return code and reason code to determine and correct the problem. If the problem persists, contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNETVA0, BSNETVG0, BSNETVL0, BSNETVR0, BSNETVT0, BSNETVU0

BSN1811I: THE VARIABLE TABLE LIST HAS STARTED LISTING OBJECTS FOR DOMAIN=*domain_name*.

Explanation

The email/texting variable (ETV) process started listing for *domain_name*.

System action

None.

User response

None. This message is informational.

Module

BSNETVL0

BSN1812I: THE VARIABLE *function* PROCESS HAS STARTED FOR DOMAIN=*domain_name*, LEVEL=*environment_level*, LOCALE=*locale*, VAR=UPDATE.

Explanation

The email/texting (ETV) process (function) has started for *domain_name*, *environment_level*, and *locale*, where *locale* is the RECON ID that has been defined to the repository or BSNGLOBL. The output for VAR=*var_name* is displayed only if the rule name is known.

System action

None.

User response

None. This message is informational.

Module

BSNETVU0

BSN1815I: THE VARIABLE TABLE LIST HAS ENDED FOR THE DOMAIN=*domain_name*: RC=*nn*, RSN=*nn*.

Explanation

The email/texting variable (ETV) process ended listing for *domain_name*.

System action

None.

User response

None. This message is informational.

Module

BSNETVL0

BSN1816I: THE VARIABLE *function* PROCESS HAS ENDED FOR: DOMAIN=*domain_name*, LEVEL=*environment_level*, LOCALE=*locale*, VAR=UPDATE, RC=*nn*, RSN=*nn*.

Explanation

The email/texting variable (ETV) process (function) has ended for *domain_name*, *environment_level*, and *locale*, where *locale* is the RECON ID that has been defined to the repository or BSNGLOBL.

System action

None.

User response

None. This message is informational.

BSN1817I: THE VARIABLE DELETE BY RECON *recon_name* HAS STARTED

Explanation

The email/texting variable (ETV) process started by *recon_name*.

System action

None.

User response

None. This message is informational.

Module

BSNETVR0

BSN1818I: THE VARIABLE DELETE BY RECON *recon_name* HAS ENDED FOR THE: RC=*nn*, RSN=*nn*.

Explanation

The email/texting variable (ETV) process ended by *recon_name*.

System action

None.

User response

None. This message is informational.

Module

BSNETVR0

BSN2002E: STORAGE FOR *block_name* BLOCK COULD NOT BE OBTAINED.

Explanation

The internal storage block or table cannot be obtained. This error is an internal Policy Services error.

System action

Policy Services fails initialization, and a return code and a reason code that define the failure are returned to the client.

User response

Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNSCI00

BSN2004E: THE POLICY SERVICES MODULE *module_name* COULD NOT BE LOADED.

Explanation

A module that is loaded by the Policy Services initialization function failed the LOAD request. This error is an internal Policy Services error.

System action

Policy Services fails initialization, and a return code and a reason code that define the failure are returned to the client.

User response

Add the module that failed the LOAD request to the *hlq*.SHKTLOAD load library.

If the module is in the library, you might have an install problem. Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNSCI00

BSN2006E: THE REQUESTED INIT/STRT OF THE FACILITY FAILED.

Explanation

The Policy Services initialization function failed. This error is an internal Policy Services error.

System action

The requested initialization function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

This error message is always preceded by another message that defines a specific initialization failure. See the preceding message to fix this initialization failure.

Module

BSNSCI00

BSN2008E: THE REPOSITORY DOES NOT CONTAIN ANY RECON CONTAINER ITEMS.

Explanation

RECON data sets must be defined to the repository. This error is a repository environment error.

During Policy Services initialization, the Policy Services calls the repository to obtain the list of user-defined RECON data sets that have been defined to the repository. Policy Services requires that at least a global (BSNGLOBL) RECON exists within the repository.

System action

The requested INIT function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

Define the required RECON data sets to the repository, and then verify that the RECON definitions are in the repository by using the IMS Tools Knowledge Base interface dialog.

Module

BSNSCI00

BSN2009E: THE BSNGLOBL RECON ID IS NOT REGISTER WITH THE ITKB REPOSITORY.

Explanation

The global RECON ID (BSNGLOBL locale) is not registered with the IMS Tools Knowledge Base (ITKB). The user might have deleted the BSNGLOBL RECON ID using the ITKB user interface.

System action

Initialization of Policy Services is halted and termination is forced.

User response

Register the global RECON ID (BSNGLOBL).

See *IMS Tools Base IMS Tools Knowledge Base User's Guide and Reference* for procedures on how to reinstate BSNGLOBL as a RECON ID.

Module

BSNSCI00

BSN2010I: THE *services_name* SERVICES *v.r.m* INITIALIZED.

Explanation

The service has been successfully initialized. The IMS Tools product that is to use the services can proceed to process requests.

The variable *services_name* is one of the following services:

- Policy Services - includes all components for processing the IMS Tools product client Policy Services request or the TSO client Policy Services request.
- Data dictionary services - includes all components for processing the IMS Tools product client data dictionary request or the TSO client data dictionary request.
- Stand-alone notification services - includes all components that process the IMS Tools product client notification manager message requests.

For variable *v.r.m*, *v* is the product version, *r* is the product release, and *m* is the mod level.

System action

The service is activated and ready to process client requests.

User response

No action is required.

Module

BSNSCI00

BSN2011E: THE *service_name* SERVICES INIT REQUEST HAS FAILED. *service_name* IS NOT INITIALIZED.

Explanation

The service initialization function failed. The variable *service_name* is one of the following services:

- IMS Policy Services, which includes all components for processing the IMS Tools client Policy Services request or the TSO client Policy Services request.
- Data dictionary services, which includes all components for processing the IMS Tools client data dictionary request or the TSO client data dictionary request.

This error is an internal IMS Policy Services error.

System action

The requested INIT function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

This error message is always preceded by another message that defines a specific initialization failure. See the preceding message to fix this initialization failure.

Module

BSNSCI00

BSN2012I: THE *service_name* TERMINATED.

Explanation

The service *service_name* was terminated. The variable *service_name* is one of the following services:

- IMS Policy Services, which includes all components for processing the IMS Tools client Policy Services request or the TSO client Policy Services request.
- Data dictionary services, which includes all components for processing the IMS Tools client data dictionary request or the TSO client data dictionary request.

System action

The server *service_name* is terminated

User response

No action is required.

Module

BSNSCT00

BSN2014E: A CALL TO THE REPOSITORY TO OBTAIN RECON INFORMATION HAS FAILED.

Explanation

During Policy Services initialization, the Policy Services call to obtain the list of RECON data sets that have been defined to the repository failed. This error is an internal Policy Services error or an internal repository error.

System action

The requested INIT function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

Define the required RECON data sets by using the IMS Tools Knowledge Base (ITKB) dialog. You must at least define BSNGLOBL.

Module

BSNSCI00

BSN2015I: POLICY SERVICES PHASE 1 EXCEPTION MESSAGE SYSTEM DEFAULT IS *setting*.

Explanation

The Policy Services phase 1 exception message default value was set to *setting*. The Policy Services phase 1 exception message default value was set to setting. You can set the phase 1 exception message system default value from the main menu of the Policy Services ISFP client. If you do not choose a value, the system default is set to N (DISABLED). The variable setting is one of the following values:

DISABLED

Exception messages that are generated during phase 1 of a policy evaluation are not sent to the directory entries defined in the policy notification list.

ENABLED

Exception messages that are generated during phase 1 of a policy evaluation are sent to the directory entries defined in the policy notification list.

> **Important:** During a policy evaluation, phase 1 exception messages are those messages that are generated prior to a recommended process action, such as a reorganization.

System action

The service is activated and ready to process client requests.

User response

No action is required.

Module

BSNSCI00

BSN2016I: POLICY SERVICES PHASE 1 EXCEPTION MESSAGE FOR THIS EXECUTION IS CURRENTLY *setting*.

Explanation

The Policy Services phase 1 exception message option was set to *setting* for this client. If the *setting* value in this message is different from the *setting* value in message BSN2015I, the IMS Tools product requested an override of the phase 1 exception message default value for this client only. The default value remains the system default.

You can set the phase 1 exception message system default value from the main menu of the Policy Services ISPF client. If you do not choose a value, the system default is set to N (DISABLED). The variable setting is one of the following values:

DISABLED

Exception messages that are generated during phase 1 of a policy evaluation are not sent to the directory entries defined in the policy notification list.

ENABLED

Exception messages that are generated during phase 1 of a policy evaluation are sent to the directory entries defined in the policy notification list.

> **Important:** During a policy evaluation, phase 1 exception messages are those messages that are generated prior to a recommended process action, such as a reorganization.

System action

The service is activated and ready to process client requests.

User response

No action is required.

Module

BSNSCI00

BSN2021E: THE *component_name* SERVICES COULD NOT BE INITIALIZED: RC=*nn*, RSN=*nn*, R15=*hhrrrrrr*.

Explanation

During Policy Services initialization, *component_name* failed to initialize. This error is an internal Policy Services error.

The return code and the reason code are returned by *component_name*, where *component_name* is one of the following components:

- DATA DICTIONARY
- JOURNAL MANAGER
- POLICY DATA STORE
- POLICY ENVIRONMENT
- RULE DATA STORE

System action

The requested INIT function is rejected, and a return code and a reason code that define the failure are returned to the client.

Register 15 defines the internal call that failed. The return and reason code values refer to the failed call.

User response

See Register 15 return code and reason codes to determine and correct the problem.

Module

BSNSCI00

BSN2022E: A SECOND BSNSC FUNC=INIT CALL WAS ISSUED. THIS INITIALIZATION CALL FORCED TERMINATION OF POLICY SERVICES.

Explanation

A second INIT call was issued before a TERM call was issued, or the client was restarted and a second INIT call was issued after the first INIT call was terminated in error. This error is caused by the IMS Tools client.

System action

The requested INIT function is rejected, and a return code and a reason code that define the failure are returned to the client.

The second INIT call is not processed, and Policy Services terminates the Policy Services environment. The environment is terminated because the first environment must be terminated to ensure that all processes are terminated and that all locks are released.

User response

Restart the client, which is either the IMS Tools client or the dialogue client.

Module

BSNSCI00

BSN2023E: THE *service_name* SERVICES COULD NOT BE TERMINATED.

Explanation

The notification list data store service failed to terminate. The IMS Tools product that uses the policy or the data dictionary services can proceed to process requests.

The variable *service_name* is one of the following services:

- NOTIFICATION LIST DATA STORE
- RULE DATA STORE
- POLICY DATA STORE
- JOURNAL DATA STORE
- POLICY ENVIRONMENT

System action

Policy Services terminates.

User response

If the problem persists, contact IBM® Software Support.

Module

BSNSCT00

BSN2024E: A FUNC=TERM CALL WAS ISSUED. THIS TERMINATION REQUEST COULD NOT BE PROCESSED.

Explanation

A second TERM function request was made and then rejected because the environment has already terminated. This error is a client error.

System action

The requested TERM function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

Restart the IMS Tools client or the dialog client. If the problem persists, contact IBM® Software Support.

Module

BSNSCT00

BSN2026E: A BSNSC FUNC=STRT CALL WAS ISSUED BEFORE A BSNSC FUNC=INIT CALL WAS ISSUED. THE STRT CALL WAS IGNORED.

Explanation

A STRT call was issued before issuing an INIT call. This error is a call sequence error by the client code and is an internal client call sequence error.

System action

The STRT call is not processed and Policy Services terminates. The requested STRT function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

Restart the client, which is either the IMS Tools client or the dialogue client and issue the INIT call before a STRT call.

Module

BSNSCI00

BSN2027E: THE POLICY ENVIRONMENT STATUS COULD NOT BE OBTAINED: RC=*nn*, RSN=*nn*.

Explanation

During Policy Services initialization, the call to Policy Environment Services to retrieve the environment status failed. This error is an internal Policy Services error. RC=*nn* and RSN=*nn* are the return and reason codes returned by Policy Environment Services (PES).

System action

The requested INIT function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

See the description of the return code and reason code in the reference section (Return/reason codes: Policy Environment Services (BSN150-1599) of this user's guide to determine and correct the problem.

Module

BSNSCI00

BSN2028E: THE POLICY ENVIRONMENT CONTROL BLOCKS COULD NOT BE OBTAINED.

Explanation

During Policy Services initialization, a request for the Policy Environment Control Block (PDEB) failed. This error is an internal Policy Services error.

System action

The requested INIT function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNSCI00

BSN2030I: POLICY SERVICES HAS INITIALIZED THE BPE SERVICES.

Explanation

The Base Primitive Environment Services is initialized.

System action

The Policy Services initialization process continues.

User response

No action is required.

Module

BSNSCI00

BSN2031E: BPE SERVICES COULD NOT BE INITIALIZED.

Explanation

The Base Primitive Environment failed initialization. This error is an internal Policy Services or IMS Tools error.

System action

The requested INIT function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNSCI00

BSN2032I: POLICY SERVICES HAS TERMINATED THE BPE SERVICES.

Explanation

The Base Primitive Environment of Policy Services has been terminated.

System action

Policy Services is terminated.

User response

No action is required.

Module

BSNSCT00

BSN2033E: THE BPE SERVICES COULD NOT BE TERMINATED.

Explanation

The Policy Services Base Primitive Environment failed to terminate.

System action

The Base Primitive Environment is not terminated, and Policy Services continues termination.

User response

If the problem persists, contact IBM® Software Support.

Module

BSNSCT00

BSN2040I: POLICY SERVICES HAS CONNECTED TO THE REPOSITORY.

Explanation

The initialization process connected to the repository.

System action

The Policy Services initialization process continues.

User response

No action is required.

Module

BSNSCI00

BSN2041E: POLICY SERVICES COULD NOT CONNECT TO THE ITKB REPOSITORY: RC=*nn*, RSN=*nn*.

Explanation

During Policy Services initialization, a connection request to the IMS Tools Knowledge Base repository failed.

This error is an internal Policy Services error. The return code and the reason code are returned by the IMS Tools Knowledge Base repository.

A common failure (RC=00000008, RSN=0000000A) results if the RACF® setting for the Input repository is defined as UPDATE or READ and the User_ID does not have READ access authority or higher. If this is the problem, correct the RACF® setting for the Input repository or the User_ID, whichever is in error.

System action

The requested INIT function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

Start the IMS Tools Knowledge Base server and request that the IMS Tools client restarts Policy Services. See the IMS Tools Knowledge Base return and reason codes to determine and correct the problem.

Module

BSNSCI00

BSN2042I: POLICY SERVICES HAS DISCONNECTED FROM THE REPOSITORY.

Explanation

Policy Services disconnected from the repository.

System action

Policy Services continues termination.

User response

No action is required.

Module

BSNSCT00

BSN2043E: POLICY SERVICES COULD NOT DISCONNECT FROM THE REPOSITORY: RC=*nn*, RSN=*nn*.

Explanation

Policy Services failed to disconnect from the repository.

System action

Policy Services continues termination.

User response

See the FPQ return codes and reason codes to determine and correct the problem.

Module

BSNSCT00

BSN2044E: POLICY SERVICES COULD NOT FORCE TERMINATION AFTER AN INITIALIZATION FAILURE.

Explanation

During Policy Services initialization, a failure resulted in the forced termination of Policy Services. However, the termination failed.

System action

Policy Services and data dictionary terminate.

User response

See the previously issued messages in the MVS™ console output to determine the initialization and termination failure.

Module

BSNSCI00

BSN2045E: POLICY SERVICES COULD NOT BE INITIALIZED. POLICY SERVICES HAS FORCED TERMINATION.

Explanation

During Policy Services initialization, a failure resulted in the forced termination of Policy Services.

System action

Policy Services and data dictionary terminate.

User response

See the previously issued messages in the MVS™ console output to determine the initialization and termination failure.

Module

BSNSCI00

BSN2800I: GENERAL STATUS: RESOURCE=*resource_name* ACTION_NAME=*action_name* EXECUTION_STATUS=*status*

Explanation

This message is an informational message.

System action

None.

User response

No action is required.

Module

BSNAMT00

BSN2801E: STORAGE COULD NOT BE OBTAINED FOR AMCB

Explanation

Storage could not be obtained for the action manager control block (AMCB) on the action manager initialization call (FUNC=AMIT). The REGION parameter does not have enough memory for the job. This error is an internal IMS Tools error.

System action

The requested function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

Specify more memory for the REGION parameter, and then restart the job.

For example, you can specify REGION=0M so that the parameter can use all the main storage that it requires.

Module

BSNAMI00

BSN2802E: STORAGE COULD NOT BE OBTAINED FOR ADCB

Explanation

Storage could not be obtain for the action manager descriptor control block (ADCB) on the action manager initialization call (FUNC=AMIT). The REGION parameter does not have enough memory for the job. This error is an internal IMS Tools error.

System action

The requested function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

Specify more memory for the REGION parameter, and then restart the job.

For example, you can specify REGION=0M so that the parameter can use all the main storage that it requires.

Module

BSNAMI00

BSN2803E: STORAGE COULD NOT BE OBTAINED FOR MTCB

Explanation

Storage could not be obtained for the action message text control block (MTCB) on the action manager initialization call (FUNC=AMIT). The REGION parameter does not have enough memory for the job. This error is an internal IMS Tools error.

System action

The requested function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

Specify more memory for the REGION parameter, and then restart the job.

For example, you can specify REGION=0M so that the parameter can use all the main storage that it requires.

Module

BSNAMI00

BSN2804E: STORAGE COULD NOT BE OBTAINED FOR ANRB

Explanation

Storage could not be obtained for the action notification request block (ANRB) on the action manager initialization call (FUNC=AMIT). The REGION parameter does not have enough memory for the job. This error is an internal IMS Tools error.

System action

The requested function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

Specify more memory for the REGION parameter, and then restart the job.

For example, you can specify REGION=0M so that the parameter can use all the main storage that it requires.

Module

BSNAMI00

BSN2805E: STORAGE COULD NOT BE OBTAINED FOR NLIST

Explanation

Storage could not be obtained for the action manager notification list (NLIST) on the action manager initialization call (FUNC=AMIT). The REGION parameter does not have enough memory for the job. This error is an internal IMS Tools error.

System action

The requested function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

Specify more memory for the REGION parameter, and then restart the job.

For example, you can specify REGION=0M so that the parameter can use all the main storage that it requires.

Module

BSNAMI00

BSN2806E: THE PHASE NUMBER *phase_number* IS INVALID

Explanation

An invalid phase number was passed in the call to the action manager call (FUNC=AMP2). The valid phase number is 2.

System action

The requested function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNAMP00

BSN2807E: NO ACTION LIST WAS PASSED WITH AN AMIT

Explanation

No action list was passed to the action manager on the action manager initialization call (FUNC=AMIT). This error is an internal IMS Tools error.

System action

The requested function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNAMD00

BSN2900I: *The message text is one of the BBE2900I through BBE2910I summary messages*

Explanation

This message is an informational message that is written to the Journal.

System action

System processing continues. The BBE29*nn*I message is written to the Policy Services Journal, in the following format:

```
2026-02-14 11:09:175@AM  : BSN2900I BBE29nnI
Summary message text.
```

User response

No action is required. See the latest version of the *IMS Database Reorganization Expert User's Guide* for further information about the BBE29*nn*I messages.

Module

BSNAMT00

BSN3401I: THE JOURNAL MANAGER MODULE *module_name* RECEIVED CONTROL WITH FUNCTION *function_code*: RC=*nn*, RS=*nn*.

Explanation

This message is a journal manager (JM) message that indicates the module flow with the return code and the reason code for each module.

System action

None.

User response

No action is required.

Module

BSNJMSH0, BSNJMSR0, BSNJMSU0, BSNJMSW0, BSNJUOW0

BSN3403E: THE JOURNAL MANAGER HAD A CRITICAL ERROR IN MODULE *module_name*: FUNCTION=*function_code*, RC=*nn*, RS=*nn*.

Explanation

An error occurred in the journal manager (JM) module. This error is an internal IMS Tools error.

System action

The requested function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

See the JM return code and reason code to determine and correct the problem.

If the problem persists, contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNJMSH0, BSNJMSR0, BSNJMSU0, BSNJMSW0, BSNJUOW0

BSN3405E: PRODID=*product_ID*, REPTID= *report_ID*, RELEASE=*ITKB_release* HKTXACC *HKT_function_code* FAILED IN MODULE *module_name*, RC=*nn*, RS=*nn*.

Explanation

An error occurred in the journal manager (JM) module because of a failure in the IMS Tools KB report service function. In the message text:

product_ID

The product ID of the product using the IMS Tools KB report service.

report_ID

The report ID that JM is processing.

ITKB_release

The release of the IMS Tools KB server that is running.

HKT_function_code

The IMS Tools KB report service function name.

System action

The request to the IMS Tools KB report service is rejected. A return code and a reason code that define the failure are returned to the client. System processing continues.

User response

See the topic "HKT return and reason codes (repositories)" in *IMS Tools Base IMS Tools Knowledge Base User's Guide and Reference* to determine and correct the problem. If the problem persists, contact IBM® Software Support and notify them of the IMS Tools product that encountered this problem.

Module

BSNJMSH0, BSNJMSR0, BSNJMSU0, BSNJMSW0

BSN3406E: AN OPEN DATA SET FAILED IN MODULE *module_name*, FOR DD NAME=*ddname*: RC=*nn*, RS=*nn*.

Explanation

An error occurred in the journal manager (JM) module because of an OPEN function failure. The ddname is the name of the DD statement that failed to open. This error is an internal IMS Tools error.

System action

The requested function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

See the JM return code and reason code to determine and correct the problem. For more detailed information, see the MVS™ MESSAGE IEC*nnnn* and check the data set that is indicated by the ddname.

If the problem persists, contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNJMSH0

BSN3407E: A CLOSE DATA SET FAILED IN MODULE *module_name*, FOR DD NAME=*ddname*: RC=*nn*, RS=*nn*.

Explanation

An error occurred in the journal manager (JM) module because of a CLOSE function failure. The ddname is the name of the DD statement that failed to open. This error is an internal IMS Tools error.

System action

The requested function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

See the JM return code and reason code to determine and correct the problem. For more detailed information, see the MVS™ MESSAGE IEC*nnnn* and check the data set that is indicated by the ddname.

If the problem persists, contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNJMSH0

BSN3408E: A DYNAMIC ALLOCATION FAILED IN MODULE *module_name*: RC=*nn*, RS=*nn*.

Explanation

An error occurred in the journal manager (JM) module because of a DYNAMIC ALLOCATION function failure. This error is an internal IMS Tools error.

System action

The requested function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

See the JM return code and reason code to determine and correct the problem. For more detailed information, see the MVS™ MESSAGE IEC*nnnn* and check the data set that is indicated by the ddname.

If the problem persists, contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNJMSH0

BSN3409E: JOURNAL MANAGER ENCOUNTERED AN ERROR WHEN WRITING TO A DATA SET.

Explanation

An error occurred in the journal manager (JM) module because of a PUT function failure.

System action

Journal manager stops the function, and no more reports are written to the journal.

User response

See the MVS™ MESSAGE IEC*nnnn* and check the data set that is indicated by the ddname. The data set might have been full.

If the problem persists, contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNJMSR0

BSN4000I: THE POLICY VALIDATION PROCESS HAS STARTED FOR THE RESOURCE *resource_name*.

Explanation

The policy validation process has started.

System action

The policy validation process continues.

User response

No action is required.

Module

BSNPAI00

BSN4001I: THE POLICY VALIDATION PROCESS HAS ENDED FOR THE RESOURCE *resource_name*: RC=*nn*, RSN=*nn*.

Explanation

The policy validation process ended.

System action

Processing continues.

User response

See the return and reason codes for PVE. If the return code is zero, other error messages might accompany this message. Correct the errors, and rerun the job.

If no messages are accompanied with a return code of zero, contact IBM® Software Support.

Module

BSNPAI00

BSN4002I: THE POLICY EVALUATION PROCESS HAS STARTED FOR THE RESOURCE *resource_name*.

Explanation

The policy evaluation process started.

System action

The policy evaluation process continues.

User response

No action is required.

Module

BSNPAI00

BSN4003I: THE POLICY EVALUATION PROCESS HAS ENDED FOR THE RESOURCE *resource_name*: RC=*nn*, RSN=*nn*.

Explanation

The policy evaluation process ended.

System action

Processing continues.

User response

See the return and reason codes for PVE. If the return code is zero, other error messages might accompany this message. Correct the errors and rerun the job.

If no messages are accompanied with a return code of zero, contact IBM® Software Support.

Module

BSNPAI00

BSN4004E: STORAGE COULD NOT BE OBTAINED FOR THE REQUESTED LENGTH=*nnnnnnnn*: RC=*nn*, RSN=*nn*.

Explanation

The policy validation or the policy evaluation process could not obtain a storage.

System action

The requested function is rejected, and a return code and reason code that define the failure are returned to the client.

User response

Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNPASM0

BSN4005E: THE CSVQUERY FOR MODULE *module_name* COULD NOT OBTAIN A MODULE EP ADDRESS: RC=*nn*.

Explanation

The policy validation process or the policy evaluation process could not obtain a module EP address by using the CSVQUERY macro. The *module_name* variable indicates the module name that failed to obtain the address. The return code is from CSVQUERY.

System action

The requested function is rejected, and a return code and reason code that define the failure are returned to the client.

User response

See the *z/OS® MVS™ Programming: Assembler Services Reference* for more information about the return code. Correct the error, then rerun the job.

If the problem persists, contact IBM® Software Support.

Module

BSNPAI00

BSN4008W: THE BPE STRING PRINT FORMATTING SERVICE DETECTED AN ERROR: RC=*nn*.

Explanation

The internal messaging service detected an error during the policy validation process or the policy evaluation process.

System action

The policy validation or the policy evaluation process stops to issue messages, and then the process continues.

User response

Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNPAMS0

BSN4009W: THE BPE WTO PRINT FORMATTING SERVICE DETECTED AN ERROR: RC=*nn*.

Explanation

The internal messaging service detected an error during the policy validation or policy evaluation process.

System action

The policy validation or policy evaluation process stops and issues messages, and then continues the process.

User response

Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNPAMS0

BSN4010I: A CONDITION WAS MET FOR THE RULE *rule_name*.

Explanation

The policy evaluation process detected an exception condition that met the condition for *rule_name*.

System action

The policy evaluation process continues.

User response

No action is required.

Module

BSNPEDC0

BSN4011I: AN EXCEPTION WAS DETECTED DURING THE POLICY EVALUATION PROCESS FOR THE RULE *rule_name* WITH EXCEPTION MESSAGE=*exception_message*, EXCEPTION CLASS=*exception_class*, EXCEPTION LEVEL=*exception_level*, AND SELECTED ACTION=*action_name*.

Explanation

An exception was detected during the policy evaluation process.

System action

The policy evaluation process continues.

User response

No action is required.

Module

BSNPEM00

BSN4012I: NO EXCEPTION WAS DETECTED DURING THE POLICY EVALUATION PROCESS.

Explanation

An exception was not detected during the policy evaluation process.

System action

The policy evaluation process continues.

User response

No action is required.

Module

BSNPEM00

BSN4013I: EVALUATION WAS SKIPPED FOR THE RULE *rule_name*: RSN=*reason*

Explanation

The policy evaluation process did not evaluate *rule_name* because of *reason*.

The following list explains the two possible reasons:

- RESOURCE TYPE WAS INCONSISTENT WITH THIS RULE. *rule_name* was incompatible with the processing resource type.
- NO DATA ELEMENTS FOR THE RULE EVALUATION WERE PROVIDED. All data elements specified in the Boolean operators were not provided as the input of the policy evaluation.

System action

The policy evaluation process continues.

User response

No action is required.

Module

BSNPEDC0

BSN4014I: THE EVALUATION PROCESS WAS DIRECTED BECAUSE OF A MISSING DATA ELEMENT FOR RULE NAME *rule_name* AND DATA

ELEMENT NAME *data_element_name*. THE DIRECTION [GENERATE AN EXCEPTION/SKIP EVALUATION] WAS REQUESTED.

Explanation

The policy evaluation process detected a missing data element that is specified in the ONMISSING expression. The second parameter of the ONMISSING expression directs the rule evaluation.

The two directions are described in the following list:

- GENERATE AN EXCEPTION, which means that the policy evaluation process generates an exception for the rule.
- SKIP EVALUATION, which means that the policy evaluation process skips evaluation for the rule.

System action

The policy evaluation process continues.

User response

No action is required.

Module

BSNPEMS0

BSN4015I: THE DATA ELEMENT *data_element_name* IS NOT IN THE DATA RECORD.

Explanation

The policy evaluation process detected that *data_element_name* is missing in the data record.

System action

The policy evaluation process continues.

User response

No action is required.

Module

BSNPECP0

BSN4016E: THE DOMAIN NAMES ARE INCONSISTENT. THE DOMAIN NAME THAT WAS SPECIFIED BY THE CLIENT PRODUCT IS *domain_name_1*, BUT THE DOMAIN NAME THAT WAS SPECIFIED IN THE POLICY IS *domain_name_2*.

Explanation

The policy domain name *domain_name_2* that is described in the policy is inconsistent with the policy domain name *domain_name_1* that was specified by the client product.

System action

The policy validation process is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

Specify the domain name so that it is consistent with the domain in the policy, then rerun the job.

Module

BSNPVPD0

BSN4017E: A RESOURCE TYPE THAT WAS DEFINED IN A RULE IS INAPPROPRIATE FOR THE POLICY RULE NAME *rule_name*.

Explanation

All resource types that are specified by the RESOURCE_REF expressions of a rule are not defined as the resource type in the policy.

System action

The policy validation process is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

Specify the rule resource type so that it is consistent with the policy resource type, then rerun the job.

Module

BSNPVDM0

BSN4018E: A POLICY DEFINITION DOES NOT MATCH THE POLICY DOMAIN DEFINITION FOR THE FOLLOWING LOCATION: [POLICY LEVEL | RULE LEVEL] [POLICY NAME | RULE NAME] *policy_name/rule_name* WITH DATA ATTRIBUTE= [EXCEPTION CLASS | EXCEPTION LEVEL | ACTION NAME] AND DATA VALUE= *value*.

Explanation

A data value that is defined in a policy or a rule does not match the policy domain definition.

The data value *value* is the data value of the exception class, exception level, or action name.

The *policy_name* or *rule_name* is the name of the policy or rule that has the data value that does not match the domain definition.

System action

The policy validation process is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

Specify valid values for the exception class, exception level, and action name, then rerun the job. The valid values are given in the policy domain.

Module

BSNPVDM0

BSN4019E: THE DATA ELEMENT THAT WAS SPECIFIED BY THE ONMISSING EXPRESSION WAS NOT FOUND IN CONDITION EXPRESSION RULE NAME: *rule_name* AND DATA ELEMENT NAME: *data_element_name*.

Explanation

The data element that is specified in the ONMISSING expression of a RULE expression is not defined in the CONDITION expression of the RULE expression.

System action

The policy validation process is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

Specify the data element that is defined in the ONMISSING expression in the CONDITION expression then rerun the job.

Module

BSNPVDM0

BSN4020E: THE BPE PARSING SERVICE DETECTED AN ERROR: RC=*nn* FUNC=*function_name*. THE BPE ISSUES THE FOLLOWING MESSAGE: AN ERROR OCCURRED PARSING POLICY DEFINITION STREAM *messages*.

Explanation

The BPE parsing service detected an error in the policy definition. The variable *function_name* indicates the function name of the BPE parsing service.

System action

The policy validation process is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

If the function name is PARSE, see the BPE0003E message for the details of this error.

For any other function name, see the policy definition to correct any errors in the definition then rerun the job.

Module

BSNPPPS0

BSN4021E: A SYNTAX ERROR WAS FOUND IN THE POLICY DEFINITION STREAM FOR RULE NAME *rule_name*, BOOLEAN EXPRESSION #*nn* IN NEST LEVEL *nn* (OPERATOR: *operator*), COMPARISON EXPRESSION #*nn*, AND THE POSITION OF THE OPERAND WITH THE ERROR: IS *nn*. SEE THE BSN*nnnn*E MESSAGE FOR THE REASON OF THIS ERROR.

Explanation

The policy validation process detected a syntax error in the policy definition. The subsequent error message BSN*nnnn*E describes the error.

System action

The policy validation process is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

See the BSN*nnnn*E message. Correct the error then rerun the job.

Module

BSNPPEH0, BSNPPES0, BSNPPGV0, BSNPVDM0

BSN4022E: THE THRESHOLD DEFINITION IS INVALID FOR THE RESOURCE DEFINITION DATA ELEMENT NAME *data_element_name*.

Explanation

A threshold definition that is specified by the IF expression is invalid. The definition is invalid for the resource definition in the rule that is specified by the RESOURCE_REF expression.

System action

The policy validation process is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

Specify the data element name that is valid for the resources defined in the rule, then rerun the job. A valid data element name is given in the policy domain.

Module

BSNPVDM0

BSN4023E: INVALID CHARACTERS WERE SPECIFIED IN *invalid_content* FOR *expression*.

Explanation

An expression contains invalid content. For example, specifying "CI/CA_SPLITS" for the EXCEPTION CLASS is invalid because slashes (/) cannot be used.

The expression variable is the expression that includes the invalid content and can be one of the following expressions:

- POLICY NAME
- POLICY ORIGINAL NAME
- RULE NAME
- NOTIFICATION LIST NAME
- ACTION NAME
- DOMAIN NAME
- RESOURCE NAME
- DATA ELEMENT NAME OF ONMISSING
- DATA ELEMENT NAME OF IF
- EXCEPTION CLASS
- EXCEPTION LEVEL
- ANNOTATION TEXT
- EXCEPTION MESSAGE TEXT

System action

The policy validation process is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

Use valid characters when specifying the content for the expression then rerun the job.

Module

BSNPPGV0

BSN4024E: THE MAXIMUM ALLOWABLE NUMBER OF OCCURRENCES WAS EXCEEDED FOR EXPRESSION NAME *expression_name*.

Explanation

The expression *expression_name* exceeded the maximum allowable number of occurrences.

System action

The policy validation process is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

Specify an expression name that is within the allowable number of occurrences then rerun the job.

For the NTFYLIST_REF expression, the maximum number of occurrences is 10.

For the IF expression, the maximum number of occurrences is 5.

All other expressions do not have a maximum number of occurrences.

Module

BSNPPGV0, BSNPPEH0

BSN4025E: THE MAXIMUM NEST LEVEL WAS EXCEEDED.

Explanation

The nest level from the CONDITION expression exceeded the maximum allowable nest level.

System action

The policy validation process is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

Remove any nest that exceeds the maximum allowable nest level of 3 then rerun the job.

Module

BSNPPES0

BSN4026E: THE ARRAYED BOOLEAN OPERATOR CONTAINS A NON-ARRAYED DATA ELEMENT *data_element_name*.

Explanation

The Boolean operator for arrayed data (AAND or AOR) contains a data element that is not treated as arrayed data.

System action

The policy validation process is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

Specify an arrayed data element for the arrayed Boolean operator then rerun the job.

Module

BSNPVDM0

BSN4027E: THE NON-ARRAYED BOOLEAN OPERATOR CONTAINS AN ARRAYED DATA ELEMENT *data_element_name*.

Explanation

The Boolean operator for non-arrayed data (AND or OR) contains a data element that is treated as arrayed data.

System action

The policy validation process is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

Specify a non-arrayed data element for the non-arrayed Boolean operator then rerun the job.

Module

BSNPVDM0

BSN4028E: THE SPECIFIED NOTIFICATION LIST WAS NOT FOUND FOR THE FOLLOWING LOCATION: [POLICY LEVEL | RULE LEVEL] THE NAME *name* AND NOTIFICATION LIST NAME *nl_name*.

Explanation

A notification list, which is specified in the policy or rule expression, was not found in the IMS Tools Knowledge Base repository.

System action

The policy validation process is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

Specify the notification lists that are stored in the Input repository then rerun the job.

Module

BSNPVNL0

BSN4029E: NOTIFICATION LIST DATA STORE SERVICE FAILED. FUNC=*function_code*, RC=*return_code*, RSN=*reason_code*.

NOTIFICATION LIST NAME=*notification_list_name*

Explanation

The policy evaluation process failed to read a notification list from the repository.

The *function_code* indicates the 4-byte function code of the repository service. The *return_code* and the *reason_code* are hexadecimal values that are returned by the repository read service. The *notification_list_name* variable indicates the name of the notification list that could not be read.

System action

The policy evaluation process is rejected, and the return and reason codes that define the failure are returned to the client.

User response

This might be an internal error. Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNPVNL0

BSN4030E: ACCESS TO THE INPUT REPOSITORY FAILED. FUNC=*function_code*, RC=*return_code*, RSN=*reason_code*.

CALLER=*modname*, FEEDBACK AREA=*fpq_feedback_area*

NAME=*member_name*

Explanation

The policy evaluation process failed to access the IMS Tools KB Input repository.

The *function_code* indicates the 4-byte function code of the repository service. The *return_code* and the *reason_code* are hexadecimal values that are returned by the repository service. The *modname* indicates the name of the module that caused the error. The *fpq_feedback_area* includes IBM® diagnostic and debugging information. The *member_name* indicates the name of the repository member that failed to access.

System action

The policy evaluation process is rejected, and the return and reason codes that define the failure are returned to the client.

User response

This might be an internal error. Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNPENR0

BSN4031E: AN ACTION COULD NOT BE ASSOCIATED WITH THE EXCEPTION CLASS AND LEVEL FOR THE RULE NAME *rule_name*.

Explanation

The policy validation process could not associate an action with the EXCEPTION_CLASS and the EXCEPTION_LEVEL for a rule that is defined in the policy.

System action

The policy validation process is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

In the rule, specify the exception class and level that are associated with the policy action, and then rerun the job.

Module

BSNPEAL0

BSN4032E: THE SPECIFIED RESOURCE TYPE IS INCORRECT FOR THE POLICY DOMAIN *domain_name* AND THE RESOURCE TYPE *resource_type*.

Explanation

The resource type that was specified for the policy validation process is incompatible for *domain_name*.

System action

The policy validation process is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

Define the resource type that is evaluated for the policy domain then rerun the job.

Module

BSNPECP0

BSN4033E: THE THRESHOLD DEFINITION IS INCORRECT FOR THE THRESHOLD NAME *threshold_name*.

Explanation

The syntax of the threshold definition that is in the IF expression is incorrect.

System action

The policy validation process is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

Specify the correct threshold definition in the IF expression then rerun the job.

Module

BSNPPEH0

BSN4034E: THE BOOLEAN EXPRESSION IS INCONSISTENT WITH THRESHOLD DEFINITION FOR THE THRESHOLD NAME *threshold_name*.

Explanation

The suffixed data element was incorrectly specified as AAND or AOR in the arrayed Boolean operator.

System action

The policy validation process is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

Replace the AAND or AOR expression with the AND or OR expression. Alternatively, you can remove the suffix from the data element that is specified in the arrayed Boolean operator.

After replacing or removing the expression, rerun the job.

Module

BSNPPEH0

BSN4035I: AN EXPRESSION THAT REFERS TO *data_element_name* IS EVALUATED AS {TRUE|FALSE|IGNORE}. THE FOLLOWING EXPRESSION WAS EVALUATED: COMPARISON EXPRESSION #*nn* OF BOOLEAN EXPRESSION #*nn* IN NEST LEVEL *n* (OPERATOR: *operator*) IN THE RULE *rule_name*.

Explanation

The data element *data_element_name* is missing in the data record. The variable *rule_name* indicates the CONDITION expression that contains comparison operators for *data_element_name*.

The *data_element_name* is evaluated as one of the following conditions:

- TRUE: the comparison expression that contains the missing data is true.
- FALSE: the comparison expression that contains the missing data is false.
- IGNORE: the comparison expression that contains the missing data is ignored.

System action

The policy evaluation process continues.

User response

No action is required.

Module

BSNPECP0

BSN4036E: THE COMPARISON OPERATOR *operator* CANNOT BE USED FOR THE DATA ELEMENT *data_element_name*.

Explanation

The comparison operator *operator* for the IF expression cannot be used for the data element *data_element_name*.

System action

The policy validation process is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

Specify the correct comparison operator for the IF expression, then rerun the job.

Use the following comparison operators for data elements when the physical format is a character type:

- IS
- ISNOT

Use the following comparison operators for data elements when the physical format is not a character type:

- GT
- LT

- GE
- LE
- EQ
- NE

Module

BSNPVDI0

BSN4037W: DATA ELEMENT *data_element_name* IS MISSING IN THE SENSOR DATA RECORD.

Explanation

The policy evaluation process detected that the value for the *data_element_name* is missing in the sensor data record set.

System action

The policy evaluation process continues, and a return code of 4 and a reason code of X'10' are returned to the Policy Services API.

User response

Check if a correct sensor data record set was read and that a correct policy was specified for the policy evaluation. If there is a problem, correct the error, and rerun the job; otherwise, no action is required.

Module

BSNPEMS0

BSN4038E: DATA ELEMENT *data_element_name* IS MISSING IN THE SENSOR DATA RECORD.

Explanation

The policy evaluation process detected that the value for the data element *data_element_name* is missing from the sensor data record set.

System action

The policy evaluation process is rejected, and a return code of 8 and a reason code of X'10' are returned to the Policy Services API.

User response

Check if a correct sensor data record set was read and the correct policy was specified for the policy evaluation. Correct the error, and rerun the job.

Module

BSNPEMS0

BSN4039I: DELETED NOTIFIED RESOURCE MEMBER FROM THE REPOSITORY.

NAME=*member_name*

Explanation

The policy evaluation process deleted a repository member called the *notified resource member* from the IMS Tools KB Input repository. The *member_name* indicates the name of the repository member that was deleted.

System action

Processing continues.

User response

None. This message is informational.

Module

BSNPENR0

BSN4041E: THE INPUT DATA RECORD LIST IS INVALID FOR THE POLICY EVALUATION PROCESS. SINGLE AND ARRAYED DATA VALUES WERE MIXED IN A DATA RECORD.

Explanation

Single data values and arrayed data values were contained in a single data record.

System action

The policy evaluation process is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

Specify the correct load module library for IMS Policy Sensor Services. If the problem persists, contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNPECP0

BSN4043E: THE INPUT DATA RECORD LIST IS INVALID FOR THE POLICY EVALUATION PROCESS. THE DATA RECORD LIST ADDRESS WAS NULL.

Explanation

The data record list was not provided for policy evaluation.

System action

The policy evaluation process is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

Specify the correct load module library for IMS Policy Sensor Services. If the problem persists, contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNPECP0

BSN4051E: THE DATA DICTIONARY SERVICE DETECTED PROBLEMS WHILE RUNNING FUNC=*function_code*: FRC=*nnnn* FRSN=*nnnn*.

Explanation

One or more errors were detected when the data dictionary function *function_code* was run.

System action

The policy validation process is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNPVDI0

BSN4052E: THE DATA DICTIONARY SERVICE DETECTED PROBLEMS WHILE RUNNING . AN INVALID THRESHOLD=*threshold_name* (TRC=*nnnn* TRSN=*nnnn*) WAS SPECIFIED FOR FUNC=*function_code*: FRC=*nnnn*, FRSN=*nnnn*.

Explanation

The threshold name *threshold_name* is incorrect or not defined in the data dictionary.

System action

The policy validation process is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

Specify the correct data element name in the CONDITION expression that is defined in the data dictionary then rerun the job.

Module

BSNPVDI0

BSN4053E: THE DATA DICTIONARY SERVICE DETECTED PROBLEMS WHILE RUNNING . AN INVALID THRESHOLD VALUE=*threshold_value* (TRC=*nnnn* TRSN=*nnnn*) WAS SPECIFIED FOR THRESHOLD=*threshold_name* IN FUNC=*function_code*: FRC=*nnnn*, FRSN=*nnnn*.

Explanation

The threshold value *threshold_value* is incorrect for *threshold_name*.

System action

The policy validation process is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

Specify a valid threshold value that does not exceed the range in the CONDITION expression then rerun the job.

Module

BSNPVDI0

BSN4054E: THE DATA DICTIONARY SERVICE DETECTED PROBLEMS WHILE RUNNING . AN INVALID THRESHOLD VALUE=*threshold_value* OR SENSORY DATA VALUE=*sensory_data_value* (TRC=*nnnn* TRSN=*nnnn*) WAS SPECIFIED FOR THRESHOLD=*threshold_name* IN FUNC=*function_code*: FRC=*nnnn*, FRSN=*nnnn*.

Explanation

The threshold value or the sensory data value for *threshold_name* is invalid for the Data Dictionary function *function_code*.

System action

The policy validation process is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

Specify the correct load module library for IMS Policy Sensor Services. If the problem persists, contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNPVDI0

BSN4600I: THE MESSAGE NOTIFICATION PROCESS HAS STARTED FOR THE DESTINATION TYPE *destination_type*.

Explanation

The message notification process has started.

The *destination_type* variable specifies where these notification messages are being sent. Possible destination types include the TSO USER, where messages are sent to a TSO user ID, and the SYSTEM CONSOLE, where messages are sent to an operator console.

System action

The message notification process continues.

User response

No action is required.

Module

BSNNMM00

BSN4601I: THE MESSAGE NOTIFICATION PROCESS HAS ENDED FOR THE DESTINATION TYPE *destination_type*.

Explanation

The message notification process ended.

The *destination_type* variable specifies where these notification messages were being sent. Possible destination types include the TSO USER, where messages are sent to a TSO user ID, and the SYSTEM CONSOLE, where messages are sent to an operator console.

System action

The message notification process continues.

User response

No action is required.

Module

BSNNMM00

BSN4602E: STORAGE COULD NOT BE OBTAINED FOR THE REQUESTED LENGTH=*nnnnnnnn*: RC=*nn*, RSN=*dd*.

Explanation

The message notification process could not obtain a storage. The LENGTH variable is the requested length. The return code *nn* and reason code *dd* are hexadecimal values that are returned by Policy Services Storage management.

System action

The requested function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNNMM00

BSN4603I: THE TSO/E SEND COMMAND IS BEING USED FOR THE NOTIFICATION PROCESS.

Explanation

The message notification process uses the TSO/E SEND command to issue notification messages to TSO users.

System action

The message notification process continues.

User response

No action is required.

Module

BSNNMM00

BSN4604I: THE WTO SERVICE IS BEING USED FOR THE NOTIFICATION PROCESS.

Explanation

The message notification process uses the z/OS® WTO service to issue notification messages to the system console.

System action

The message notification process continues.

User response

No action is required.

Module

BSNNMM00

BSN4607E: THE CURRENT LEVEL OF THE MESSAGE NOTIFICATION PROCESS DOES NOT SUPPORT THE DESTINATION TYPE FOR THE DESTINATION NAME *destination_name*.

Explanation

The current level of the message notification process does not support the destination type that is associated with the destination name.

Policy Services supports only two destinations: the TSO user and the system console. If any other destination is specified, this message is issued.

System action

The requested function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

Specify the correct destination type for the message notification by using the Policy Dialog, then rerun the job.

Module

BSNNMCV0

BSN4608W: BPE STRING PRINT FORMATTING SERVICE DETECTED AN ERROR DURING THE MESSAGE NOTIFICATION PROCESS: RC=*nn*.

Explanation

Internal messaging service detected an error during the message notification process. The return code *nn* is a hexadecimal value that is returned by BPE message processing.

System action

The message notification process stops and issues messages, and then continues the notification process.

User response

Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNNMMS0

BSN4609W: BPE WTO PRINT FORMATTING SERVICE DETECTED AN ERROR DURING THE MESSAGE NOTIFICATION PROCESS: RC=*nn*.

Explanation

Internal messaging service detected an error during the message notification process. The return code *nn* is a hexadecimal value that is returned by BPE message processing.

System action

The message notification process aborts by issuing messages, and then continues the process.

User response

Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNNMMS0

BSN4610E: THE MESSAGE NOTIFICATION PROCESS COULD NOT READ THE NOTIFICATION LIST *notification_list_name*: FUNC=*nnnn*, RC=*nn*, RSN=*nn*.

Explanation

The message notification process failed to read a notification list from the repository.

The *nnnn* notification list function variable indicates the 4-byte function code. The return code and the reason code are hexadecimal values that are returned by the repository read service. The *notification_list_name* variable indicates the name of the notification list that could not be read.

System action

The requested function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

Specify the correct notification list name in the policy, then rerun the job.

Module

BSNNMNL0

BSN4611I: THE FOLLOWING MESSAGES WERE RETURNED: *message_text*.

Explanation

The message notification process received one or more messages by using the notification service.

System action

The message notification process continues.

User response

No action is required.

Module

BSNNMM00

BSN4612I: THE TSO/E SEND COMMAND WAS SUCCESSFUL: RC=*nn*

Explanation

The message notification process issued notification messages to TSO users by using the TSO/E SEND command. The return code is a hexadecimal value that is returned by the TSO SEND command.

System action

The message notification process continues.

User response

No action is required.

Module

BSNNMM00

BSN4613E: THE TSO/E SEND COMMAND WAS UNSUCCESSFUL: RC=*nnnnnnnn*.

Explanation

The message notification process called the TSO notifier but failed to issue notification messages to TSO users by using the TSO/E SEND command. The variable *nnnnnnnn* indicates the hexadecimal return code of the TSO SEND command.

System action

The requested function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

See the *z/OS® TSO/E Command Reference* to find the return code of the SEND command, and see BSN4611I for more information about this error.

Module

BSNNMM00

BSN4614E: A SYSTEM ERROR OCCURRED DURING THE TSO NOTIFICATION PROCESS: RC=*nnnn*, RSN=*nnnnnnnn*.

Explanation

An environmental error occurred when the message notification process called the TSO notifier to issue notification messages to TSO users. The return code is a hexadecimal value that is returned by Policy Services Notification management. The following list shows possible return codes:

X'000C'

The TSO notifier failed to obtain storage. The reason code is for the z/OS® STORAGE macro.

X'0010'

The TSO notifier failed to open a data set that is used internally. The reason code is for the z/OS® OPEN macro.

X'0014'

The TSO notifier failed to dynamically allocate a data set that is used internally. The reason code is for the z/OS® DYNALLOC macro (S99RSC).

X'0018'

The TSO notifier failed to load a module. The first four bytes of the *nnnnnnnn* variable show the system completion code and the last four bytes show the reason code.

X'001C'

The task that called the TSO notifier was not an APF-authorized task. The variable *nnnnnnnn* is always the hexadecimal reason code 00000004.

X'0020'

Policy Services does not support sending notification messages to TSO clients for the requesting IMS Tools product because the IMS Tools product is not executing in Key 8. The variable *nnnnnnnn* is the key of the caller.

X'00FF'

The TSO notifier ended abnormally. The reason code shows the system completion code.

System action

The requested function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

If you have one of the following return codes, complete the accompanying steps for that return code. If you do not have one of the following return codes, contact IBM® Software Support.

X'000C'

See the *z/OS® MVS™ Programming: Assembler Services Reference* for more information about the return code for the STORAGE OBTAIN macro. Correct any errors, then rerun the job.

X'0010'

See the *z/OS® DFSMS Macro Instructions for Data Sets* for more information about the return code for the OPEN macro. Correct any errors, then rerun the job.

X'0014'

See the *z/OS® MVS™ Programming Authorized Assembler Services Guide* for more information about the return code for the DYNALLOC macro. Correct any errors, then rerun the job.

X'0018'

See the *z/OS MVS™ System Codes* for more information about the system completion code. Correct any errors, then rerun the job.

X'001C'

APF-authorize the task that called the TSO notifier, then rerun the job.

X'0020'

Change the notification list to send messages to the email directory entry, the texting directory entry, or both directory entries.

X'00FF'

Contact IBM® Software Support.

Module

BSNNMM00

BSN4615I: THE Z/OS WTO SERVICE SUCCESSFULLY ISSUED NOTIFICATION MESSAGES: RC=*nnnnnnnn*.

Explanation

The message notification process issued notification messages to the system console by using the z/OS® WTO service. The return code is a hexadecimal value that MVS™ returned for the WTO.

System action

The message notification process continues.

User response

No action is required.

Module

BSNNMM00

BSN4616E: THE Z/OS WTO SERVICE FAILED TO ISSUE NOTIFICATION MESSAGES: RC=*nnnnnnnn*.

Explanation

The message notification process failed to issue notification messages to the system console by using the z/OS® WTO service. The return code is a hexadecimal value returned by MVS™ for the WTO.

System action

The requested function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

See the *z/OS® MVS™ Programming: Assembler Services Reference* for more information about the WTO return code. Correct the error then rerun the job.

Module

BSNNMM00

BSN4620E: ACCESS TO THE INPUT REPOSITORY FAILED. FUNC=*function_code*, RC=*return_code*, RSN=*reason_code*.

CALLER=*modname*, FEEDBACK AREA=*fpq_feedback_area*

NAME=*member_name*

Explanation

The message notification process failed to access the IMS Tools KB Input repository.

The *function_code* indicates the 4-byte function code of the repository service. The *return_code* and the *reason_code* are hexadecimal values that are returned by the repository service. The *modname* indicates the name of the module that caused the error. The *fpq_feedback_area* includes IBM® diagnostic and debugging information. The *member_name* indicates the name of the repository member that failed to access.

System action

The policy evaluation process is rejected, and the return and reason codes that define the failure are returned to the client.

User response

This might be an internal error. Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNNMNR0

BSN4621I: CREATED A NEW NOTIFIED RESOURCE MEMBER.

NAME=*member_name*

Explanation

The message notification process created a repository member called the *notified resource member* in the IMS Tools KB Input repository. The *member_name* indicates the name of the notified resource member that was created.

System action

Processing continues.

User response

None. This message is informational.

Module

BSNNMNR0

BSN4622I: FOUND A NOTIFIED RESOURCE MEMBER.

NAME=*member_name*

Explanation

The message notification process found a repository member called the *notified resource member* in the IMS Tools KB Input repository. The *member_name* indicates the name of the notified resource member that was found.

System action

Processing continues.

User response

None. This message is informational.

Module

BSNNMNR0

BSN4623I: SUPPRESSED NOTIFICATION FOR DIRECTORY ENTRY *directory_entry_name*

Explanation

The message notification process suppressed sending notifications to users when exceptions were detected in a database. The *directory_entry_name* indicates the name of the directory entry for which notifications were suppressed.

System action

Processing continues.

User response

None. This message is informational.

Module

BSNNMNR0

BSN5201I: THE NLDS MODULE *module_name* RECEIVED CONTROL WITH FUNCTION *function_code*: RC=*nn*, RSN=*nn*.

Explanation

This message is a notification list data store (NLDS) message that indicates the module flow with the return code and the reason code for each module.

System action

None.

User response

No action is required.

Module

BSNNLCB0, BSNNLDI0, BSNNLDU0, BSNNLDL0, BSNNLDP0, BSNNLPD0, BSNNLDE0, BSNLDA0

BSN5203E: NLDS HAD A CRITICAL ERROR IN MODULE *module_name*: FUNTION=*function_code* RC=*nn*, RS=*nn*.

Explanation

An error occurred in the notification list data store (NLDS) module. This error is an internal IMS Tools error.

System action

The requested function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

See the NLDS return code and reason code to determine and correct the problem.

If the problem persists, contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNNLDS0, BSNNLCB0, BSNNLDI0, BSNNLDU0, BSNNLDL0, BSNNLDP0, BSNNLPD0, BSNNLDE0, BSNLDA0

BSN5206E: A NLDS REPOSITORY FUNCTION FAILED: LEVEL=*environment_level*, LOCALE=*recon_ID*, LIST=*notification_list_name*. THE FPQSRV *FPQ_ function_code* FAILED IN MODULE *module_name* WITH RC=*nn*, RSN=*nn*. THE FPQSRV DIAGNOSTIC FEEDBACK= WORD1=*word1_first_half-word1_second_half*, WORD2=*word2*, WORD3=*word3*.

Explanation

A repository server function failed in the notification list data store (NLDS) module for *environment_level*, *recon_ID*, and *notification_list_name*. The FPQ function code specifies the repository function name.

The feedback field includes IBM® diagnostic and debugging information. This error is an internal IMS Tools error.

System action

The requested function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

See the repository service return code and reason code to determine and correct the problem.

If the problem persists, contact IBM® Software Support and notify them of the IMS Tools product that encountered this problem.

Module

BSNNLDI0, BSNNLDU0, BSNNLDL0, BSNNLDP0, BSNNLPD0, BSNNLDA0

BSN5207E: A NLDS REPOSITORY FUNCTION FAILED FOR NLDS PENDING DELETE TABLE FOR ENVIRONMENT LEVEL=*environment_level*. THE FPQSRV *FPQ_ function_code* FAILED IN MODULE *module_name* WITH RC=*nn*, RSN=*nn*. THE FPQSRV DIAGNOSTIC FEEDBACK= WORD1=*word1_first_half-word1_second_half*, WORD2=*word2*, WORD3=*word3*.

Explanation

A repository server function failed in the notification list data store (NLDS) module. The function failed for the pending delete table for *environment_level*. The FPQ function code specifies the repository function name.

The feedback field includes IBM® diagnostic information. This error is an internal IMS Tools error.

System action

The requested function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

See the repository service return code and reason code to determine and correct the problem.

If the problem persists, contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNNLDI0, BSNNLDU0, BSNNLDL0, BSNNLDP0, BSNNLPD0, BSNNLDA0

BSN5208E: THE NOTIFICATION LIST: *notification_list_name*, COULD NOT BE DELETED BECAUSE IT IS BEING REFERENCED BY DOMAIN *referenced_policy_domain_name*: LOCAL=*referenced_policy_recon_ID*, POLICY=*referenced_policy_name*.

Explanation

A request to delete the notification list failed because it is being referenced by a policy.

System action

The requested function is rejected, and another error message BSN5203E with return code (X'08') and reason code (X'70') is returned to the caller.

User response

To delete the notification list, remove the reference to the notification list from the policy.

Module

BSNNLPD0

BSN5211I: NLDS HAS STARTED LISTING OBJECTS.

Explanation

The notification list process started listing.

System action

None.

User response

No action is required.

Module

BSNNLDI0

BSN5212I: FOR LEVEL=*environment_level*, LOCALE=*locale*, AND NOTIFICATION LIST=*notification_list_name*, THE NOTIFICATION LIST *list_action* STARTED.

Explanation

The notification list process (*list_action*) has started for *environment_level*, *recon_ID*, and *notification_list_name*.

The variable *list_action* is one of the following actions:

- UPDATE
- DELETE
- IMPORT

System action

None.

User response

No action is required.

Module

BSNNLDU0, BSNNLDL0, BSNNLDP0

BSN5215I: THE NOTIFICATION LIST HAS ENDED LISTING OBJECTS: RC=*nn*, RSN=*nn*

Explanation

The notification list process ended listing.

System action

None.

User response

No action is required.

Module

BSNNLDI0

BSN5216I: FOR LEVEL=*environment_level*, LOCALE=*locale*, AND NOTIFICATION LIST=*notification_list_name*, THE NOTIFICATION LIST *list_action* HAS ENDED.

Explanation

The notification list process (*list_action*) has ended for *environment_level*, *recon_ID*, and *notification_list_name*.

The variable *list_action* is one of the following actions:

- UPDATE
- DELETE
- IMPORT

System action

None.

User response

No action is required.

Module

BSNNLDU0, BSNNLDL0, BSNNLDP0

BSN5217I: THE NOTIFICATION LIST *function* BY RECON *recon_name* HAS STARTED

Explanation

The notification list data store (NLDS) process is started by *recon_name*. The variable *function* is one of the following actions:

- DELETE
- QUERY

System action

None.

User response

None. This message is informational.

Module

BSNNLDN0

BSN5218I: THE NOTIFICATION LIST *function* BY RECON *recon_name* HAS ENDED FOR THE: RC=*nn*, RSN=*nn*.

Explanation

The notification list data store (NLDS) process ended by *recon_name*. The variable function is one of the following actions:

- DELETE
- QUERY

System action

None.

User response

None. This message is informational.

Module

BSNNLDN0

BSN5222W: NO DELEGATE NAME WAS FOUND IN THE DIRECTORY ENTRY *directory_entry_name*.

Explanation

The directory entry does not have a delegate name that is specified, but the delegate option was set.

System action

Normal processing continues.

User response

If the directory entry requires a delegate name, add a delegate name by updating the directory entry.

If a delegate name is not required, request that the delegate option be turned off.

Module

BSNNLDL0

BSN5223W: NO DELEGATE OPTION WAS FOUND IN THE DIRECTORY ENTRY *directory_entry_name*.

Explanation

The directory entry does not have a delegate option that is specified. A delegate name was specified, but the delegate option is not set. This condition is valid, but the rerouting to an alternate destination cannot occur until the delegate option is set.

System action

Normal processing continues.

User response

If you want to reroute to an alternate destination, set the delegate option. Otherwise, no action is required.

Module

BSNNLDL0

BSN5224W: THE DIRECTORY ENTRY *directory_entry_name* DOES NOT EXIST IN THE REPOSITORY.

Explanation

The directory entry *directory_entry_name* does not exist in the repository. A request for the named directory does not exist.

System action

Normal processing continues.

User response

If *directory_entry_name* is a valid directory name, add the directory entry into the system. Otherwise, no action is required.

Module

BSNNLDL0

BSN5801I: THE PDDS MOD *module_name* RECEIVED CONTROL WITH FUNC=*function_code*: RC=*nn*, RSN=*nn*.

Explanation

This message is a policy domain data store (PDDS) message that indicates the module flow with the return code and the reason code for each module.

System action

None.

User response

No action is required.

Module

BSNPDDH0, BSNPDDI0

BSN5803E: PDDS HAS A CRITICAL ERROR IN MODULE *module_name*: FUNCTION=*function_code*, RC=*nn*, RSN=*nn*.

Explanation

An error occurred in the policy domain data store (PDDS) module. This error is an internal IMS Tools error.

System action

The requested function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

See the PDDS return code and reason code to determine and correct the problem.

If the problem persists, contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNPDDS0, BSNPDDH0, BSNPDDI0

BSN6401I: THE RDS MOD *module_name* RECEIVED CONTROL WITH FUNC=*function_code*: RC=*nn*, RSN=*nn*.

Explanation

This message is a rule data store (RDS) message that indicates the module flow with the return code and the reason code for each module.

System action

None.

User response

No action is required.

Module

BSNRDST0, BSNRDSL0, BSNRDSS0, BSNRDSU0, BSNRDSR0, BSNRDSC0, BSNRDSD0, BSNRDSA0

BSN6402I: THE RULE STREAM (*rule_stream_name*) HAS BEEN DELETED

Explanation

The rule data store (RDS) process deleted *rule_stream_name*.

System action

None.

User response

No action is required.

Module

BSNRDSS0

BSN6403E: RDS HAS A CRITICAL ERROR IN MODULE *module_name*: FUNCTION=*function_code*, RC=*nn*, RSN=*nn*. FOR RULE=*rule_name*, LOCALE=*locale_name*.

Explanation

An error occurred in the rule data store (RDS) module. The output for RULE=*rule_name* and LOCALE=*locale_name* are displayed only if rule and locale names are known. This error is an internal IMS Tools error.

System action

The requested function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

See the RDS return code and reason code to determine and correct the problem.

If the problem persists, contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNRDST0, BSNRDSL0, BSNRDSS0, BSNRDSU0, BSNRDSV0, BSNRDSR0, BSNRDSC0, BSNRDSA0, BSNRDSD0, BSNRDS00, BSNRDSH0

BSN6405E: THE THRESHOLD WAS NOT DELETED, IT'S REFERENCED BY POLICY *policy_name*: LOCALE=*locale_name*.

Explanation

A request to delete a rule threshold set or rule failed because the set or rule is being referenced by a policy.

System action

The requested function to delete a threshold set (TDTS), update a rule (UPWT), or delete a rule template (RTDL) is rejected, and a return code that defines the failure is returned to the client.

User response

To delete the threshold set or rule, remove the reference to the threshold set or rule from the policy.

Module

BSNRDST0, BSNRDSU0, BSNRDSD0

BSN6406E: THE RDS REPOSITORY FUNCTION FAILED: DOMAIN=*domain_name*, LEVEL=*environment_level*, LOCALE=*recon_ID*, RULE=*rule_name*. THE FPQSRV *FPQ_function_code* FAILED IN MODULE *module_name* WITH RC=*nn*, RSN=*nn*. THE FPQSRV DIAGNOSTIC FEEDBACK= WORD1=*word1_first_half-word1_second_half*, WORD2=*word2*, WORD3=*word3*.

Explanation

A repository server function failed in the rule data store (RDS) module for *environment_level*, *recon_ID*, and *rule_name* because of a repository server function failure. The FPQ function code specifies the repository function name.

The feedback field includes IBM® diagnostic and debugging information. This error is an internal IMS Tools error.

System action

The requested function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

See the repository service return code and reason code to determine and correct the problem.

If the problem persists, contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNRDST0, BSNRDSL0, BSNRDSS0, BSNRDSU0, BSNRDSR0, BSNRDSA0

BSN6411I: THE RULE TEMPLATE/STREAM LIST HAS STARTED LISTING OBJECTS FOR DOMAIN=*domain_name*.

Explanation

The rule data store (RDS) process started listing for *domain_name*.

System action

None.

User response

No action is required.

Module

BSNRDSL0

BSN6412I: THE RULE TEMPLATE *function* PROCESS HAS STARTED FOR DOMAIN=*domain_name*, LEVEL=*environment_level*, LOCALE=*locale*, RULE=*rule_name*.

Explanation

The rule data store (RDS) process (*function*) has started for *domain_name*, *environment_level*, and *locale*, where *locale* is the RECON ID that has been defined to the repository or BSNGLOBL. The output for RULE=*rule_name* is displayed only if the rule name is known.

The variable *function* is one of the following actions:

- COPY UPDATE
- IMPORT

- DELETE
- UPDATE

System action

None.

User response

No action is required.

Module

BSNRDST0, BSNRDSU0

BSN6415I: THE RULE TEMPLATE/STREAM LIST HAS ENDED FOR THE DOMAIN=*domain_name*: RC=*nn*, RSN=*nn*.

Explanation

The rule data store (RDS) process ended listing for *domain_name*.

System action

None.

User response

No action is required.

Module

BSNRDSL0

BSN6416I: THE RULE TEMPLATE *function* PROCESS HAS ENDED FOR: DOMAIN=*domain_name*, LEVEL=*environment_level*, LOCALE=*locale*, RULE=*rule_template_name*, RC=*nn*, RSN=*nn*.

Explanation

The rule data store (RDS) process (*function*) has ended for *domain_name*, *environment_level*, and *locale*, where LOCALE is the RECON ID that has been defined to the repository or BSNGLOBL.

The variable *function* is one of the following actions:

- IMPORT
- DELETE
- UPDATE

System action

None.

User response

No action is required.

Module

BSNRDST0, BSNRDSU0

BSN6417I: THE RULE *function* BY RECON *recon_name* HAS STARTED

Explanation

The rule data store (RDS) process is started by *recon_name*. The variable function is one of the following actions:

- DELETE
- QUERY

System action

None.

User response

None. This message is informational.

Module

BSNRDSN0

BSN6418I: THE RULE *function* BY RECON *recon_name* HAS ENDED FOR THE: RC=*nn*, RSN=*nn*.

Explanation

The rule data store (RDS) process is ended by *recon_name*. The variable function is one of the following actions:

- DELETE
- QUERY

System action

None.

User response

None. This message is informational.

Module

BSNRDSN0

BSN7001I: THE MODULE *module_name* RECEIVED CONTROL WITH FUNC *function_code*: RC=*nn*, RS=*nn*.

Explanation

This message is a policy data store (PDS) message that indicates the module flow with the return code and the reason code for each module.

System action

None.

User response

No action is required.

Module

BSNPDSL0, BSNPDST0, BSNPDSS0, BSNPDSU0, BSNPDSA0, BSNPDSP0, BSNPDSV0, BSNPDSC0

BSN7002I: THE POLICY WAS FOUND IN THE GLOBAL LOCALE

Explanation

Policies exist in the global locale.

System action

None.

User response

No action is required.

Module

BSNPDST0, BSNPDSS0

BSN7003E: PDS HAS A CRITICAL ERROR IN MODULE *module_name*: FUNCTION=*function_code* RC=*nn*, RS=*nn*.

Explanation

An error occurred in the policy data store (PDS) module. This error is an internal IMS Tools error.

System action

The requested function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

See the PDS return code and reason code to determine and correct the problem.

If the problem persists, contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNPDS00, BSNPDSL0, BSNPDST0, BSNPDSS0, BSNPDSU0, BSNPDSA0, BSNPDSP0, BSNPDSV0, BSNPDSC0

BSN7005I: NO NOTIFICATION LIST WAS SPECIFIED IN THE POLICY TEMPLATE.

Explanation

No notification list has been specified in the policy template.

System action

None.

User response

No action is required.

Module

BSNPDSU0

BSN7006E: THE REPOSITORY FUNCTION *function_code* FAILED IN MODULE *module_name*: DOMAIN=*domain_name*, LEVEL=*environment_level*, LOCALE=*recon_ID*, POLICY=*policy_name*. RC=*nn*, RSN=*nn*. THE FPQSRV DIAGNOSTIC FEEDBACK: WORD1=*word1_first_half-word1_second_half*, WORD2=*word2*, WORD3=*word3*.

Explanation

A repository server function failed for policy data store (PDS) module for *environment_level*, *recon_ID*, and *policy_name*. The FPQ function code specifies the repository function name.

The feedback field includes words for IBM® diagnostic information. This error is an internal IMS Tools error.

System action

The requested function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

See the repository service return code and reason code to determine and correct the problem.

If the problem persists, contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNPDSL0, BSNPDST0, BSNPDSS0, BSNPDSU0, BSNPDSA0, BSNPDSP0

BSN7007E: THE GLOBAL RECON ID BSNGLOBL IS NOT REGISTERED.

Explanation

The global RECON ID is not registered. This error is an internal IMS Tools error.

System action

The requested function is rejected, and a return code and a reason code that define the failure are returned to the client.

User response

Register the global RECON ID by using the IMS Tools Knowledge Base.

Module

BSNPDSP0

BSN7008I: THE POLICY WAS NOT FOUND IN THE RECON LOCALE. WILL CONTINUE TO SEARCH THE GLOBAL LOCALE.

LEVEL=*environment_level*, LOCALE=*recon_ID*, POLICY=*policy_name*, DOMAIN=*domain_name*.

Explanation

Policy Services searched the RECON locale for the requested policy, but the policy was not found in the RECON locale.

Policy Services will continue the search in the global locale.

System action

The policy lookup process continues.

User response

None. This message is informational.

Module

BSNPDSS0

BSN7011I: THE LISTING OF THE POLICY TEMPLATE/STREAM PROCESSING HAS STARTED FOR DOMAIN *domain_name*.

Explanation

The policy data store (PDS) process started listing for *domain_name*.

System action

None.

User response

No action is required.

Module

BSNPDSL0

BSN7012I: THE POLICY *action* PROCESS HAS STARTED FOR DOMAIN=*domain_name*, POLICY=*policy_name*, LEVEL=*environment_level*, LOCALE=*locale*.

Explanation

The policy data store (PDS) services process (*action*) has started for *domain_name*, *environment_level*, *recon_ID*, and *policy_name*.

The variable *action* is one of the following actions:

- TEMPLATE IMPORT
- TEMPLATE DELETE
- STREAM IMPORT
- STREAM DELETE
- TEMPLATE UPDATE

System action

None.

User response

No action is required.

Module

BSNPDST0, BSNPDSS0, BSNPDSU0

BSN7015I: THE POLICY TEMPLATE/STREAM LIST HAS ENDED FOR DOMAIN=*domain_name*, RC=*nn*, RSN=*nn*.

Explanation

The policy data store (PDS) services process ended listing for *domain_name*.

System action

None.

User response

No action is required.

Module

BSNPDSL0

BSN7016I: THE POLICY *action* PROCESS HAS ENDED FOR POLICY=*policy_name* IN DOMAIN *domain_name*: LEVEL=*environment_level*, LOCALE=*locale*, RC=*nn*, RSN=*nn*.

Explanation

The policy data store (PDS) services process (*action*) has ended for *domain_name*, *environment_level*, *recon_ID*, and *policy_name*.

The variable *action* is one of the following actions:

- TEMPLATE IMPORT
- TEMPLATE DELETE
- STREAM IMPORT
- STREAM DELETE
- TEMPLATE UPDATE

System action

None.

User response

No action is required.

Module

BSNPDST0, BSNPDSS0, BSNPDSU0

BSN7017I: THE POLICY *function* BY RECON *recon_name* HAS STARTED

Explanation

The policy data store (PDS) process is started by *recon_name*. The variable function is one of the following actions:

- DELETE
- QUERY

System action

None.

User response

None. This message is informational.

Module

BSNPDSN0

BSN7018I: THE POLICY *function* BY RECON *recon_name* HAS ENDED FOR THE: RC=*nn*, RSN=*nn*.

Explanation

The policy data store (PDS) process is ended by *recon_name*. The variable function is one of the following actions:

- DELETE
- QUERY

System action

None.

User response

None. This message is informational.

Module

BSNPDSN0

BSN7600E: AN INVALID FUNCTION WAS REQUESTED.

Explanation

The client issued a request to the IMS Policy Services Data Dictionary component with an invalid function request. This error is an internal problem with the IMS Tools product that made the request.

System action

IMS Policy Services rejects the call from the client, and a return code and a reason code that define the failure are returned to the client. System processing continues.

User response

Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNDDMI00

BSN7601E: STORAGE FOR DDES BLOCK COULD NOT BE OBTAINED.

Explanation

An internal storage block or table could not be obtained. This error is an internal IMS Policy Services Data Dictionary component error.

System action

IMS Policy Services fails initialization, and a return code and a reason code that define the failure are returned to the client.

User response

Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNDDMI00

BSN7602E: THE DATA DICTIONARY MODULE *module_name* COULD NOT BE LOADED.

Explanation

A module that is loaded by the initialization function of the IMS Policy Services Data Dictionary component failed the LOAD request. This error is an internal IMS Policy Services error.

System action

IMS Policy Services Data Dictionary fails initialization, and a return code and a reason code that define the failure are returned to the client.

User response

Add the module that failed the LOAD request to the *hlq*.SHKTLOAD load library.

If the module is in the library, you might have an install problem. Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNDDMI00

BSN7603E: THE CREATE NAME/TOKEN FUNCTION FAILED.

Explanation

The MVS™ request to create a name-token pair failed. This error is an internal IMS Policy Services Data Dictionary component error.

System action

IMS Policy Services Data Dictionary fails initialization, and a return code and a reason code that define the failure are returned to the client.

User response

Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNDDMI00

BSN7604E: THE DICTIONARY DEFINITIONS COULD NOT BE LOADED.

Explanation

The Dictionary Definitions Table that is loaded by the IMS Policy Services Data Dictionary component failed the LOAD request. This error is an internal IMS Policy Services error.

System action

IMS Policy Services Data Dictionary initialization fails.

User response

Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNDDMI00

BSN7606E: STORAGE FOR DDDS BLOCK COULD NOT BE OBTAINED.

Explanation

An internal storage block or table could not be obtained. This error is an internal IMS Policy Services Data Dictionary component error.

System action

IMS Policy Services fails initialization, and a return code and a reason code that define the failure are returned to the client.

User response

Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNDDMI00

BSN7607E: STORAGE FOR DDIS BLOCK COULD NOT BE OBTAINED.

Explanation

An internal storage block or table could not be obtained. This error is an internal IMS Policy Services Data Dictionary component error.

System action

IMS Policy Services fails initialization, and a return code and a reason code that define the failure are returned to the client.

User response

Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNDDMI00

BSN7608E: STORAGE FOR DDNS BLOCK COULD NOT BE OBTAINED.

Explanation

An internal storage block or table could not be obtained. This error is an internal IMS Policy Services Data Dictionary component error.

System action

IMS Policy Services fails initialization, and a return code and a reason code that define the failure are returned to the client.

User response

Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNDDMI00

BSN7609E: STORAGE FOR DDDS BLOCK COULD NOT BE RELEASED.

Explanation

The request to release an internal control block failed.

System action

IMS Policy Services rejects the call from the client, and a return code and a reason code that define the failure are returned to the client. The base rule, policy, or notification list processing completes with an error. System processing continues.

User response

The REGION parameter does not have enough specified memory for the job. Specify more memory for the REGION parameter, and then restart the job.

For example, you can specify REGION=0M so that the parameter can use all the main storage that it requires.

Module

BSNDDMI00

BSN7610E: STORAGE FOR DDIS BLOCK COULD NOT BE RELEASED.

Explanation

The request to release an internal control block failed.

System action

IMS Policy Services rejects the call from the client, and a return code and a reason code that define the failure are returned to the client. The base rule, policy, or notification list processing completes with an error. System processing continues.

User response

The REGION parameter does not have enough specified memory for the job. Specify more memory for the REGION parameter, and then restart the job.

For example, you can specify REGION=0M so that the parameter can use all the main storage that it requires.

Module

BSNDDMI00

BSN7611E: STORAGE FOR DDNS BLOCK COULD NOT BE RELEASED.

Explanation

The request to release an internal control block failed.

System action

IMS Policy Services rejects the call from the client, and a return code and a reason code that define the failure are returned to the client. The base rule, policy, or notification list processing completes with an error. System processing continues.

User response

The REGION parameter does not have enough specified memory for the job. Specify more memory for the REGION parameter, and then restart the job.

For example, you can specify REGION=0M so that the parameter can use all the main storage that it requires.

Module

BSNDDMI00

BSN7612E: THE DICTIONARY DEFINITIONS COULD NOT BE DELETED.

Explanation

The Dictionary Definitions Table that is loaded by the IMS Policy Services Data Dictionary component failed the DELETE request. This error is an internal IMS Policy Services error.

System action

IMS Policy Services Data Dictionary continues termination.

User response

Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNDDMI00

BSN7614E: THE DELETE NAME/TOKEN FUNCTION FAILED.

Explanation

The MVS™ request to delete a name-token pair failed. This error is an internal IMS Policy Services Data Dictionary component error.

System action

IMS Policy Services Data Dictionary continues termination.

User response

Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNDDMI00

BSN7615E: THE DATA DICTIONARY MODULE *module_name* COULD NOT BE DELETED.

Explanation

A module that is loaded by the termination function of the IMS Policy Services Data Dictionary component failed the DELETE request. This error is an internal IMS Policy Services error.

System action

IMS Policy Services Data Dictionary continues termination.

User response

Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNDDMI00

BSN7616E: STORAGE FOR DDES BLOCK COULD NOT BE RELEASED.

Explanation

The request to release an internal control block failed.

System action

IMS Policy Services rejects the call from the client, and a return code and a reason code that define the failure are returned to the client. The base rule, policy, or notification list processing completes with an error. System processing continues.

User response

The REGION parameter does not have enough specified memory for the job. Specify more memory for the REGION parameter, and then restart the job.

For example, you can specify REGION=0M so that the parameter can use all the main storage that it requires.

Module

BSNDDMI00

BSN7618E: TERMINATION HAS OCCURRED WITH ACTIVE CONNECTS.

Explanation

Data Dictionary has processed the termination request from the last active client. However, some clients failed to issue a disconnect request, and if any of those clients attempt any Data Dictionary call, that call could result in a system failure. This error is an internal problem with the IMS Tools client.

System action

The request to terminate Data Dictionary is completed.

User response

Contact IBM® Software Support, and notify them of the IMS Tools product that encountered this problem.

Module

BSNDDMI00

BSN8000E: INCORRECT EXEC PARAMETER IS SPECIFIED.

Explanation

An incorrect EXEC parameter is specified for the Policy Services batch utility interface (BSNUTIL0).

System action

Processing ends with a return code of 8.

User response

Correct the EXEC parameter, and rerun the job.

BSN8001I: THE *utility_name* PROCESS HAS STARTED.

Explanation

The Policy Services utility named *utility_name* has started.

System action

Processing continues.

User response

None. This message is informational.

BSN8002I: THE *utility_name* PROCESS HAS ENDED NORMALLY.

Explanation

The Policy Services utility named *utility_name* has ended normally.

System action

Processing continues.

User response

None. This message is informational.

BSN8003W: THE *utility_name* PROCESS HAS ENDED WITH WARNING.

Explanation

The Policy Services utility named *utility_name* has ended with warnings.

System action

Processing ends with a return code of 4.

User response

Check another message whose suffix is `W`. If this is not the expected result, correct the error, and rerun the job.

BSN8004E: THE *utility_name* PROCESS HAS ENDED WITH ERROR.

Explanation

The Policy Services utility named *utility_name* has ended with errors.

System action

Processing ends with a return code of 8.

User response

Check another message whose suffix is E. Correct the error, and rerun the job.

BSN8005E: STORAGE OBTAIN FAILED. RC=*return_code*, SIZE=*size*, MOD=*module*, ERROR_ID=*error_id*.

Explanation

The Policy Services utility failed to obtain storage.

return_code

Shows the return code (in hexadecimal) that is returned from the STORAGE macro.

size

Shows the size of the storage that could not be obtained.

module

Shows the name of the failed module.

error_id

Shows the error ID that is associated with the module.

System action

Processing ends with a return code of 8.

User response

Increase the REGION size on the JOB statement in the JCL, and rerun the utility.

BSN8006E: STORAGE RELEASE FAILED. RC=*return_code*, SIZE=*size*, MOD=*module*, ERROR_ID=*error_id*.

Explanation

The Policy Services utility failed to release storage. In the message text,

return_code

Shows the return code (in hexadecimal) that is returned from the STORAGE macro.

size

Shows the size of the storage that could not be released.

module

Shows the name of the failed module.

error_id

Shows the error ID that is associated with the module.

System action

Processing ends with a return code of 8.

User response

This error might be an internal system error. Contact IBM® Software Support.

BSN8007E: OPEN FAILED. DDNAME=*ddname*. RC=*return_code*.

Explanation

The Policy Services utility failed to open the data set that is specified by the *ddname* DD. The hexadecimal value *return_code* is the return code from the OPEN macro.

System action

Processing ends with a return code of 8.

User response

See *z/OS® DFSMS Macro Instructions for Data Sets* to determine the meaning of the return code. If the problem persists, contact IBM® Software Support.

BSN8008W: SNAP FAILED. RC=*return_code*.

SNAP SERVICE TERMINATED DUE TO PREVIOUS ERROR.

Explanation

The Policy Services utility failed to create a snap dump. The hexadecimal value *return_code* is the return code from the SNAP macro. The Policy Services utility terminated the snap service due to the error.

System action

Processing continues with a return code of 4.

User response

Correct the error, and rerun the job.

BSN8009E: DYNALLOC SERVICE FAILED FOR FUNC=[ALLOC | UNALLOC], [DDNAME=*ddname* | DSNAME=*dsname*], RC=*return_code*, RSN=*reason_code*.

Explanation

The Policy Services utility failed to allocate or deallocate the data set for DD name *ddname* or the data set named *dsname*. The hexadecimal value *return_code* is the return code from SVC99. The hexadecimal value *reason_code* is the S99ERROR and S99INFO contents.

System action

Processing ends with a return code of 8.

User response

Look up the dynamic allocation (SVC99) code in *z/OS® MVS™ Programming Authorized Assembler Services Guide*. Correct the problem, and rerun the job.

BSN8010E: UTILITY ENDED WITH ERROR. RC=*return_code*, RSN=*reason_code*.

Explanation

The Policy Services batch utility interface (BSNUTIL0) ended with an error. Hexadecimal values *return_code* and *reason_code* indicate the return and reason codes from the requested function, respectively.

System action

Processing ends with a return code of 8.

User response

Correct the error, and rerun the job.

BSN8011E: ERRORS DETECTED WHILE *xxxxxxxx*

Explanation

The Policy Services utility encountered errors during its processing.

xxxxxxxx

Indicates one of the following:

```
ANALYZING INPUT PARAMETERS
EXTRACTING SENSOR DATA ELEMENTS
GENERATING REPORTS
```

System action

Processing ends with a return code of 8.

User response

Check the message whose suffix is E in the journal data set. Correct the error, and rerun the job.

BSN8012E: LOAD FAILED. MODULE=*modname*, SC=*code*, RSN=*reason_code*.

Explanation

The Policy Services utility failed to load the module named *modname*. The hexadecimal value *code* is the abend code, and the hexadecimal value *reason_code* is the reason code associated with the abend.

System action

Processing ends with a return code of 8.

User response

Check if the correct load module library is specified in the STEPLIB DD statement.

BSN8013E: CONNECTION TO THE ITKB SERVER FAILED. NAME=*servername*.

Explanation

The connection to the IMS Tools KB server failed. This message might be issued for the following reasons:

- The server configuration is incomplete.
- The server is not started.
- The server XCF group name that is specified by the ITKBSRVR keyword is incorrect.
- Insufficient access authority to the repository.

System action

Processing ends with a return code of 8.

User response

Complete the following steps:

1. Ensure that the server XCF group name specified on the ITKBSRVR keyword is correct.
2. Ensure that the IMS Tools KB server is configured and started without any errors. For configuration steps, see the topic "Configuring IMS Tools Knowledge Base" in the *IMS Tools Base Configuration Guide*.

If the problem persists, contact your system administrator to obtain the required level of authorization.

BSN8014E: SPECIFIED RECON ID IS NOT DEFINED IN REPOSITORY. RECON ID=*recon_id*.

Explanation

The Policy Services utility failed to retrieve the RECON ID of *recon_id* from the IMS Tools KB Input repository.

System action

Processing ends with a return code of 8.

User response

Ensure that the RECONID keyword specifies the correct RECON ID. Also, ensure that the RECON data set name is registered with IMS Tools KB.

BSN8015E: UNABLE TO OBTAIN RECON ID FROM REPOSITORY. RECON ID=*recon_id*, RC=*return_code*, RSN=*reason_code*.

Explanation

The Policy Services utility failed to retrieve the RECON ID of *recon_id* from the IMS Tools KB Input repository. Hexadecimal values *return_code* and *reason_code* are the return code and the reason code from the RECON ID retrieval module.

System action

Processing ends with a return code of 8.

User response

Ensure that the RECONID keyword specifies the correct RECON ID. Also, ensure that the RECON data set name is registered with IMS Tools Knowledge Base. If the problem persists, contact IBM® Software Support.

BSN8016E: UNSUPPORTED *msg_text*

Explanation

The Policy Services utility does not support the requested domain, database, or input sensor data format.

In the message text, *msg_text* can be one of the following:

DOMAIN. DOMAIN=*domain_name*.
DATABASE TYPE. DBTYPE=*database_type*.
DATABASE TYPE PREACCES=X'*nn*'.
INPUT FORMAT.

System action

Processing ends with a return code of 8.

User response

This error might be an internal system error. Contact IBM® Software Support.

BSN8017E: [DBD *dbd_name* | DATABASE DEFINITION *database_name*] NOT FOUND IN [DBDLIB | THE IMS DIRECTORY].

Explanation

In a situation where the IMSCATHLQ keyword was not specified, the Policy Services utility could not find the DBD member *dbd_name* in the DBD library.

In a situation where the IMSCATHLQ keyword was specified, the Policy Services utility could not find the database definition of *database_name* in the IMS directory.

System action

Processing ends with a return code of 8.

User response

If you do not specify the IMSCATHLQ keyword, ensure that the correct DBD library is specified in the IMS DD statement.

If you specify the IMSCATHLQ keyword, ensure that the correct high level qualifier for the bootstrap data set of the IMS directory is specified as the parameter of the IMSCATHLQ keyword.

BSN8018E: IMS CATALOG API FAILED. FUNC=*function*, RC=*return_code*, RSN=*reason_code*.

Explanation

IMS catalog API ended with an error. *function* is the function code of the IMS catalog API. Hexadecimal values *return_code* and *reason_code* are the return code and the reason code from the IMS catalog API.

System action

Processing ends with a return code of 8.

User response

If the *function* is OPEN, check whether the correct high level qualifier of the bootstrap data set is specified in the IMSCATHLQ keyword. Otherwise, contact IBM® Software Support.

BSN8019E: ESTAE FAILED. RC=*return_code*, MOD=*modname*.

Explanation

The ESTAE request issued by the Policy Services utility failed. The hexadecimal value *return_code* is the return code of the ESTAE macro. *modname* is the module name that requested the ESTAE macro.

System action

Processing ends with a return code of 8.

User response

Correct the error, and rerun the job.

BSN8020E: INTERNAL ERROR OCCURRED IN MODULE *modname*, CODE=*code*

Explanation

The Policy Services utility encountered an internal error. *modname* is the name of the module that encountered the error. *code* is the information code associated with the error.

System action

Processing ends with a return code of 8.

User response

This error might be an internal system error. Contact IBM® Software Support.

BSN8021E: SENSOR DATA SERVICE FAILED FOR FUNC=*function*, RC=*return_code*, RSN=*reason_code*.

[- KHTIMST API FUNC=*function2*, RC=*return_code2*, RSN=*reason_code2*]

Explanation

The Policy Services batch utility failed to extract sensor data by using the Sensor Data Service API. *function* is the function code of the Sensor Data Service API. Hexadecimal values *return_code* and *reason_code* are the return code and the reason code from the Sensor Data Service API.

If the error occurred in the utility history data API (HKTIMST API), the second line is printed. *function2* is the function code of the HKTIMST API. Hexadecimal values *return_code2* and *reason_code2* are the return code and the reason code from the HKTIMST API.

System action

Processing ends with a return code of 8.

User response

Correct the error, and rerun the job.

BSN8022I: REQUESTED SENSOR DATA WAS NOT [FOUND IN THE REPOSITORY | IMPORTED TO THE HISTORICAL SENSOR DATA SET].

- DOMAIN=*domain*, RECONID=*recon_id*, {DBD=*dbdname*.}{PARTITION=*partname*.}{AREA=*areaname*.}{CAGRP=*cagrp*.}

Explanation

Sensor data of the specified policy domain *domain*, RECON ID *recon_id*, DBD name *dbdname*, partition name *partname*, and area name *areaname* is not stored in the IMS Tools KB Sensor Data repository or was not imported to the historical sensor data set.

System action

The Sensor Data Extractor skipped extracting the requested sensor data from the requested policy domain. Processing continues.

User response

If this is not the expected result, check the following, and rerun the job.

- The policy domain name specified by the DOMAIN keyword is correct.
- The RECON ID specified by the RECONID keyword is correct.
- The DBD name specified by the DBDNAME keyword is correct.
- If the database is a HALDB, the partition name specified by the PARTNAME keyword is correct.
- If the database is a DEDB, the area name specified by the AREANAME keyword is correct.
- The CAGRP name specified by the CAGRP keyword is correct.
- Sensor data of the requested database was actually stored in the IMS Tools KB Sensor Data repository by DB Sensor.
- Sensor data of the requested database was actually imported to the historical sensor data set.

BSN8023E: DATA DICTIONARY SERVICE FAILED FOR FUNC=*function*, RC=*overall_return_code*, RSN=*overall_reason_code*.

- DATA ELEMENT: *data_element_name*, RC=*return_code*, RSN=*reason_code*.

- DATA VALUE: *data_element_value*

Explanation

An error was detected when the indicated function *function* of the Data Dictionary Service was running. If the error was detected in specific data elements, the second line of the BSN8023E message is issued. If the error was detected in a data value of a specific data element, the third line of the BSN8023E message is issued.

In the message text,

overall_return_code

overall_reason_code

These hexadecimal values indicate the return and reason codes from the Data Dictionary Service.

data_element_name

The name of the data element that caused the error.

return_code

reason_code

These hexadecimal values indicate the return and reason codes associated with the data element.

data_element_value

The value of the data element that caused the error.

System action

Processing ends with a return code of 8.

User response

Correct the error, and rerun the job.

BSN8024W: DATA DICTIONARY SERVICE FAILED FOR FUNC=*function*, RC=*overall_return_code*, RSN=*overall_reason_code*.

- DATA ELEMENT: *data_element_name*, RC=*return_code*, RSN=*reason_code*.

Explanation

An error was detected when the indicated function *function* of the Data Dictionary Service was running. Hexadecimal values *overall_return_code* and *overall_reason_code* indicate the return and reason codes from the Data Dictionary Service, respectively. If the error was detected in specific data elements, the second BSN8024W message is issued.

data_element_name is the name of the data element that caused the error. Hexadecimal values *return_code* and *reason_code* indicate the return and reason codes associated with the data element, respectively.

System action

Processing continues with a return code of 4.

User response

Correct the error, and rerun the job.

BSN8025I: DATABASE DEFINITION IS RETRIEVED FROM THE [DBDLIB | IMS DIRECTORY].

Explanation

This message indicates where the Policy Services utility retrieves database definitions from.

System action

Processing continues.

User response

None. This message is informational.

BSN8026W: THERE ARE NO DATA ELEMENTS THAT MATCH THE LASTDATE SPECIFICATION. DOMAIN=*domain*

Explanation

Sensor data of all generations is not extracted from the policy domain *domain* because the collection date of the latest sensor data is older than the date specified by the LASTDATE keyword.

System action

Processing continues with a return code of 4.

User response

Check if the LASTDATE keyword parameter is correct.

BSN8027W: SENSOR DATA FOR *dbdname* WAS NOT EXTRACTED.

Explanation

No sensor data for database *dbdname* is extracted from any of the requested domains.

System action

Processing continues with a return code of 4.

User response

Check if the database name specified by the DBDNAME keyword and the RECON ID specified by the RECONID keyword are correct.

BSN8028I: UTILITY HISTORY DATA WAS ADDED TO SENSOR DATA REPOSITORY. [DBD=*dbdname*.] [DBD=*dbdname*, PARTITION=*partname*.] [DBD=*dbdname*, AREA=*areaname*.]

Explanation

The Statistics Data Import Utility stored catalog information about the imported sensor data (utility history data) for database *dbdname* (HALDB partition *partname* or DEDB area *areaname*) in the IMS Tools KB Sensor Data repository.

System action

Processing continues.

User response

None. This message is informational.

BSN8029I: HISTORICAL SENSOR DATA SET WAS GENERATED FOR [DBD=*dbdname*.] [DBD=*dbdname*, PARTITION=*partname*.] [DBD=*dbdname*, AREA=*areaname*.]

Explanation

The Statistics Data Import Utility generated the historical sensor data set for database *dbdname* (HALDB partition *partname* or DEDB area *areaname*) from input CSV-formatted sensor data sets.

System action

Processing continues.

User response

None. This message is informational.

BSN8030E: AN ERROR WAS DETECTED WHILE ANALYZING THE CONTROL STATEMENT. RC=*return_code*, FUNC=*function*.

DETAIL OF THE ERROR IS AS FOLLOWS:

...

Explanation

The control statement analysis process detected a syntax error in the control statement. Review the other generated message, BPE0003E, which explains the details of the error.

System action

Processing ends with a return code of 8.

User response

Correct the control statement, and rerun the job.

BSN8031I: THE FOLLOWING OPTIONS ARE USED FOR THE SENSOR DATA EXTRACTOR:

- *keyword_name1* ... *value1*

- *keyword_name2* ... *value2*

...

Explanation

This message shows individual processing options of the Policy Services utility on each line. This message is for informational purposes only.

System action

Processing continues.

User response

None. This message is informational.

BSN8033E: DBDNAME KEYWORD OR CAGRP KEYWORD MUST BE SPECIFIED.

Explanation

Neither the DBDNAME keyword nor the CAGRP keyword is specified.

System action

Processing ends with a return code of 8.

User response

Specify either the DBDNAME keyword or the CAGRP keyword, and rerun the job.

BSN8034E: *keyword1* KEYWORD MUST BE SPECIFIED WITH [*keyword2* | *keyword2*(*parameter*)].

Explanation

The keyword *keyword1* was specified. However, the keyword *keyword2* or the parameter *keyword2*(*parameter*), which is required for *keyword1*, was not specified.

System action

Processing ends with a return code of 8.

User response

Correct the control statement, and rerun the job.

BSN8035E: *keyword1* KEYWORD AND *keyword2* KEYWORD ARE MUTUALLY EXCLUSIVE.

Explanation

The keyword *keyword1* was specified with the keyword *keyword2*. These keywords cannot be specified simultaneously.

System action

Processing ends with a return code of 8.

User response

Correct the control statement, and rerun the job.

BSN8036E: MULTIPLE [PARTITION | AREA] NAMES CANNOT BE SPECIFIED.

Explanation

Multiple HALDB partition names were specified by the PARTNAME keyword, or multiple DEDB area names were specified by the AREANAME keyword. Currently, multiple partitions or areas are not supported.

System action

Processing ends with a return code of 8.

User response

Correct the control statement, and rerun the job.

BSN8037E: INCORRECT VALUE IS SPECIFIED FOR THE LASTDATE KEYWORD. RC=*return_code*.

Explanation

The parameter value specified by the LASTDATE keyword was not in a correct format. The parameter value must be in *yyyymmdd* or *yyyymmddhhmmss* format.

System action

Processing ends with a return code of 8.

User response

Correct the control statement, and rerun the job.

BSN8038E: MULTIPLE DOMAINS CANNOT BE SPECIFIED WHEN REPORT_TYPE(CSV) IS SPECIFIED.

Explanation

REPORT_TYPE(CSV) was specified with DOMAIN(ALL) or multiple parameters for the DOMAIN keyword. REPORT_TYPE(CSV) must be specified with a single policy domain.

System action

Processing ends with a return code of 8.

User response

Correct the control statement, and rerun the job.

BSN8040I: SENSOR DATA FOR *dbdname* HAS BEEN EXTRACTED FROM [SENSOR DATA REPOSITORY | HISTORICAL SENSOR DATA SET].

- DOMAIN=*domain*, THE NUMBER OF EXTRACTED GENERATIONS IS *generation_number*

Explanation

The requested sensor data was extracted successfully from the IMS Tools KB sensor data repository or the historical sensor data set. *dbdname* shows the DBD name whose sensor data was extracted. *domain* shows the policy domain of the sensor data. *generation_number* shows how many generations of sensor data were extracted.

System action

Processing continues.

User response

None. This message is informational.

BSN8041I: SENSOR DATA HISTORY REPORT HAS BEEN GENERATED. REPORT_TYPE=[SHORT | LONG | CSV].

- DOMAIN=*domain*, THE NUMBER OF GENERATIONS TO BE REPORTED IS *generation_number*

Explanation

The Sensor Data History report of the requested type was generated successfully. *domain* shows the policy domain of the sensor data. *generation_number* shows how many generations of sensor data were reported.

System action

Processing continues.

User response

None. This message is informational.

BSN8042E: DATE FORMAT IS INCORRECT FOR REQUEST TYPE=*request_type*.

- CSV DATA SET NAME=*data_set_name* LINE=*line_number*

Explanation

The date format of the Run Date column was *yyyy/mm*, while the value in the Request Type column was D. Or, the date format of the Run Date column was *yyyy/mm/dd*, while the value in the Request Type column was M. *data_set_name* is the name of the input CSV-formatted data set. *line_number* is the line number in the CSV file that caused the error.

System action

Processing ends with a return code of 8.

User response

Ensure that the value in the Run Date column and the value in the Request Type column are correct.

BSN8043E: AT LEAST 1 INPUT FILE MUST BE SPECIFIED.

Explanation

No input sensor data set was specified for the Statistics Data Import Utility.

System action

Processing ends with a return code of 8.

User response

Specify at least one of the following keywords: CSV_DB, CSV_AREA, or CSV_DSG.

BSN8044E: INCORRECT COLUMN NAME IS SPECIFIED.

- CSV DATA SET NAME=*data_set_name*

- COLUMN NAME=*column_name*

Explanation

The column name *column_name* in the input CSV-formatted data set is not supported.

data_set_name is the name of the input CSV-formatted data set.

System action

Processing ends with a return code of 8.

User response

Remove the unsupported column from the CSV-formatted data set.

BSN8045E: MANDATORY COLUMN *column_name* IS NOT FOUND.

- CSV DATA SET NAME=*data_set_name*

Explanation

The mandatory column name *column_name* was not specified in the input CSV-formatted data set.

data_set_name is the name of the input CSV-formatted data set.

System action

Processing ends with a return code of 8.

User response

Add the mandatory column *column_name* into the CSV-formatted data set.

BSN8046E: INCORRECT VALUE IS SPECIFIED FOR *column_name* COLUMN.

- CSV DATA SET NAME=*data_set_name*

- LINE=*line_number* VALUE=*data_value* [, RC=*return_code*].

Explanation

The mandatory column name *column_name* was not specified in the input CSV-formatted data set.

data_set_name is the name of the input CSV-formatted data set.

System action

Processing ends with a return code of 8.

User response

Add the mandatory column *column_name* into the CSV-formatted data set.

BSN8047I: EXISTING UTILITY HISTORY DATA DID NOT CONTAIN INFORMATION OF HISTORICAL SENSOR DATA.

- RECONID=*recon_id*, DBD=*dbd_name* [, PARTITION=*partition_name* | , AREA=*area_name*].

Explanation

The Statistics Data Import Utility obtained existing utility history data for the database to be imported, but the utility history data did not contain catalog information about the historical sensor data.

In the message text,

recon_id

Shows the RECON ID associated with the IMS Tools Knowledge Base that contains the utility history data.

dbd_name

Shows the name of the database to be imported.

partition_name

Shows the name of the HALDB partition to be imported.

area_name

Shows the name of the DEDB area to be imported.

The Statistics Data Import Utility will replace the utility history data with the new one.

System action

Processing continues.

User response

None. This message is informational.

BSN8048E: INPUT SENSOR DATA IS OLDER THAN HISTORICAL SENSOR DATA.

- THE LATEST RUN DATE OF INPUT SENSOR DATA: *yyyy-mm-dd1*

- THE OLDEST RUN DATE OF HISTORICAL SENSOR DATA: *yyyy-mm-dd2*

Explanation

The set of sensor data to be imported is older than the oldest sensor data that was imported in the past.

yyyy-mm-dd1 is the latest date in the Run Date column of the CSV-formatted data set. *yyyy-mm-dd2* is the oldest date in the historical sensor data set.

System action

Processing ends with a return code of 8.

User response

Import sensor data whose Run Date value is newer than *yyyy-mm-dd2*.

BSN8049E: DIFFERENT *column_name* IS SPECIFIED IN THE INPUT FILE.

- CSV DATA SET NAME=*data_set_name*

- LINE=*line_number column_name=data_value*.

Explanation

In a CSV-formatted data set, certain column values must be the same for all generations. The Statistics Data Import Utility detected a difference in the value *data_value* in the column *column_name*.

data_set_name is the name of the input CSV-formatted data set. *line_number* is the line number in the CSV file that caused the error.

System action

Processing ends with a return code of 8.

User response

Correct the error in the CSV-formatted data set.

BSN8050I: COULD NOT ALLOCATE HISTORICAL DATA SET, WILL TRY TO ALLOCATE NEW DATA SET. RC=*return_code*, RSN=*reason_code*.

Explanation

The Statistics Data Import Utility failed to allocate a historical sensor data set dynamically with DISP=SHR. The Statistics Data Import Utility will try to allocate a historical sensor data set dynamically with DISP=NEW.

The hexadecimal value *return_code* is the return code from SVC99. The hexadecimal value *reason_code* represents the S99ERROR and S99INFO contents.

System action

Processing continues.

User response

None. This message is informational.

BSN8051E: DATE VALUES IN RUN DATE COLUMN MUST BE IN DESCENDING SEQUENCE.

- CSV DATA SET NAME=*data_set_name*

Explanation

The sensor data in the CSV-formatted data set is not sorted in descending order.

System action

Processing ends with a return code of 8.

User response

Sort the data by the Run Date column in descending order.

BSN8052E: DSG ID *dsg_id* IS SPECIFIED IN MULTIPLE INPUT FILES.

Explanation

Data set group ID *dsg_id* is specified in the DSG ID column of more than one input CSV-formatted data set.

System action

Processing ends with a return code of 8.

User response

Specify a unique data set group ID for each input CSV-formatted data set.

BSN8053E: DATABASE TYPE IS NOT APPROPRIATE FOR THE INPUT FILE SPECIFIED BY *keyword* KEYWORD.

Explanation

The Statistics Data Import Utility detected one of the following conditions:

- The input file specified by the CSV_DB or CSV_DSG keyword was sensor data for a DEDB area.
- The input file specified by the CSV_AREA keyword was sensor data for a full-function database.

System action

Processing ends with a return code of 8.

User response

Correct the keyword specification for the input data set.

BSN8054E: SYNTAX ERROR WAS FOUND IN THE ALIAS DEFINITION TABLE. DSN=*dsname*.

- LINE=*line_number* REASON: *error_reason*

Explanation

The Statistics Data Import Utility detected a syntax error in the alias definition table.

- *dsname* shows the data set name of the alias definition table.
- *line_number* shows the line number in the alias definition table that caused the error.
- *error_reason* shows the reason of the error.

System action

Processing ends with a return code of 8.

User response

Correct the alias definition table, and rerun the job.

BSN8055E: CATALOG SEARCH INTERFACE DETECTED AN ERROR. [RC=*return_code* | RC=*return_code*, RSN=*reason_code*]

Explanation

The z/OS® catalog search interface (CSI) detected an error. *return_code* and *reason_code* are the return code and the reason code from the catalog search interface.

System action

Processing ends with a return code of 8.

User response

Correct the error, and rerun the job. If the problem persists, contact IBM® Software Support.

BSN8056E: NO MEMBERS WERE FOUND IN THE DBD LIBRARY.

Explanation

The Policy Services utility tried to obtain a DBD member list from the DBD library, but there were no members in the DBD library.

System action

Processing ends with a return code of 8.

User response

Specify the correct DBD library, and rerun the job.

BSN8057E: DESERV FAILED. FUNC=*function_code*, RC=*return_code*, RSN=*reason_code*, DDNAME=*ddname*.

Explanation

The Policy Services issued the z/OS® DESERV macro internally, but the macro failed.

- *function_code*, *return_code*, and *reason_code* show the function code, the return code, and the reason code of the DESERV macro, respectively.
- *ddname* shows the name of the DD statement that caused the error.

System action

Processing ends with a return code of 8.

User response

Check if the correct data set is specified in the *ddname* DD, and rerun the job. If the problem persists, contact IBM® Software Support.

BSN8058E: NO CSV DATA SETS TO BE IMPORTED WERE FOUND UNDER THE HIGH LEVEL QUALIFIER OF *high_level_qualifier*.

Explanation

The Statistics Data Import Utility could not find any input CSV files in the data sets whose high level qualifier was *high_level_qualifier*. The *high_level_qualifier* is specified by the HLQ_CSVSET keyword.

System action

Processing ends with a return code of 8.

User response

Specify the correct high level qualifier by using the HLQ_CSVSET keyword, prepare appropriate CSV-formatted sensor data sets, and rerun the job.

BSN8059E: ALIAS *alias* IS RESERVED OR ALREADY DEFINED BY ANOTHER DATA ELEMENT.

- ALIAS DEFINITION TABLE DSN=*dsname*, LINE=*line_number*

Explanation

The alias *alias* is a reserved name and cannot be used. Or, the alias *alias* is already defined for another data element.

- *dsname* shows the data set name of the alias definition table.
- *line_number* shows the line number in the alias definition table that caused the error.

System action

Processing ends with a return code of 8.

User response

Correct the alias definition table, and rerun the job.

BSN8060E: COLUMN NAME IS TOO LONG.

- CSV DATA SET NAME=*data_set_name*

- COLUMN NAME=*column_name*

Explanation

The column name that starts with *column_name* in the input CSV-formatted data set is too long. The column name must be 42 bytes or shorter. *data_set_name* is the name of the input CSV-formatted data set.

System action

Processing ends with a return code of 8.

User response

Correct the column name to make it shorter, and rerun the job.

BSN8061E: UTILITY HISTORY DATA IS NOT VALID. RECON=*recon_id*, DBD=*dbd_name*, PART=*partition_name*.

Explanation

The utility history data of the specified RECON ID *recon_id*, DBD name *dbd_name*, partition name *partition_name* is incorrect.

System action

Processing ends with a return code of 8.

User response

This error might be an internal system error. Contact IBM® Software Support.

BSN8062E: INTERNAL SORT API ENDED WITH ERROR. RC=*return_code*, RSN=*reason_code*.

Explanation

The Policy Services batch utility failed to sort internal data. Hexadecimal values *return_code* and *reason_code* are the return code and the reason code from the internal sort API.

System action

Processing ends with a return code of 8.

User response

This error might be an internal system error. Contact IBM® Software Support.

BSN8063W: HISTORICAL SENSOR DATA WAS NOT FOUND FOR THE SPECIFIED DATABASE.

Explanation

The historical sensor data of the specified databases is not found in the IMS Tools KB sensor data repository.

System action

Processing ends with a return code of 4.

User response

Check if the database name specified by the DBDNAME keyword and the RECON ID specified by the RECONID keyword are correct.

BSN8064W: POLICY SERVICES ENDED WITH WARNINGS. FUNC=*function*, RC=*rc*, RSN=*rsn*.

Explanation

The Policy Services function call ended with warnings. *function* shows the function name that is used internally by Policy Services, which is one of the following functions:

- INIT
- TERM
- ASLK
- PAEV
- ASPT
- AMIT
- AMTM
- AMGA
- AMUS

The hexadecimal value *rc* shows the return code and the hexadecimal value *rsn* shows the reason code of the warning.

System action

Processing continues with a return code of 4.

User response

This message might be accompanied by other warning or error messages. The accompanying messages, if issued, are recorded in the Policy Services journal. Check the Policy Services journal. If the accompanying messages exist, follow the directions in the user response sections of the accompanying messages.

BSN8065E: POLICY SERVICES ENDED WITH ERRORS. FUNC=*function*, RC=*rc*, RSN=*rsn*.

Explanation

The Policy Services function call ended with errors. *function* shows the function name that is used internally by Policy Services. The hexadecimal value *rc* shows the return code and the hexadecimal value *rsn* shows the reason code of the error.

System action

Processing ends with a return code of 8.

User response

This message might be accompanied by other error messages. The accompanying messages, if issued, are recorded in the Policy Services journal. Check the Policy Services journal. If the accompanying messages exist, follow the directions in the user response sections of the accompanying messages.

BSN8066E: REQUESTED POLICY *policy_name* WAS NOT FOUND IN THE REPOSITORY.

Explanation

The *policy_name* policy that was requested by the user was not found in the specified environment of the IMS Tools KB Input repository.

System action

Processing ends with a return code of 8.

User response

Determine if the correct policy name and the domain name were specified, and determine if the specified policy is imported in the IMS Tools KB repository for the specified environment. Correct the error, and rerun the job.

BSN8067E: REQUESTED SENSOR DATA WAS NOT FOUND IN THE REPOSITORY. ERROR-ID=*error_id*.

- DOMAIN=*domain*, RECONID=*recon_id*, {DBD=*dbdname*.} {PARTITION=*partname*.} {AREA=*areaname*.} {CAGRP=*cagrp*.}

Explanation

Sensor data of the specified policy domain *domain*, RECON ID *recon_id*, DBD name *dbdname*, partition name *partname*, area name *areaname*, and CAGRP name *cagrp* is not stored in the IMS Tools KB Sensor Data repository. *error_id* shows the error ID that is associated with the module.

System action

Processing ends with a return code of 8.

User response

If this is not the expected result, check the following, and rerun the job.

- The policy domain name specified by the DOMAIN keyword is correct.
- The RECON ID specified by the RECONID keyword is correct.
- The DBD name specified by the DBDNAME keyword is correct.
- If the database is a HALDB, the partition name specified by the PARTNAME keyword is correct.
- If the database is a DEDB, the area name specified by the AREANAME keyword is correct.
- The CAGRP name specified by the CAGRP keyword is correct.
- Sensor data of the requested database was actually stored in the IMS Tools KB Sensor Data repository by DB Sensor.

BSN8068E: INVALID VALUE SPECIFIED FOR *statement*. {DOMAIN=*domain*.} {ENVIRONMENT=*environment*.} {RSCTYPE=*rsctype*.}

Explanation

The parameter value specified for the indicated statement is not correct.

System action

Processing ends with a return code of 8.

User response

Correct the control statement, and rerun the job.

BSN8069E: INCORRECT VALUE IS SPECIFIED FOR THE CATALIAS KEYWORD.

Explanation

The parameter value specified for the CATALIAS keyword is invalid. It must be a 4-character alphanumeric alias prefix that is used to address the catalog database.

System action

Processing ends with a return code of 8.

User response

Correct the control statement, and rerun the job.

BSN8801E: THE FUNCTION TYPE *function_type* IS INVALID.

Explanation

The name of a sensor data function is invalid or missing.

System action

The program returns an error.

User response

Specify a valid name for all sensor data functions.

Module

BSNSDSD0

BSN8802E: AN INVALID PACK OPTION WAS SPECIFIED. THE OPTION MUST BE 'C' OR 'A'.

Explanation

When the data elements were processed, invalid pack options were passed.

System action

The program returns an error.

User response

Specify either A or C for functions that use pack options. The value A is for append and the value C is for copy. The default setting is A.

Module

BSNSDSD0

BSN8803E: THE GROUP NAME *group_name* IS INVALID.

Explanation

The specified group or server name for the sensor data repository is missing or incorrect.

System action

The program returns an error.

User response

Specify the correct group or server name.

Module

BSNSDSD0

BSN8804E: THE SENSOR DATA VERSION NUMBER IS INVALID.

Explanation

An invalid version of sensor data was specified.

System action

The program returns an error.

User response

Specify a valid version number.

If the specified sensor data macro is using a default value, set the BSNSDSM macro to the correct level.

Module

BSNSDSD0

BSN8805E: AN INVALID TEST OPTION WAS SPECIFIED. THE OPTION MUST BE 'Y', 'N', OR BLANK.

Explanation

The TEST option has an invalid option for testing valid record set handles.

The TEST option allows for automatic queuing of all outstanding records for a given record set.

System action

The program returns an error.

User response

Specify Y for automatic queuing or N for no automatic queuing. By default the TEST option is set to N.

Module

BSNSDSD0

BSN8806E: THE SENSOR DATA PROCESSING TASK IS INVALID.

Explanation

The task that is used to create an instance of sensor data is different from the current processing function.

System action

The program returns an error.

User response

During initialization, start all functions to a specific sensor data instance within the same task.

In a multitasking environment, you must specify each task to create its own instance or instances of sensor data.

Module

BSNSDSD0

BSN8807E: THE SENSOR DATA HISTORY COULD NOT BE FOUND.

Explanation

In the sensor data repository, a setting for the sensor data product and type is incorrect.

During the initialization of a sensor data instance, a validation is performed to verify that the sensor data history for the sensor data product and type exists.

System action

The program returns an error.

User response

Use the log file to determine the problem, and then set the correct history settings with a control function.

If the error persists, contact the system administrator.

Module

BSNSDSD0

BSN8808E: THE APPLICATION NAME *application_name* IS INVALID.

Explanation

A bad or null application name was passed.

System action

The program returns an error.

User response

Specify an application name as one of the input parameters for the BSNSDSM macro.

Module

BSNSDSD0

BSN8809E: POLICY SERVICES FAILED TO BROWSE THE SENSOR DATA REPOSITORY.

Explanation

An error occurred when the sensor data repository was browsed internally.

System action

The program returns an error.

User response

Rerun the job with a log file, and then view the log file to determine the problem. If the problem persists, contact the system administrator.

Module

BSNSDSD0

BSN8810E: THE RECORD SET RSI VALUE IS INVALID.

Explanation

A required non-null record set indicator (RSI) was passed as part of a sensor data function.

System action

The program returns an error.

User response

Specify a non-null RSI on the BSNSDSM macro. The sensor data must receive a non-null RSI for the sensor data function.

Module

BSNSDSD0

BSN8811E: THE CONNECTION TO THE SENSOR DATA REPOSITORY FAILED FOR THE GROUP *group_name* AND REPOSITORY *repository_name*.

Explanation

The connection to the sensor data repository failed.

System action

The program returns an error.

User response

Specify the correct the group or server name and ensure that the server is active, for example, by using SDSF. Also, see the log file to determine other possible errors.

Module

BSNSDSD0

BSN8812E: THE ELEMENT LIST IS INVALID.

Explanation

An invalid element was detected while data dictionary was processing.

System action

The program returns an error.

User response

View the returned status control block or the log file, and correctly define the data elements, such as the data type and value.

Module

BSNSDSD0

BSN8813E: THE ENVIRONMENT IS NOT INITIALIZED.

Explanation

The first call to a sensor data instance was not an INIT or a TERM call.

System action

The program returns an error.

User response

Issue an INIT call as the first call to the sensor data for initialization.

If a partial environment was created and must be terminated, issue a TERM call as the first call to the sensor data. The TERM call deletes the partial sensor data environment.

Module

BSNSDSD0

BSN8814E: A FUNCTION WAS PROCESSED WITHOUT A CONNECTION TO THE SENSOR DATA REPOSITORY.

Explanation

After initialization, a function failed because no connection to the server exists.

System action

The program returns an error.

User response

Issue a TERM call to cleanup the outstanding sensor data environment, and then see the log file and status block to determine possible errors.

Module

BSNSDSD0

BSN8815E: THE DATA TAG IN AN INPUT ELEMENT IS INVALID.

Explanation

During the front-end validation process, sensor data detected an invalid data tag in an input element.

System action

The program returns an error.

User response

Verify that all input data tags and the associated data length are valid.

Module

BSNSDSD0

BSN8816E: AN INVALID HANDLE TYPE WAS PASSED TO THE SENSOR DATA REPOSITORY.

Explanation

A null or invalid handle type (record handle or record set handle) was passed to sensor data.

System action

The program returns an error.

User response

Specify a valid handle type that represents an active record for the given function. For example, do not specify a record set handle when a record handle is required.

Module

BSNSDSD0

BSN8817E: THE KEY FOR A SENSOR DATA REPOSITORY IS INVALID.

Explanation

The major key for a sensor data repository is invalid or missing.

System action

The program returns an error.

User response

Specify a valid major key for the sensor data function. Any combination of characters (printable or non-printable) are valid.

Module

BSNSDSD0

BSN8818E: THE LENGTH FOR A KEY IS INVALID.

Explanation

The required key length for a sensor data major key is missing or invalid.

System action

The program returns an error.

User response

Specify a key length for the major key of the sensor data that is greater than zero.

Module

BSNSDSD0

BSN8819E: THE MEMBER *member_name* WAS NOT FOUND IN THE REPOSITORY.

Explanation

A sensor data member in the repository could not be read because the member was not found.

System action

The program returns an error.

User response

Specify the correct application name and major key name.

If the names are correct, ensure that the member has been created or was not deleted.

Module
BSNSDSD0

BSN8820E: THE STORAGE ADDRESS IS INVALID.

Explanation
The required storage address for the record elements is missing.

System action
The program returns an error.

User response
Specify the required area for storage elements, which is provided by data dictionary, in the IMS Tools client.

Module
BSNSDSD0

BSN8821E: THE PACKED DATA AREA IS INVALID.

Explanation
A required packed data area is missing for an unpack elements operation.

System action
The program returns an error.

User response
Specify an area with packed elements for unpacking. The packed area of elements must be consistent with the data dictionary specifications.

Module
BSNSDSD0

BSN8822E: AN INVALID LENGTH FOR PACKED DATA WAS SPECIFIED.

Explanation
Within an element tag, an invalid length for pack data and for the data length was specified.

System action
The program returns an error.

User response
View the output in the log file and correct all of the supplied lengths for packed elements and element tags.

Module
BSNSDSD0

BSN8823E: A SET CLOCK ERROR OCCURRED WHILE THE TIME AND DATE WAS PROCESSING.

Explanation
An undefined error occurred while a time and date was processed.

System action
The program returns an error.

User response
Rerun the user program. If the problem persists, contact the system administrator.

Module
BSNSDSD0

BSN8824E: AN OPTION COMMAND WAS CALLED THAT CONTAINS AN INVALID OPTION.

Explanation
An options command function was called with a null or invalid option.

System action
The program returns an error.

User response
Specify a valid option in the user program.

Module
BSNSDSD0

BSN8825E: THE HISTORY VALUES COULD NOT BE SET.

Explanation
The server failed to set the history values (retention days or versions).

System action
The program returns an error.

User response
The connection between sensor data and the server might have been lost. Specify a log file, then rerun the job.

If the problem persists, contact the system administrator.

Module
BSNSDSD0

BSN8826E: THE SUPPLIER ID FOR AN ADD RECORD IS INVALID.

Explanation
A required supplier ID field for an add record is missing.

System action
The program returns an error.

User response
Specify a supplier ID specification for adding a record.

Module
BSNSDSD0

BSN8827E: THE SUPPLIER PROGRAM FOR AN ADD RECORD IS INVALID.

Explanation
A required supplier program for an add record is missing.

System action
The program returns an error.

User response
Specify a supplier program specification for adding a record.

Module

BSNSDSD0

BSN8828E: THE RECORD HANDLE HAS AN INVALID OWNER.

Explanation

The handle of a record indicates an inconsistent owner for the set.

System action

The program returns an error.

User response

Specify the correct record handle and ensure that the record handle has not been corrupted. If the handle is corrupted, contact the system administrator.

Module

BSNSDSD0

BSN8829E: NO RECORD POSITION WAS SET FOR RETRIEVING RECORD ELEMENTS.

Explanation

Before elements can be accessed in a record, a record position must be set.

System action

The program returns an error.

User response

Specify a valid record that is referenced in a read function before you access elements.

Module

BSNSDSD0

BSN8830E: THE RECORD SET HANDLE IS INVALID.

Explanation

The handle of a record set is invalid.

System action

The program returns with an error.

User response

If the record set handle is null, specify a valid non-null handle.

If the record set handle is not null, contact the system administrator.

Module

BSNSDSD0

BSN8831E: THE RECORD SET TYPE IS INVALID.

Explanation

The type associated with a record set is invalid.

System action

The program returns an error.

User response

Pass a record set handle that is for a record set and not for some other entity, such as a record.

Module
BSNSDSD0

BSN8832E: AN INVALID RECORD HANDLE WAS PASSED TO A RECORD.

Explanation
An invalid record handle was passed to a record.

System action
The program returns with an error.

User response
If the record handle is null, specify a valid non-null handle.

If the record handle is not null, contact the system administrator.

Module
BSNSDSD0

BSN8833E: THE RECORD TYPE IS INVALID.

Explanation
The type associated with a record is invalid.

System action
The program returns with an error.

User response
Pass a record handle that is for a record and not for some other entity, such as a record set.

Module
BSNSDSD0

BSN8834E: THE RECORD OR RECORD SET COULD NOT BE DELETED.

Explanation
The affiliated record or record set could not be deleted after the write operation.

System action
The program returns an error. The record or record set are not written and remain in the memory.

User response
View the log file to determine the problem. The record or record set might have already been written, and therefore, could not be written again. If the problem persists, contact the system administrator.

Module
BSNSDSD0

BSN8835E: THE SENSOR DATA REPOSITORY COULD NOT BE QUERIED.

Explanation
The sensor data repository history could not be queried.

System action
The program returns an error.

User response
Rerun the job with a log file and fix any repository access errors. If the problem persists, contact the system administrator.

Module

BSNSDSD0

BSN8836E: NO LOG FILE WAS OPENED FOR THE DATA DUMP.

Explanation

The data dump to the log file failed because no log file was open.

System action

The program returns with an error.

User response

Rerun the sensor data with a valid log file.

Module

BSNSDSD0

BSN8837W: NO LOG FILE WAS OPENED TO SNAP OR PRINT.

Explanation

A request for a snap or print to the log file failed because no active log file is open.

System action

The program continues with an optional return of a warning.

User response

If you want debug to a problem, specify a log file to collect processing information. Otherwise, no action is required.

> **Attention:** Using a log file can increase the amount of output that can negatively affect performance and spool space.

Module

BSNSDSD0

BSN8838E: THE CONTROL HISTORY COULD NOT BE SET.

Explanation

The control history (maximum days or versions) could not be set.

System action

The program returns an error.

User response

Rerun the job with a log file and fix any repository access errors. If the problem persists, contact the system administrator.

Module

BSNSDSD0

BSN8839W: NO MEMBERS WERE FOUND IN THE REPOSITORY.

Explanation

No members were found in the repository during a search to dump members to the log file.

System action

The program continues with a warning to the log file.

User response

Ensure that the search criteria is correct. If the search criteria is correct, no member matched the criteria, and no action is required.

If the criteria is incorrect, specify the correct criteria, then rerun the job.

Module

BSNSDSD0

BSN8840E: THE STATUS CONTROL BLOCK IS UNDEFINED.

Explanation

The required status control block for a function is missing.

System action

The program returns an error.

User response

Specify a status area control block for the function.

Module

BSNSDSD0

BSN8841E: THE SENSOR DATA HISTORY SETTING COULD NOT BE DELETED.

Explanation

The sensor data history setting could not be deleted.

System action

The program returns an error.

User response

Rerun the job with a log file and fix any repository errors in the log file.

If the problem persists, contact the system administrator.

Module

BSNSDSD0

BSN8842W: A RECORD MEMBER WAS NOT QUEUED.

Explanation

Each record member that you want to write to the repository must be queued. A record set that is to be written to the repository had at least one record member that was not queued.

Records might not be queued either because of application program logic or because the application program bypasses a record that is being queued. A record is bypassed if it is not queued by a BSNSDSM queue record request.

System action

The program returns with a warning.

User response

Review the log file to help determine whether the members were written.

If the members were not written, issue a BSNSDSM QREC function to queue the record, and then rerun the job. If the members were written, no action is required.

Module

BSNSDSD0

BSN8843E: AN INVALID STARTING LOCATION WAS SPECIFIED. THE LOCATION MUST BE 'N' OR 'O'.

Explanation

The starting location for reading sensor data members is invalid.

System action

The program returns with an error.

User response

Specify the starting location of the read begin process as either N to process the records from the newest to the oldest, or specify O to the process records from the oldest to the newest.

Module

BSNSDSD0

BSN8844E: THE ELEMENT COUNT IS INVALID FOR THE ELEMENTS FUNCTION.

Explanation

The element count that is passed to the add elements function is invalid.

System action

The program returns an error.

User response

Specify a positive value for the element count. The element count must be a positive value in the data dictionary image block that was specified for the add elements function.

Module

BSNSDSD0

BSN8845E: THE TAG LENGTH IS INVALID FOR THE ADD ELEMENTS FUNCTION.

Explanation

The element tag length supplied by the version is invalid.

System action

The program returns an error.

User response

For the add elements function, specify a valid version setting for all elements specified.

Module

BSNSDSD0

BSN8846E: A RECORD WAS QUEUED MORE THAN ONCE.

Explanation

A record was attempted to be queued more than once. A record that is already queued cannot be queued again.

System action

The program returns an error.

User response

Queue a record to a record set only once.

Module

BSNSDSD0

BSN8847E: THE SENSOR DATA KEY FIELDS COULD NOT BE FOUND.

Explanation

The repository did not return consistent information. The sensor data key fields might be corrupted.

System action

The program returns an error.

User response

Contact the system administrator.

Module

BSNSDSD0

BSN8848E: AN INVALID READING LOCATION WAS SPECIFIED. THE LOCATION MUST BE 'R', 'M', OR 'B'.

Explanation

The specified location from where members are being read is invalid.

System action

The program returns an error.

User response

Specify `R`, `M`, or `B` as the location from where the members are read. The location indicator is for the BSNSDSM macro when the macro attempts to read a repository member.

- Specify `R` to read members from the repository.
- Specify `M` to read members from the current memory.
- Specify `B` to read members first from the memory. If the members are not found, the members are then read from the repository.

Module

BSNSDSD0

BSN8849E: THE REGION DUMP TYPE IS INVALID.

Explanation

The dump region to log file option was invalid. This error is an internally generated error.

System action

The program returns an error.

User response

Rerun the job, and if the problem persists, contact the system administrator.

Module

BSNSDSD0

BSN8850E: THE DUMP FUNCTION ENCOUNTERED AN ERROR.

Explanation

The requested dump function encountered an error.

System action

The program returns an error.

User response

Specify valid dump storage parameters for the dump function, such as storage, length, and label.

Module

BSNSDSD0

BSN8851E: THE PRINT FUNCTION ENCOUNTERED AN ERROR.

Explanation

The requested print function encountered an error.

System action

The program returns an error.

User response

Specify valid print text parameters for the print function, such as storage and length.

Module

BSNSDSD0

BSN8852W: THE CRITERIA DOES NOT MATCH ANY SENSOR DATA MEMBER.

Explanation

The application program failed to find a sensor data member that matched all the requested criteria.

System action

The program returns a warning.

User response

You can change the criteria and rerun the job. If the criteria are correct, no action is required.

Module

BSNSDSD0

BSN8853E: AN INVALID KEEP VALUE WAS SPECIFIED. THE VALUE MUST BE 'Y' OR 'N'.

Explanation

The specified KEEP value is invalid.

System action

The program returns with an error.

User response

The KEEP value determines whether records or a record set remain in the memory after being read or written.

Specify Y to keep records in the memory for future processing, or specify N to release the record images.

By default the KEEP value is set to N.

Module

BSNSDSD0

BSN8854E: A REPOSITORY MEMBER COULD NOT BE ACCESSED FOR READING.

Explanation

A repository member was inaccessible for reading.

System action

The program returns an error.

User response

Rerun the job at a later time because another user might be exclusively accessing the member.

If the problem persists, contact the system administrator.

Module

BSNSDSD0

BSN8855E: THE RETURN DATA AREA IS UNDEFINED.

Explanation

A required return data area for the requested function is missing.

System action

The program returns an error.

User response

Specify the required return area for the current function.

Module

BSNSDSD0

BSN8856E: THE LENGTH OF A RETURN AREA IS INVALID.

Explanation

The length of the associated return area is missing or invalid.

System action

The program returns an error.

User response

Specify a valid length along with the return area. A valid length is a length greater than zero.

Module

BSNSDSD0

BSN8857E: AN INVALID READ OPTION WAS SPECIFIED. THE VALUE MUST BE 'H' OR 'D'.

Explanation

The READ option for reading records into memory has an invalid value.

System action

The program returns with an error.

User response

Specify the READ option as either H for header only or D for header and data. By default the READ option is set to H.

> **Important:** Use option D only to snap out the elements that might have a formatting problem in the repository. Option D returns data that is in raw form, and data elements in raw form do not have verification or translation.

Module

BSNSDSD0

BSN8858W: THE RETURN LENGTH WAS TRUNCATED.

Explanation

The supplied read length for the input read buffer is too small to hold all the record data.

System action

The program returns with a warning.

User response

Increase the input buffer size. The length is passed by the BSNSDSM macro.

Module

BSNSDSD0

BSN8859W: THE MEMBER COULD NOT BE FOUND IN THE MEMORY.

Explanation

The request to read a member from memory failed because no member was found in the memory.

If the initial request to the memory fails, this warning message is sent and then a request is made to the repository. The request to read a member is always made to the memory first, and then, if specified, to the repository.

System action

The program returns a warning.

User response

Set the read members option to be read from both the memory and the repository.

Module

BSNSDSD0

BSN8860E: THE READ BEGIN FUNCTION COULD NOT FIND THE REQUESTED SENSOR DATA MEMBER.

Explanation

The requested sensor data member was not found. The sensor data member is the application and the major key.

The memory, repository, or both are scanned for the requested member on a read begin function. If the member is not found within the requested location, this error is returned.

System action

The program returns an error.

User response

Specify the correct member name and read location. The read location can be `R` (repository), `M` (memory), or `B` (both).

If you specified `N` (no) for the KEEP option, the member is not retained in the memory, so you must specify either `R` or `B` for the read location.

Module

BSNSDSD0

BSN8861E: AN INVALID TIME SEQUENCE SETTING WAS SPECIFIED.

Explanation

The specified system or user time is invalid for record retrieval.

System action

The program returns with an error.

User response

Specify a valid begin time in the BSNSDSM macro.

Ensure that the begin time is not later than the associated end time, and that the time value is in the correct time format. For example, March 5, 2026 might be specified as 05032026, but the value might need to be 03052026.

Module

BSNSDSD0

BSN8862E: AN INVALID TIME LOCALE WAS SPECIFIED FOR DATE AND TIME PROCESSING.

Explanation

The LOCALE that was specified for date and time processing is invalid.

System action

The program returns with an error.

User response

Specify S, U, or L for the time locale.

The LOCALE indicates the location that a specified date and time are derived from. The LOCALE value S is for STCK form, U is for coordinated universal time, and L is for local time.

Module

BSNSDSD0

BSN8863E: AN INVALID TIME ZONE FACTOR WAS SPECIFIED.

Explanation

An invalid time zone factor was specified.

System action

The program returns with an error.

User response

Depending on the specified time type, specify a time specification that is plus or minus the number of quarter hours from UTC or a value between -95 and +95.

Module

BSNSDSD0

BSN8864E: INVALID LEAP SECONDS WERE SPECIFIED.

Explanation

For the specified date and time, leap seconds were not specified. The number of leap seconds is required for date and time calculations.

System action

The program returns with an error.

User response

Specify the correct number of leap seconds. Certain specified date and time values require that you specify the number of leaps seconds between UTC and STCK form.

Module

BSNSDSD0

BSN8865E: AN INVALID TIME TYPE WAS SPECIFIED.

Explanation

An invalid time type for date and time interpretation was specified.

System action

The program returns an error.

User response

Specify the date and time in one of the following allowable formats:

- STCK-8 byte STCK image
- STCKE-16 byte STCKE image
- PICGREG-20 character YYYYMMDDHHMMSSTHMIJU
- PICJULI-20 character YYYYDDD0HHMMSSTHMIJU
- IMSGREG-12 byte packed YYYYMMDDHHMMSSTHMIJUFQQS
- IMSJULI-12 byte packed YYYYDDD0HHMMSSTHMIJUFQQS
- DECGREG-12 byte packed YYYYMMDDHHMMSSTHMIJUXXXX
- DECJULI-12 byte packed YYYYDDD0HHMMSSTHMIJUXXXX

Module

BSNSDSD0

BSN8866E: AN INVALID TIME VALUE WAS SPECIFIED.

Explanation

The specified DATE value was invalid because it did not match the date and time format.

System action

The program returns an error.

User response

Specify a DATE value in the correct date and time format.

Module

BSNSDSD0

BSN8867E: AN INVALID GET ELEMENTS COUNT WAS SPECIFIED.

Explanation

A specified elements count in a GET ELEMENTS process is negative.

System action

The program returns an error.

User response

Specify a valid GET ELEMENTS count for the function call. A valid GET ELEMENTS count must be zero or greater.

Module

BSNSDSD0

BSN8868W: THE GET ELEMENTS PROCESS COULD NOT FIND ANY DATA ELEMENTS.

Explanation

No data elements were found on the specified read record.

System action

The program returns with a warning.

User response

Member records can be created without any associated data fields. If the record is valid, no action is required.

If the record is not valid, contact the system administrator.

Module

BSNSDSD0

BSN8869E: AN INVALID TAG WAS SPECIFIED IN A GET ELEMENTS OPERATION.

Explanation

A tag that was specified in a GET ELEMENTS operation is invalid.

System action

The program returns an error.

User response

Specify tags for the GET ELEMENTS in the correct format and version.

Module

BSNSDSD0

BSN8870E: THE START OPERATION COULD NOT ACQUIRE A MEMBER LIST FROM THE SENSOR DATA REPOSITORY.

Explanation

An error occurred when acquiring a member list from the sensor data repository.

System action

The program returns an error.

User response

Rerun the job with a log file, and then view the log file to determine the problem. If the problem persists, contact the system administrator.

Module

BSNSDSD0

BSN8871E: THE GET OPERATION COULD NOT GET A LIST OF THE SENSOR DATA REPOSITORY MEMBERS.

Explanation

An error occurred when attempting to get a list of sensor data repository members.

System action

The program returns an error.

User response

Rerun the job with a log file, and then view the log file to determine the problem. If the problem persists, contact the system administrator.

Module

BSNSDSD0

BSN8872E: POLICY SERVICES COULD NOT FIND MATCHING MEMBER NAMES IN THE SENSOR DATA REPOSITORY.

Explanation

Policy Services failed to find matching member names (application and major key) in the sensor data repository.

System action

The program returns an error.

User response

In the BSNSDSM macro, specify the correct application and major key.

Module

BSNSDSD0

BSN8873W: THE END OF THE REPOSITORY LIST WAS ISSUED.

Explanation

The end of the repository list has been issued.

System action

The program continues processing.

User response

No action is required.

Module

BSNSDSD0

BSN8874E: THE PUT OPERATION COULD NOT WRITE A MEMBER TO THE SENSOR DATA REPOSITORY.

Explanation

An error occurred when writing a member to the sensor data repository.

System action

The program returns an error.

User response

Rerun the job with a log file, and then view the log file to determine the problem. If the problem persists, contact the system administrator.

Module

BSNSDSD0

BSN8875E: A NULL RECORD CANNOT BE WRITTEN TO THE SENSOR DATA REPOSITORY.

Explanation

An attempt was made to write a null record to the repository. A null record does not have a header or data.

System action

The program returns an error.

User response

The sensor data program storage might have been corrupted. Contact the system administrator.

Module

BSNSDSD0

BSN8876E: DATA DICTIONARY COULD NOT BE INITIALIZED.

Explanation

Data dictionary for sensor data failed to initialize.

System action

The program returns an error.

User response

Ensure that you are accessing the correct version of sensor data by checking the load library concatenation.

Rerun the job with a log file, and then view the log file to determine the problem. If the log file indicates a data dictionary initialization error, ensure that the sensor data and the data dictionary versions are compatible.

If the problem persists, contact the system administrator.

Module

BSNSDSD0

BSN8877E: THE SENSOR DATA REPOSITORY COULD NOT CONNECT TO DATA DICTIONARY.

Explanation

Sensor data and data dictionary failed to initialize a connection.

System action

The program returns an error.

User response

Ensure that you are accessing the correct version of sensor data by checking the load library concatenation.

Rerun the job with a log file, and then view the log file to determine the problem. If the problem persists, contact the system administrator.

Module

BSNSDSD0

BSN8878E: THE ENDLIST OPERATION ENCOUNTERED AN ERROR WHEN TERMINATING ACQUISITION OF THE REPOSITORY MEMBERS.

Explanation

An error occurred when terminating the acquisition of the sensor data repository members that were requested.

System action

The program returns an error.

User response

Rerun the job with a log file, and then view the log file to determine the problem. If the problem persists, contact the system administrator.

Module

BSNSDSD0

BSN8879E: AN INVALID RECORD TYPE WAS SPECIFIED. THE RECORD TYPE MUST BE NONULL AND CANNOT BEGIN WITH AN UNDERSCORE.

Explanation

A record with a record type that begins with an underscore (_) cannot be written.

System action

The program returns an error.

User response

Specify a different first character for the record type when writing records. The underscore is reserved for the system and special usage.

Module

BSNSDSD0

BSN8880E: AN INVALID ELEMENT VALUE LENGTH WAS SPECIFIED IN THE ELEMENT TAG.

Explanation

In the element tag, the length of an element for a GET ELEMENTS operation is negative.

System action

The program returns an error.

User response

Specify a valid element value length in the element tags. A valid element value must be zero or greater.

Module

BSNSDSD0

BSN8881E: DATA DICTIONARY COULD NOT TRANSFORM THE RECORD ELEMENTS.

Explanation

Transformation of record elements by using data dictionary failed.

System action

The program returns an error.

User response

Specify the correct target types and areas for returned elements, and verify that the record elements in the repository are of the correct format based on the data definition.

Module

BSNSDSD0

BSN8882W: THE REPOSITORY SEARCH FIELDS FOR KEY FIELDS COULD NOT BE FOUND.

Explanation

The repository key fields could not be found. The key field might not be defined to the repository.

System action

The current sensor data process continues.

User response

If you are authorized, define the key fields by using a sensor data CNTL request before requesting sensor data.

If you are not authorized, contact the system administrator.

Module

BSNSDSD0

BSN8901E: BSNIN OR BSNPRINT WAS NOT DEFINED CORRECTLY.

Explanation

OPEN files failed. At least one of the required files, BSNIN or BSNPRINT, was not defined or was defined with incompatible attributes.

System action

The program returns an error with a return code of 16 and a reason code of 1.

User response

Ensure that the BSNIN and BSNPRINT files are defined correctly in the JCL for the delete utility job step.

- For BSNIN, use LRECL=80 and RECFM=FB
- For BSNPRINT, use LRECL=125 and RECFM=VBA

Module

BSNSDDL0

BSN8902E: THE INPUT COMMANDS FOR PROCESSING ARE MISSING.

Explanation

The input commands for processing were missing from the input file or the user memory buffer.

System action

The program returns an error.

User response

Verify that the correct input media for the input commands have been specified. Specify the input file for the batch interface and either the input file or the input buffer for the API.

Module

BSNSDDL0

BSN8903E: THE INPUT COMMAND LENGTH FOR THE BSNSDSL MACRO IS MISSING.

Explanation

The length of the input command buffer specified on the BSNSDSL macro is missing.

System action

The program returns an error.

User response

Set the value of INLEN on the BSNSDSL macro to the length of the input command buffer.

Module

BSNSDDL0

BSN8904E: THE INPUT LINE COUNT FOR AN INPUT COMMAND FILE WAS EXCEEDED.

Explanation

The maximum number of input command lines from an input command file has been exceeded.

System action

The program returns an error.

User response

Verify that the correct input command file is being used and delete any extra blank lines. The maximum number of input command lines that can be defined is 1000.

Module

BSNSDDL0

BSN8905E: AN INVALID COMMAND LENGTH WAS SPECIFIED.

Explanation

An invalid length was specified for the length of the input command buffer.

System action

The program returns an error.

User response

Specify the length for the input command buffer that is used with the API, then rerun the job. The length value must be the length of the buffer and a non-negative value.

Module

BSNSDDL0

BSN8906E: THE SPECIFIED INPUT COMMANDS CONTAIN INVALID SYNTAX.

Explanation

An error occurred in the BPE parser. The input commands included invalid syntax.

System action

The program returns an error.

User response

Examine the input commands and correct any invalid syntax. Input commands must conform to the standard BPE parser syntax.

Module

BSNSDDL0

BSN8907E: THE BPE CSCD COULD NOT BE ACCESSED FOR PARSING.

Explanation

The CSCD entity that is needed for parsing was not obtained by the program.

System action

The program returns an error.

User response

Specify all of the required BPE execution libraries, and then rerun the BSNSDDL0 delete utility. If the problem persists, contact the system administrator.

Module

BSNSDDL0

BSN8908E: BOTH AN INPUT FILE AND AN INPUT BUFFER CANNOT BE SPECIFIED.

Explanation

Both an input file and an input buffer were specified as the media for input commands, which is not valid. The input file and the input buffer are mutually exclusive.

System action

The program returns an error.

User response

Specify an input file or an input buffer but not both.

Module

BSNSDDL0

BSN8909E: THE INPUT FILE OR INPUT COMMAND BUFFER DID NOT CONTAIN COMMANDS TO PARSE.

Explanation

The media (input file or input command buffer) of the input commands was present. However, the media did not include any commands to parse.

System action

The program returns an error.

User response

For an input file, ensure that the file is not a dummy or empty.

For an input buffer, specify a positive value for the buffer length.

Module

BSNSDDL0

BSN8910E: THE PROCESSING MODULE COULD NOT BE LOADED.

Explanation

The attempt to load a required delete utility processing module, such as the RECON translation program, failed.

System action

The program returns an error.

User response

If the log file is present, check the file for any MVS™ link or load error. The required linked or loaded program might not have been found. If you find a link or load error, check that the program library, such as STEPLIB, includes all the required libraries in the concatenation.

If you have determined that all the required libraries are present in the concatenation, this error might be caused by another link or load MVS™ system error. Contact the system administrator.

Module

BSNSDDL0

BSN8911E: THE RECON LOG COULD NOT BE OPENED.

Explanation

A log file for login RECON translation could not be opened.

System action

The program returns an error.

User response

Verify that the RECON log file has the correct attributes and that the correct ddname was specified.

Module

BSNSDDL0

BSN8912E: THE RECON TRANSLATION FAILED.

Explanation

The external RECON ID could not be translated for internal use.

System action

The program returns an error.

User response

Verify that the correct RECON ID was specified. Also verify that the external RECON ID is correctly defined in the RECON registry repository.

Module

BSNSDDL0

BSN8913E: THE CONNECTION TO THE SERVER *server_name* AND TO THE REPOSITORY *repository_name* FAILED.

Explanation

The attempted connection to the sensor data repository server failed.

System action

The program returns an error.

User response

Verify that the correct server and sensor data repository are correctly specified and active.

Module

BSNSDDL0

BSN8914E: AN UNDEFINED SET CLOCK ERROR OCCURRED.

Explanation

An undefined set clock error occurred during the date and time calculation.

System action

The program returns an error.

User response

Rerun the program. If the problem persists, contact the system administrator.

Module

BSNSDDL0

BSN8915E: THE APPLICATION NAME COULD NOT BE FOUND.

Explanation

The base application name for members to be deleted was not found. An incorrect application member name might have been specified.

System action

The program returns an error.

User response

Verify that the specified application member name is correct. If the application member name is incorrect, specify the correct application name.

If the application member name is correct, the application name is not in the sensor data, and no action is required.

Module

BSNSDDL0

BSN8916E: AN INVALID FUNCTION *function_name* WAS PASSED TO THE DELETE UTILITY.

Explanation

An invalid function was passed for processing the delete utility.

System action

The program returns an error.

User response

Verify that a valid function is being passed to the delete utility. The only allowable values are DELETE to delete members and REPORT to report only affected members.

Module

BSNSDDL0

BSN8917E: A TIME VALUE OR DATE VALUE COULD NOT BE CONVERTED TO A TIME OF DAY.

Explanation

A time value or a date value failed to convert to a time of day.

System action

The program returns an error.

User response

Specify a date or time value that is in the correct form and in the allowable range.

Module

BSNSDDL0

BSN8918E: A TIME VALUE OR DATE VALUE COULD NOT BE CONVERTED TO A STORE CLOCK FORMAT.

Explanation

A time value or a date value failed to convert to a store clock form.

System action

The program returns an error.

User response

Specify a date or time value that is in the correct form and in the allowable range.

Module

BSNSDDL0

BSN8920E: BOTH THE DATE AND THE AGE WERE SPECIFIED.

Explanation

Both the date and the age were specified as deletion criteria.

System action

The program returns an error.

User response

Specify only one criterion for deletion.

The date and the age are mutually exclusive as criteria for determining which members are deleted.

Module

BSNSDDL0

BSN8921E: AN INVALID AGE TYPE WAS SPECIFIED.

Explanation

The specified age is an invalid type.

System action

The program returns an error.

User response

Specify an age that is a valid numeric value that represents the number of days. The age must be within the range from 0 to 9999.

Module

BSNSDDL0

BSN8922E: THE DATE OR THE AGE WAS NOT SPECIFIED.

Explanation

The date or the age was not specified.

System action

The program returns an error.

User response

Specify either the date or the age.

Module

BSNSDDL0

BSN8923E: AN INVALID DATE VALUE WAS SPECIFIED.

Explanation

The specified DATE value was not a numeric value or an asterisk.

System action

The program returns an error.

User response

Specify the DATE value either as an asterisk (*) for all dates or as a Gregorian date (*YYYYMMDD*).

Module

BSNSDDL0

BSN8926E: THE SERVER NAME CANNOT BE SPECIFIED.

Explanation

When the delete utility with the batch interface was called, the name of the server was specified. This error is also typically reported by the BSNDSL macro.

System action

The program returns an error.

User response

Remove the server name specification. You can specify a server name for the delete utility only in the API interface.

Module

BSNSDDL0

BSN8927E: THE APPLICATION NAME CANNOT BE SPECIFIED.

Explanation

When the delete utility with the batch interface was called, the name of the application was specified.

The BATCH interface cannot be used to specify an application name on the BSNSDSL macro.

System action

The program returns an error.

User response

Remove the application reference from the macro, or switch to the BSNSDSL API interface that does not reference INCMDS or INFILE.

Module

BSNSDDL0

BSN8928E: THE RECON ID CANNOT BE SPECIFIED.

Explanation

When the delete utility with the batch interface was called, the RECON ID was specified. This error is also typically reported by the BSNDSL macro.

System action

The program returns an error.

User response

Remove the RECON ID specification. You can specify a RECON ID for the delete utility only in the API interface.

Module

BSNSDDL0

BSN8929E: THE DATABASE CANNOT BE SPECIFIED.

Explanation

When the delete utility with the batch interface was called, the database was specified. This error is also typically reported by the BSNDSL macro.

System action

The program returns an error.

User response

Remove the database specification. You can specify a database for the delete utility only in the API interface.

Module

BSNSDDL0

BSN8930E: THE DELETION OF A MEMBER OR THE VERSION OF A MEMBER FAILED.

Explanation

The attempt to delete at least one member or the version of a member failed.

System action

The program returns an error.

User response

Rerun the process with the log file option to obtain additional information. Also, this error might have been accompanied with a BSN8940E message that includes repository extended error information.

If the problem cannot be resolved by analyzing the log and repository information, contact the system administrator.

Module

BSNSDDL0

BSN8931W: THE DELETION CRITERIA DID NOT MATCH ANY SENSOR DATA MEMBERS.

Explanation

No members in the sensor data repository matched the criteria for deletion.

System action

The program returns with a warning return code.

User response

Verify that the requested members, the date range, and other criteria for deletion were specified correctly.

If the criteria are correct, no action is required.

Module

BSNSDDL0

BSN8933E: AN INVALID TIME LOCALE WAS SPECIFIED.

Explanation

The locale that was specified for date and time processing is invalid. The locale is always fixed to local time.

System action

The program returns an error.

User response

Contact the system administrator.

Module

BSNSDDL0

BSN8934E: AN INVALID TIME ZONE WAS PROVIDED.

Explanation

An invalid time zone factor was supplied for time and date calculations. The time zone factor is determined internally.

System action

The program returns an error.

User response

Contact the system administrator.

Module

BSNSDDL0

BSN8935E: INVALID LEAP SECONDS WERE SPECIFIED.

Explanation

Based on the specified date and time values, the number of leap seconds required for date and time calculations was not specified.

System action

The program returns an error.

User response

Contact the system administrator.

Module

BSNSDDL0

BSN8936E: AN INVALID TIME TYPE WAS SPECIFIED.

Explanation

The specified time type for date and time interpretation was invalid.

System action

The program returns an error.

User response

For the DATE command, specify a valid value for the time. The time must be in the HHMMSS format. If you do not specify a time value, the time defaults to 000000.

Module

BSNSDDL0

BSN8937E: AN INVALID TIME VALUE WAS SPECIFIED.

Explanation

The specified DATE value was invalid.

System action

The program returns an error.

User response

Specify the DATE value in the input commands either as an asterisk (*) for all dates or as a Gregorian date that can optionally be followed by the time (*YYYYMMDDHHMMSS*).

Module

BSNSDDL0

BSN8940E: THE DELETE FUNCTION FAILED.

Explanation

The delete function for deleting a member or the version of a member failed.

System action

The program returns an error.

User response

Rerun the process with the log file option to obtain additional information. Also, this error might have been accompanied with a BSN8930E message that includes repository extended error information.

If the problem cannot be resolved by analyzing the log and repository information, contact the system administrator.

Module

BSNSDDL0

BSN9000E: THE HIGH LEVEL QUALIFIER WAS NOT SPECIFIED.

Explanation

The high-level qualifier (HLQ) was not given.

System action

The EXEC is not executed.

User response

Specify the HLQ keyword parameter, for example, `HLQ(user.name)`. You can also set the HLQ by changing the assignment statement of the HLQ at the beginning of the EXEC.

Module

Not applicable

BSN9002E: THE DATA SET *data_set_name* WAS NOT FOUND.

Explanation

The high-level qualifier (HLQ) for the ISPF IMS Policy Services Dialog library data sets was not given or was invalid.

System action

The EXEC was not executed.

User response

Correct the HLQ keyword for the ISPF Policy Services Dialog EXEC library. The HLQ was specified during the IMS Tools Base installation.

Module

Not applicable

RECOVERY domain summary messages (IRO)

IRO*nnnnx* messages are summary messages for the RECOVERY domain.

Message format

Summary messages for the RECOVERY domain adhere to the following format:

```
IRO<i>nnnnx</i>
```

where:

IRO

Indicates that the message is a summary message for the RECOVERY domain.

nnnn

Indicates the message identification number

x

Indicates the severity of the message:

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.

IRO4962I: *resource_name* IN RECONID=*recon_id* HAS WARNING EXCEPTIONS IN THE RECOVERY DOMAIN.

Explanation

Policy Services detected exceptions in the DBRC-managed resource *resource_name*. All the exceptions were warning-level exceptions. *recon_id* shows the 8 byte RECON ID of the RECON environment to which the resource belongs.

System action

Policy Services continues processing.

User response

Check the exceptions that were reported by Policy Services and identify whether any of those exceptions need to be addressed.

IRO4965I: *resource_name* IN RECONID=*recon_id* HAS CRITICAL EXCEPTIONS IN THE RECOVERY DOMAIN. USER ACTION IS REQUIRED.

Explanation

Policy Services detected one or more critical-level exceptions in the DBRC-managed resource *resource_name*. *recon_id* shows the 8 byte RECON ID of the RECON environment to which the database resource belongs.

System action

Policy Services continues processing.

User response

Check the critical-level exceptions that were reported and any accompanying exceptions that are in lower severity, and plan an action or actions to resolve the exceptional state of the reported resource.

IRO4968I: *resource_name* IN RECONID=*recon_id* HAS SEVERE EXCEPTIONS IN THE RECOVERY DOMAIN.

Explanation

Policy Services detected one or more severe-level exceptions in the DBRC-managed resource *resource_name*. However, no critical level exception was reported. *recon_id* shows the 8 byte RECON ID of the RECON environment to which the resource belongs.

System action

Policy Services continues processing.

User response

Check the severe-level exceptions that were detected by Policy Services and any accompanying warning-level exceptions and identify whether any of those exceptions need to be addressed.

IRO4970I: *action* IS RECOMMENDED FOR *resource_name* IN THE RECONID=*recon_id*.

Explanation

Policy Services detected one or more critical-level exceptions in the DBRC-managed resource *resource_name* and recommends the action *action* for the resource. *recon_id* shows the 8 byte RECON ID of the RECON environment to which the resource belongs.

System action

Policy Services continues processing.

User response

Take one of the following actions depending on the *action* in the message.

Table 181: Actions and recommended actions

action	**Recommended action**
IMAGECOPY	Take an image copy of each data set of the database resource. You can use IMS Database Image Copy utilities or IBM® IMS High Performance Image Copy.
CHANGEACCUM	Create a new change accumulation for the change accumulation group. You can use IMS Database Change Accumulation utility or IMS High Performance Change Accumulation in IBM® IMS Recovery Solution Pack for z/OS®.
DBRECOVERY	Perform the recovery process for the database resource. You can use IMS Database Recovery utility or IMS Database Recovery Facility in IBM® IMS Recovery Solution Pack for z/OS®.
ADDTOCAGRP	Add all the data sets of the database resource to a DBRC CAGRP. You can use the ADD sub command of the IMS DBRC CHANGE.CAGRP command.
BACKOUT	Perform the backout process for the database updates. You can use IMS Batch Backout utility.

Return and reason codes

The information provided in this return and reason code reference can help you diagnose, troubleshoot, and solve Policy Services problems.

Topics:

- "Return/reason codes: Client API interface (BSN1000-1009) (BSN2000-2099)" on page 483
- "Return/reason codes: Policy Environment Services (BSN1500-1599)" on page 485
- "Return/reason codes: Association Manager (BSN1600-1799)" on page 487
- "Return/reason codes: Email/Texting Variable (BSN1800-1899)" on page 488
- "Return/reason codes: Storage Manager (BSN2200-2399)" on page 489
- "Return/reason codes: Action Manager (BSN2800-2999)" on page 490
- "Return/reason codes: Journal Manager (BSN3400-3499)" on page 490
- "Return/reason codes: Parser, Validation, Evaluation (BSN4000-4199)" on page 491
- "Return/reason codes: Notification Manager (BSN4600-4799)" on page 492
- "Return/reason codes: Notification List Data Store (BSN5200-5399)" on page 493
- "Return/reason codes: Policy Domain Data Store (BSN5800-5999)" on page 495
- "Return/reason codes: Rule Data Store (BSN6400-6599)" on page 496
- "Return/reason codes: Policy Data Store (BSN7000-7199)" on page 499
- "Return/reason codes: Data Dictionary (BSN7600-7799, BBE1450E)" on page 500
- "Return/reason codes: Sensor Data read/write (BSN8800-8999, BBE1451E)" on page 511
- "Return/reason codes: Sensor Data delete (BSN8800-8999)" on page 514
- "Return codes: Register 15 high byte values" on page 516
- "Return codes: Sensor Data Extractor" on page 520
- "Return codes: Statistics Data Import Utility" on page 521
- "Return codes: History Data Summarization Utility" on page 521
- "Return codes: Policy Verification Utility" on page 521

Return/reason codes: Client API interface (BSN1000-1009) (BSN2000-2099)

This reference section provides detailed information about the return and reason codes reported by the Policy Services Client API interface in messages BSN1000-1009 and BSN2000-2099.

For register 15 high byte values, see "Return codes: Register 15 high byte values" on page 516.

Table 182: Return and reason codes reported by Policy Services client API interface

Return code	Reason code	Description
X'00'	Any code	Successful (Function was successful)
	X'00'	Call successful
X'04'	Any code	Warning (Function completed with information)
	None	
X'08'	Any code	Error (Function completed with error)
	X'04'	Unable to obtain PSCB storage

Return code	Reason code	Description
	X'08'	Unable to load policy module
	X'0C'	BPE initialization failed
	X'10'	Unable to obtain IFCB storage
	X'14'	RECON container call failed
	X'18'	No RECON container data
	X'1C'	Unable to obtain RECON table
	X'20'	Data Dictionary INIT failed
	X'24'	Invalid function
	X'28'	No valid RECON in container
	X'2C'	Unable to obtain POCB storage
	X'30'	No resource passed
	X'34'	No PDSP returned on PDS PTRD call
	X'38'	No resource list returned on PDS GETC call
	X'3C'	No match on resource name from PDDS open
	X'40'	No policy name passed
	X'44'	Invalid policy name; prefix is "IBM."
	X'48'	Unable to obtain PDEB control block
	X'4C'	Invalid level change request
	X'50'	Invalid domain name specified
	X'54'	Policy domains are not defined
	X'58'	No PDEB defined for specified domain name
	X'5C'	Domain already in maintenance mode
	X'60'	Policy Services have not been initialized
	X'64’	BSNGLOBL locale not defined to IMS Tools KB
	X'68’	Unable to obtain LISTAREA storage
	X'70’	Domain is not in operation environment
X'0C'	Any code	Critical error
	X'04'	Invalid INIT call issued by client (second or greater INIT call)
	X'08'	Invalid TERM call issued by client, either a second TERM call or INIT call failed and this TERM call was issued; or TERM call was issued with no preceding INIT call
	X'0C'	Component call failed

Return code	Reason code	Description
	X'10'	Invalid STRT call issued by client, no INIT call issued first
	X'14'	Initialization request failed for either Policy Services or Data Dictionary Services
	X'18'	Internal failure caught by Policy Services ESTAE routine; retry can be attempted
	X'1C'	Load library is not APF authorized
	Any code	Severe error (Component not available)
X'20'	X'20'	Component not active (Policy initialization not requested)

Return/reason codes: Policy Environment Services (BSN1500-1599)

This reference section provides detailed information about the return and reason codes reported by the Policy Services Policy Environment Services interface in messages BSN1500-1599.

For register 15 high byte values, see “Return codes: Register 15 high byte values” on page 516.

Table 183: Return and reason codes reported by Policy Services Policy Environment Services interface

Return code	Reason code (Hex)	Reason code (Symbolic)	Description
X'00'	Any code	Any code	Successful (Function was successful)
	X'00'	none	PES function was successful
X'04'	Any code	Any code	Warning (Function completed with information)
	X'04'	none	No more data
X'08'	Any code	Any code	Error (Function completed with error)
	X'04'	none	FPQSRV call failure
	X'08'	OBTAIN	Unable to obtain PES storage
		OBTPESA	Unable to obtain PES storage (PESA block)
		OBTPESH	Unable to obtain PES storage (PESH block)
	X'0C'	RELEASE	Unable to release PES storage
		RELPESD	Unable to release PES storage (PESD block)
		RELPESE	Unable to release PES storage (PESE block)
		RELPESA	Unable to release PES storage (PESA block)
		RELPESK	Unable to release PES storage (PESK block)
		RELPESH	Unable to release PES storage (PESH block)
	X'10'	PES_ENQ	PES latch failure (ENQ)
		PES_DEQ	PES latch failure (DEQ)
	X'14'	DOMLOC	Domain latch failure

Return code	Reason code (Hex)	Reason code (Symbolic)	Description
	X'18'	NDMLOC	Non-domain latch failure
	X'20'	NOPESH	No PESH control block
	X'24'	NOPESE	No PESE control block
	X'28'	NOPOCB	No POCB control block
	X'2C'	NOPESA	No PESA control block
	X'30'	NOPESD	No PESD control block
	X'34'	NODMNM	No domain name provided
	X'38'	NOPESK	No PESK control block
	X'3C'	NOINPT	No input data
	X'50'	INVFUN	Invalid function
		UNKFUN	Invalid function
	X'54'	INVMOD	Invalid mode
	X'58'	INVPOL	Invalid policy objects
	X'60'	INVORG	Invalid environment level
	X'68'	INVORG	Invalid origin environment
	X'70'	COPA	BSNPDS call failure
		DELA	BSNPDS call failure
		ENDL	BSNPDS call failure
		VALA	BSNPDS call failure
		RNMA	BSNPDS call failure
	X'74'	DELA	BSNRDS call failure
		RNMA	BSNRDS call failure
	X'78'	COPA	BSNNLDS call failure
		DSTY	BSNNLDS call failure
		DELP	BSNNLDS call failure
		RNMA	BSNNLDS call failure
		DELA	BSNNLDS call failure
	X'7C'	OBTRIB	GQSCAN call failure
	X'80'	OBJCON	Objects in contention
	X'84'	MEMFND	Member found in the repository

Return code	Reason code (Hex)	Reason code (Symbolic)	Description
	X'88'	INVUID	Invalid user ID
	X'8C'	INVPKG	Invalid package ID
	X'90'	INVGTP	Invalid get type
	X'94'	INVUSG	Invalid usage
	X'98'	INVITP	Invalid item type
	X'9C'	INSACC	Insufficient access authorization to the repository

Return/reason codes: Association Manager (BSN1600-1799)

This reference section provides detailed information about the return and reason codes reported by the Policy Services Association Manager interface in messages BSN1600-1799.

For register 15 high byte values, see “Return codes: Register 15 high byte values” on page 516.

Table 184: Return and reason codes reported by Policy Services Association Manager interface

Return code	Reason code	Description
X'00'	Any code	Successful (Function was successful)
	X'00'	Call successful
X'04'	Any code	Warning (Function completed with information)
X'08'	Any code	Error (Function completed with error)
	X'04'	Currently not used
	X'08'	Currently not used
	X'0C'	Currently not used
	X'10'	Currently not used
	X'14'	Currently not used
	X'18'	No RECON container data
	X'1C'	Currently not used
	X'20'	Currently not used
	X'24'	Invalid function
	X'28'	No valid RECON in container
	X'2C'	Unable to obtain POCB
	X'30'	No resource passed
	X'34'	No PDSP returned on PDS PTRD call
	X'38'	No resource list returned on PDS GETC call
	X'3C'	No match on resource name from PDDS open

Return code	Reason code	Description
	X'40'	No policy name passed
	X'44'	Invalid policy name; prefix is "IBM."
	X'48'	Currently not used
	X'4C'	Invalid level change request
	X'50'	Invalid domain name specified
	X'54'	Policy domains are not defined
	X'58'	No PDEB defined for specified domain name
	X'5C'	Domain already in maintenance mode
	X'60'	Reserved
	X'64'	Reserved
	X'68'	Unable to obtain LISTAREA storage
	X'6C'	Invalid POLICYBY= parameter value
	X'70'	Domain is not in operation environment
	X'74' - X'7C'	Reserved
	X'80' - X'90'	Not used by Association Manager

Return/reason codes: Email/Texting Variable (BSN1800-1899)

This reference section provides detailed information about the return and reason codes reported by the Policy Services Email/Texting Variable interface in messages BSN1800-1899.

Table 185: Return and reason codes reported by Policy Services Email/Texting Variable interface

Return code	Reason code	Description
X'00'	Any code	Successful (Function was successful)
	X'00'	ETV function was successful
X'04'	Any code	Warning (Function completed with information)
	X'04'	No more data
	X'08'	Member found in the repository
	X'20'	Partial delete occurred
X'08'	Any code	Error (Function completed with error)
	X'04'	FPQSRV call failure
	X'08'	Unable to obtain ETV storage
	X'0C'	Unable to release ETV storage
	X'10'	No SMTP in the RECON

Return code	Reason code	Description
	X'14'	The default global SMTP not modified
	X'20'	No ETVT control block
	X'24'	No ETVH control block
	X'28'	No ETVL control block
	X'2C'	No POCB control block
	X'30'	No variable type provided
	X'34'	No domain name provided
	X'38'	No input data
	X'50'	Invalid function
	X'54'	Invalid mode
	X'58'	Invalid email variable
	X'5C'	Invalid texting variable
	X'64'	Invalid locale
	X'68'	Invalid environment
	X'6C'	Invalid RECON
	X'70'	Member not found in the repository
	X'74’	BSNETV call failure
	X'78’	No change to the repository allowed
	X'7C’	Input string has invalid character
	X'80’	Member in use
	X'84’	Invalid UOW handle

Return/reason codes: Storage Manager (BSN2200-2399)

This reference section provides detailed information about the return and reason codes reported by the Policy Services Storage Manager interface is messages BSN2200-2399.

For register 15 high byte values, see “Return codes: Register 15 high byte values” on page 516.

Table 186: Return and reason codes reported by Policy Services Storage Manager interface

Return code	Reason code	Description
X'00'	Any code	Successful (Function was successful)
	X'00'	SM function was successful
X'04'	Any code	Warning (Function completed with information)
	X'0C'	Cell size not supported

Return code	Reason code	Description
	X'10'	CPOOL Manager not INIT

Return/reason codes: Action Manager (BSN2800-2999)

This reference section provides detailed information about the return and reason codes reported by the Policy Services Action Manager interface in messages BSN2800-2999.

For register 15 high byte values, see “Return codes: Register 15 high byte values” on page 516.

Table 187: Return and reason codes reported by Policy Services Action Manager interface

Return code	Reason code	Description
X'00'	Any code	Successful (Function was successful)
	X'00'	AM function was successful
X'04'	Any code	Warning (Function completed with information)
	X'04'	No more data
X'08'	Any code	Error (Function completed with error)
	X'04' - X’20	Not used by Action Manager
	X'24'	Invalid function
	X'28' - X’6C’	Reserved
	X'80'	No Action Descriptor address
	X'84'	No Action List address
	X'88'	Storage Manager failure
	X'8C'	No Action Manager AMCB control block
	X'90'	Invalid Action Manager Phase

Return/reason codes: Journal Manager (BSN3400-3499)

This reference section provides detailed information about the return and reason codes reported by the Policy Services Journal Manager interface in messages BSN3400-3499.

For register 15 high byte values, see “Return codes: Register 15 high byte values” on page 516.

Table 188: Return and reason codes reported by Policy Services Journal Manager interface

Return code	Reason code (Hex)	Reason code (Symbolic)	Description
X'00'	Any code	Any code	Successful (Function was successful)
	X'00'	none	JMS function was successful
X'04'	Any code	Any code	Warning (Function completed with information)
	X'04'	NODATA	No more data
X'08'	Any code	Any code	Error (Function completed with error)

Return code	Reason code (Hex)	Reason code (Symbolic)	Description
	X'04'	HKTXXLI	HKTXACC call failure
	X'08'	OBTJMSH	Unable to obtain JMS storage
	X'0C'	FREERROR	Unable to release JMS storage (input buffer)
		RELJMSH	Unable to release JMS storage (anchor block storage)
	X'10'	NOJMSH	No JMSH control block
	X'20'	NOJUOW	No JUOW control block
	X'24'	NOPOCB	No POCB control block (no POCB)
	X'28'	NOHEAD	No heading block provided
	X'2C'	NOSUBT	No sub title provided
	X'30'	NOINPT	No input data
	X'34'	INVFUN	Invalid function
	X'38'	INVMOD	Invalid mode
	X'3C'	NODDCARD	No JM DD card in the JCL
	X'40'	*dd_name*	OPEN call failure
	X'44'	PUTFAIL	PUT call failure
	X'48'	*dd_name*	CLOSE call failure
	X'4C'	ALLOCERR	Dynamic allocation failed

Return/reason codes: Parser, Validation, Evaluation (BSN4000-4199)

This reference section provides detailed information about the return and reason codes reported by the Policy Services Parser, Validation, Evaluation (PVE) interface in messages BSN4000-4199.

For register 15 high byte values, see "Return codes: Register 15 high byte values" on page 516.

Table 189: Return and reason codes reported by Policy Services Parser, Validation, Evaluation (PVE) interface

Return code	Reason code	Description
X'00'	Any code	Successful (Function was successful)
	X'00'	PVE Function was successful
X'04'	Any code	Warning (Function completed with information)
	X'04'	Process ended with warning
	X'10'	Missing data is found in a policy evaluation processing
X'08'	Any code	Error (Function completed with error)
	X'04'	System error inside PVE

Return code	Reason code	Description
	X'08'	System error outside PVE
	X'0C'	Policy validation error
	X'10'	Missing data is found in a policy evaluation processing
X'0C'		Critical error (Function is missing)
	X'04'	PVE module is not loaded
	X'08'	Incorrect data record list
	X'0C'	API sequence error
X'10'	Any code	Save area obtain failure
	X'0C'	Cell size not supported
	X'10'	CPOOL Manager not INIT
X'14'	Any code	Invalid Control Blocks passed
	X'04'	Policy environment block (PSCB) address was null
	X'08'	Policy session block (POCB) address was null

Return/reason codes: Notification Manager (BSN4600-4799)

This reference section provides detailed information about the return and reason codes reported by the Policy Services Notification Manager interface in messages BSN4600-4799.

Table 190: Return and reason codes reported by Policy Services Notification Manager interface

Return code	Reason code	Description
X'00'	Any code	Successful (Function was successful)
	X'00'	Notification Manager function was successful
X'04'	Any code	Warning (Function completed with information)
	X'04'	Notification Manager function completed with information
X'08'	Any code	Error (Function completed with error)
	X'04'	A system error occurred inside the Notification Manager module
	X'08'	A system error occurred outside the Notification Manager module
X'10'	Any code	Save area obtain failure
	X'0C'	Cell size not supported
	X'10'	CPOOL Manager not INIT
X'14'	Any MVS™ key	Valid MVS™ KEY

Return code	Reason code	Description
	X'000000*nn*'	Callers KEY (The TSO SEND call failed. Policy Services does not support sending notification messages to TSO clients for the requesting IMS Tools product because the IMS Tools product is not executing in key 8. The notification list should be changed to send messages to the email directory entry, the texting directory entry, or both entries.)

Return/reason codes: Notification List Data Store (BSN5200-5399)

This reference section provides detailed information about the return and reason codes reported by the Policy Services Notification List Data Store interface in messages BSN5200-5399.

For register 15 high byte values, see "Return codes: Register 15 high byte values" on page 516.

Table 191: Return and reason codes reported by Policy Services Notification List Data Store interface

Return code	Reason code (Hex)	Reason code (Symbolic)	Description
X'00'	Any code	Any code	Successful (Function was successful)
	X'00'	none	BSNNLDS function was successful
X'04'	Any code	Any code	Warning (Function completed with information)
	X'04'	NODATA	No more data provided
	X'08'	NOENTR	No entry in notification list
	X'0C'	NONLPD	No pending delete table
	X'10'	FNDLST	Found list in the repository
	X'14'	FNDPDR	Found pending delete record
	X'20'	PDEMAX	Pending delete record exceeded maximum limit
	X'24'	LEEMAX	List entry exceeded maximum limit
X'08'	Any code	Any code	Error (Function completed with error)
	X'04'	FPQSVR	FPQSRV call failure
	X'08'	OBTNTFI	Unable to obtain NLDS storage (NTFI block)
		OBTNTFL	Unable to obtain NLDS storage (NTFL block)
		OBTNLBC	Unable to obtain NLDS storage (NLCB block)
		OBTAIN	Unable to obtain NLDS storage (NTFL work storage)
		OBTNLPD	Unable to obtain NLDS storage (NLPD table storage)
	X'0C'	RELWORK	Unable to release NLDS storage (NTFL work storage)

Return code	Reason code (Hex)	Reason code (Symbolic)	Description
		RELNLPD	Unable to release NLDS storage (NLPD table storage)
		FREWKAR	Unable to release NLDS storage (work storage)
		RELNTFL	Unable to release NLDS storage (NTFL block)
		RELNTFI	Unable to release NLDS storage (NTFI block)
		RELNLCB	Unable to release NLDS storage (NLCB block)
	X'10'	PRN_ENQ	PRN lock failure (ENQ failed)
		PRN_DEQ	PRN lock failure (DEQ failed)
	X'14'	NOPOCB	No POCB control block
	X'20'	NONLCB	No NLCB control block
	X'24'	NONTFI	No NTFI control block
	X'28'	NONTFL	No NTFL control block
	X'2C'	NONTFE	No NTFE control block
	X'30'	NOWKAR	No work area for NTFL control block
	X'34'	NOLTNM	No notification list name
	X'38'	NOLTNL	No notification list name length
	X'3C'	NODESC	No description
	X'40'	NODSCL	No description length
	X'44'	NOLNMN	No list name to be copied to
	X'50'	UNKFUN	Invalid function
		INVFUN	Invalid function
	X'54'	INVMOD	Invalid mode
	X'58'	INVNTF	Invalid notification entry
	X'5C'	ASSINT	Short name internally assigned
	X'68'	NOFLST	From list does not exist
	X'6C'	TOLEXT	To list already exists
	X'70'	LSTREF	The list is referred by policy
	X'74'	INVLOC	Invalid locale
	X'78'	INVENV	Invalid environment level

Return code	Reason code (Hex)	Reason code (Symbolic)	Description
	X'7C'	NOINPT	No input data
	X'80'	INVTEM	Invalid item
	X'84'	FDNLPD	Found NLPD member in repository
	X'88'	NOCHNG	No change to the repository allowed
	X'8C'	INVCHA	Invalid string
	X'90'	DUPTYP	Duplicated entry type added
	X'94'	MISTYP	Mismatch entry type when replace entered
	X'98'	EXCTYP	Mutual Exclusive entry type added
	X'9C'	MEMINU	Member in use

Return/reason codes: Policy Domain Data Store (BSN5800-5999)

This reference section provides detailed information about the return and reason codes reported by the Policy Services Policy Domain Data Store interface in messages BSN5800-5999.

For register 15 high byte values, see “Return codes: Register 15 high byte values” on page 516.

Table 192: Return and reason codes reported by Policy Services Policy Domain Data Store interface

Return code	Reason code (Hex)	Reason code (Symbolic)	Description
X'00'	Any code	Any code	Successful (Function was successful)
	X'00'	none	PDDS function was successful
X'04'	Any code	Any code	Warning (Function completed with information)
	None	none	
X'08'	Any code	Any code	Error (Function completed with error)
	X'04'	UNKFUN	PDDS function unknown
	X'08'	NOPDDH	Unable to locate PDDH control block
	X'0C'	NODMNM	No domain name provided
	X'10'	INVDMT	Invalid domain type
	X'14'	NOPOCB	No POCB control block
	X'20'	OBTPDDH	Unable to obtain PDDS storage
	X'24'	RELPDDH	Unable to release PDDS storage (PDDH block)
	X'28'	FPQSRV	FPQSRV call failure
	X'2C'	NOPDNT	No domain name table
	X'30'	NODTDN	No match domain name in the table

Return code	Reason code (Hex)	Reason code (Symbolic)	Description
	X'34'	NOPDDP	No valid PDDP control block

Return/reason codes: Rule Data Store (BSN6400-6599)

This reference section provides detailed information about the return and reason codes reported by the Policy Services Rule Data Store interface in messages BSN6400-6599.

For register 15 high byte values, see "Return codes: Register 15 high byte values" on page 516.

Table 193: Return and reason codes reported by Policy Services Rule Data Store interface

Return code	Reason code (Hex)	Reason code (Symbolic)	Description
X'00'	Any code	Any code	Successful (Function was successful)
	X'00'	ENTRY	The requested function has started successfully.
	X'00'	none	RDS function was successful
X'04'	Any code	Any code	Warning (Function completed with information)
	X'04'	NODATA	No more data
	X'08'	MEMFND	Member found in the repository
	X'0C'	TRSFND	Threshold set found in RDSR
X'08'	Any code	Any code	Error (Function completed with error)
	Any code	CTAG	An internal error occurred. A possible reason might be that module BSNREORG or BSNDDO00 is not updated to the latest level and therefore installation of the new rule that was created in the *hlq*.SHKTTMPL data set failed.
		EXIT	Module exited
	X'04'	FPQSVR	FPQSRV call failure
	X'08'	OBTAIN	Unable to obtain RDS storage (RDSC block)
		OBTRDSC	Unable to obtain RDS storage (RDSC block)
		OBTRDSL	Unable to obtain RDS storage (RDSL block)
		OBTDELT	Unable to obtain RDS storage (DELETE TRSD SET NAME TABLE)
		OBTRDSH	Unable to obtain RDS storage (RDSH block)
		OBTAIN	Unable to obtain RDS storage (RDSC block)
	X'0C'	RELRDSH	Unable to release RDS storage (RDSH block)
		RELRDSL	Unable to release RDS storage (RSHL block)
		RELMMSG	Unable to release RDS storage (Message Clause storage)

Return code	Reason code (Hex)	Reason code (Symbolic)	Description
		RELCEXP	Unable to release RDS storage (Condition Expression Clause storage)
		RELRTYP	Unable to release RDS storage (Resource Type Clause storage)
		RELEEXP	Unable to release RDS storage (Exception Expression Clause storage)
		RELTRSD	Unable to release RDS storage (Threshold Set List storage)
		RELOTRSD	Unable to release RDS storage (Original Threshold Set List storage)
		RELRCDE	Unable to release RDS storage (Rule Condition Description Clause storage)
		RELDAEL	Unable to release RDS storage (Data Element List Clause storage)
		RELMSGT	Unable to release RDS storage (Message Template Clause storage)
		DELNMLST	Unable to release RDS storage (Deleted Threshold Name List storage)
		STREAM	Unable to release RDS storage (Rule Stream storage)
		WORKAREA	Unable to release RDS storage (Parsing Work Area storage)
		FREERDSR	Unable to release RDS storage (RDSR Parsing Work Area storage)
		RELRCDE	Unable to release RDS storage (Rule Condition Description Clause storage)
	X'20'	NORDSH	No RDSH control block
	X'24'	INVRDSC	No RDSR control block
	X'28'	NORDSL	No RDSL control block
	X'2C'	NOPOCB	No POCB control block
	X'30'	NORUNM	No rule name provided
	X'34'	NODMNM	No domain name provided
	X'38'	NOINPT	No input data
	X'50'	INVFUN	Invalid function
	X'54'	INVMOD	Invalid mode
	X'58'	INVRTYP	Parsing error - Invalid resource type in template
		INVTEM	Parsing error - Invalid domain name in template

Return code	Reason code (Hex)	Reason code (Symbolic)	Description
			Parsing error - Invalid file name in template
		INVEEXP	Parsing error - Invalid exception expression in template
		INVTRSD	Parsing error - Invalid threshold list
		INVCEXP	Parsing error - Invalid condition expression in template
		INVDAEL	Parsing error - Invalid data element List in template
		INVMSGT	Parsing error - Invalid message in template
		NOCEXP	No exception clause in template
		NORTYP	No resource type in template
		NOTRSD	No threshold list
		NOOTRSD	No original threshold list
		NOEEXP	No exception expression in template
		NODAEL	No data element list in template
		NOMSGT	No message in template
		NORCDE	No rule condition description
	X'5C'	INVTRSD	Invalid threshold set
	X'60'	PRN_ENQ	PRN latch failure (ENQ)
		PRN_DEQ	PRN latch failure (DEQ)
	X'62'	INVLEN	Invalid message template
	X'68'	MEMNFD	Member not found in the repository
	X'6C'	REFPOL	Referencing policy template found
	X'70'	STRL	BSNPDS call failure (STRL)
		GETL	BSNPDS call failure (GETL)
		PTRD	BSNPDS call failure (PTRD)
		GETC	BSNPDS call failure (GETC)
		ENDL	BSNPDS call failure (ENDL)
	X'72'	INVLOC	No RECON ID provided
	X'78'	INVENV	Invalid environment level
	X'80'	INVRECON	Invalid external RECON ID
	X'88'	NOCHNG	No change to the repository allowed

Return code	Reason code (Hex)	Reason code (Symbolic)	Description
	X'8C'	TRSDMS	TRSD missing in the replacing template
	X'90'	INVCHAR	Invalid character
	X'94'	UOW	Handle invalid
	None[“1” on page 499]	DISC	Data Dictionary disconnect failed
	None[“1” on page 499]	CONN	Data Dictionary connect failed
	None[“1” on page 499]	VALE	Data Dictionary validation failed

Note:

1. The reason codes are displayed in messages without a return code.

Return/reason codes: Policy Data Store (BSN7000-7199)

This reference section provides detailed information about the return and reason codes reported by the Policy Services Policy Data Store interface in messages BSN7000-7199.

For register 15 high byte values, see “Return codes: Register 15 high byte values” on page 516.

Table 194: Return and reason codes reported by Policy Services Policy Data Store interface

Return code	Reason code (Hex)	Reason code (Symbolic)	Description
X'00'	Any code	Any code	Successful (Function was successful)
	X'00'	none	PDS function was successful
X'04'	Any code	Any code	Warning (Function completed with information)
	X'04'	NODATA	No more data
	X'08'	FNDTMP	Found template in the repository
	X'0C'	FNDSTR	Found stream in the repository
	X'10'	FNDCLS	Found clause in the PDSP
X'08'	Any code	Any code	Error (Function completed with error)
	X'04'	FPQSRV	FPQSRV call failure
	X'08'	STGGET	Unable to obtain PDS storage
	X'0C'	STGREL	Unable to release PDS storage
	X'10'	PRNLOC	PRN latch failure
	X'20'	NOPDSH	No PDSH control block
	X'24'	NOPDSP	No PDSP control block
	X'28'	NOPOCB	No POCB control block

Return code	Reason code (Hex)	Reason code (Symbolic)	Description
	X'2C'	NOPDSL	No PDSL control block
	X'30'	NOPLNM	No policy name provided
	X'34'	NODMNM	No domain name provided
	X'38'	NOINPT	No input data
	X'50'	INVFUNC	Invalid function
	X'54'	INVMOD	Invalid mode
	X'58'	INVTEM	Invalid policy template
	X'5C'	INVSTR	Invalid policy stream
	X'60'	INVCLS	Invalid policy clause
	X'64'	INVLOC	Invalid locale
	X'68'	INVENV	Invalid environment level
	X'6C'	INVREC	Invalid RECON
	X'70'	NOPOLY	No policies in repository
	X'74'	MEMINU	Member in use
	X'78'	NOCHNG	No change to the repository allowed
	X'7C'	INVCHA	Invalid char

Return/reason codes: Data Dictionary (BSN7600-7799, BBE1450E)

This reference section provides detailed information about the return and reason codes reported by the Policy Services Data Dictionary interface in messages BSN7600-7799 and message BBE1450E.

For register 15 high byte values, see “Return codes: Register 15 high byte values” on page 516.

Topics:

- “Data Dictionary return/reason codes overview” on page 501
- “Parmlist return/reason code analysis” on page 501
- “Data Dictionary: Parmlist codes for all List functions” on page 502
- “Data Dictionary LKUP function: List and List Entry codes” on page 503
- “Data Dictionary CTAG(ID/NAME) function: List and List Entry codes” on page 504
- “Data Dictionary VALE function: List and List Entry codes” on page 504
- “Data Dictionary TRAN function: List and List Entry codes” on page 506
- “Data Dictionary COMP function: List and List Entry codes” on page 508
- “Data Dictionary FORM function: List and List Entry codes” on page 509
- “Data Dictionary: Codes for non-List function calls” on page 510

Data Dictionary return/reason codes overview

This reference section provides an overview of the return and reason codes reported by the Policy Services Data Dictionary interface.

Data Dictionary function call types

The Data Dictionary processes two types of function calls:

- List
- Non-List

The non-List function calls include:

- Initialization (BSNDD FUNC=INIT)
- Termination (BSNDD FUNC=TERM)
- Connect (BSNDD FUNC=CONN)
- Disconnect (BSNDD FUNC=DISC)

The List function calls include:

- Lookup (BSNDD FUNC=LKUP)
- Create Tag using Tag ID (BSNDD FUNC=CTAG(ID))
- Create Tag using Tag name (BSNDD FUNC=CTAG(NAME))
- Validate (BSNDD FUNC=VALE)
- Transform (BSNDD FUNC=TRAN)
- Compare Format 1 (BSNDD FUNC=COMP(FORMAT1))
- Compare Format 2 (BSNDD FUNC=COMP(FORMAT2))
- Format (BSNDD FUNC=FORM)

When Data Dictionary return and reason codes are returned (API-specific)

The Data Dictionary non-List function calls will return Data Dictionary Parmlist return/reason codes in the parameter list only.

Data Dictionary non-List function calls do not return:

- Data Dictionary Overall List return/reason codes
- Data Dictionary List Entry return/reason codes

The Data Dictionary List function calls will return:

- Data Dictionary Parmlist return/reason codes
- Data Dictionary Overall List return/reason codes
- Data Dictionary List Entry return/reason codes

Information revealed by Data Dictionary return and reason codes

Parmlist return and reason codes reveal information about whether the Data Dictionary is present and functioning.

List return and reason codes reveal information about whether there is an error in any of the list entries. This type of error warns the user that the list entries must be inspected for errors

List Entry return and reason codes reveal information that this specific function request has failed.

Parmlist return/reason code analysis

Analysis of Data Dictionary parameter list (Parmlist) return and reason codes follow a specific order.

The following order is used for analyzing Parmlist return and reason codes:

1. Data Dictionary Parmlist return/reason codes

2. Data Dictionary Overall List return/reason codes
3. Data Dictionary List Entry return/reason codes

Non-List function analysis

For non-List functions (INIT, CONN, DISC or TERM), analysis of the Data Dictionary Parmlist return/reason codes (BSNDD_PARM_RETCODE and BSNDD_PARM_RSNCODE) is all that is required.

For non-List functions, there are no Overall List return/reason codes or List Entry return/reason codes returned to be evaluated.

- If the Data Dictionary Parmlist return code is zero, the call completed successfully.
  No additional return/reason code analysis of either Data Dictionary Overall List return/reason codes or Data Dictionary List Entry return/reason codes is required.
- If the Data Dictionary Parmlist return code is nonzero, an environment error has occurred and Data Dictionary was unable to process the requested function.
  No additional return/reason code analysis of either Data Dictionary Overall List return/reason codes or Data Dictionary List Entry return/reason codes is required.

List function analysis

List functions (LKUP, CTAG(ID), CTAG(NAME), VALE, TRAN, FORM, or COMP) require the following analysis:

- Analysis of the Data Dictionary Parmlist return/reason code (BSNDD_PARM_RETCODE and BSNDD_PARM_RSNCODE) is required:
  - If the Data Dictionary Parmlist return code is X'00', the call completed.
    Additional return/reason code analysis of the Data Dictionary Overall List return/reason codes is required to determine whether any of the list elements completed in error.
  - If the Data Dictionary Parmlist return code is nonzero, an environment error has occurred and Data Dictionary was unable to process the requested function.
    The call completed in error with the Data Dictionary function not being processed. No additional return/reason code analysis of either Data Dictionary Overall List return/reason codes or Data Dictionary List Entry return/reason codes is required.
- Analysis of the Data Dictionary Overall List return/reason codes (BSNDD_xxxxLIST_RETCODE and BSNDD_xxxxLIST_RSNCODE) is required:
  - If the Data Dictionary Overall List return code BSNDD_*xxxx*LIST_RETCODE is X'00', the call completed with no error.
    No additional analysis of Data Dictionary List Entry return/reason codes is required.
  - If the Data Dictionary Overall List return code BSNDD_*xxxx*LIST_RETCODE is X'08', the call completed with one or more list element items in error.
    The List Entry return/reason codes values BSNDD_*xxxx*LISTE_RETCODE and BSNDD_*xxxx*LISTE_RSNCODE for each list entry needs to be analyzed to determine the completion of each of the list element requests.
  - If the Data Dictionary Parmlist return code is greater than X'08', a list error has occurred and the Data Dictionary was unable to process the requested function.
    Error example: Something is wrong with the list parameters, such as a list pointer and a list count of zero, or a valid count and no list pointer.

    The call completed in error with the Data Dictionary function not being processed. No additional analysis of the Data Dictionary List Entry return/reason codes is required.
- Analysis of the Data Dictionary List Element Return/Reason Codes (BSNDD_xxxxLISTE_RETCODE and BSNDD_xxxxLISTE_RSNCODE) is required:
  Evaluate the BASNDD_*xxxx*LISTE_RETCODE and BSNDD_*xxxx*LIST_RSNCODE.

Data Dictionary: Parmlist codes for all List functions

This reference section provides detailed information about the parameter list (parmlist) return and reason codes reported by all List functions of the Policy Services Data Dictionary interface. These List functions include lookup (LKUP), create tag (CTAG(ID/NAME)), validate (VALE), transform (TRAN), compare format (COMP), and format (FORM).

Parmlist codes for Format (BSNDD FUNC= LKUP|CTAG(ID)|CTAG(NAME)|VALE|TRAN|FORM|COMP|)

BSNDD_PARM_RETURN/BSNDD_PARM_REASON CODE DEFINITION

Table 195: Parmlist return and reason codes reported by all List functions of the Policy Services Data Dictionary interface

Return code	Reason code	Description
X'30'	Any code	Environment Error - No Token in parameter area
X'2C'	Any code	Environment Error - BSNDDEIS invalid address defined in token
X'28'	Any code	Environment Error - BSNDDES invalid address defined in token
X'24'	Any code	Environment Error - BSNDDDS invalid address defined in token
X'20'	Any code	Environment Error - BSNDDIS invalid address defined in token
X'1C'	Any code	Environment Error - BSNDDNS invalid address defined in token
X'18'	Any code	Environment Error - No List in parameter area
X'0C'	Any code	Invalid function requested (BSNDD FUNC=invalid value)
X'00'	Any code	Method successful - Validation of the List Header return/reason code is required.

Data Dictionary LKUP function: List and List Entry codes

This reference section provides detailed information about the List and List Entry return and reason codes reported by the Policy Services Data Dictionary lookup function (LKUP).

See also "Data Dictionary: Parmlist codes for all List functions" on page 502

List codes for Lookup (BSNDD FUNC=LKUP)

BSNDD_LKUPLIST_RETURN/BSNDD_LKUPLIST_REASON CODE DEFINITION

Table 196: List return and reason codes reported by Policy Services Data Dictionary LKUP function

Return code	Reason code	Description
X'30'	Any code	List Error - Not a LKUP list
X'2C'	Any code	List Error - No number of list entries
X'08'	Any code	List Error - A list entry had a failure. List Entry return/reason codes need to be analyzed.
X'00'	Any code	No List Entry errors, call successful

List Entry codes for Lookup (BSNDD FUNC=LKUP)

BSNDD_LKUPLISTE_RETURN/BSNDD_LKUPLISTE_REASON CODE DEFINITION

Table 197: List Entry return and reason codes reported by Policy Services Data Dictionary LKUP function

Return code	Reason code	Description
X'30'	Any code	Entry Error - Tag ID invalid
X'2C'	Any code	Entry Error - Tag Name invalid

Data Dictionary CTAG(ID/NAME) function: List and List Entry codes

This reference section provides detailed information about the List and List Entry return and reason codes reported by the Policy Services Data Dictionary create tag function (CTAG(ID/NAME)).

See also "Data Dictionary: Parmlist codes for all List functions" on page 502

List codes for Create Tag (BSNDD FUNC=CTAG(ID/NAME))

BSNDD_CTIDLIST_RETURN/BSNDD_CTIDLIST_REASON CODE DEFINITION

Table 198: List return and reason codes reported by Policy Services Data Dictionary CTID function

Return code	Reason code	Description
X'30'	Any code	List Error - Not a CTAG (CTID/CTNM) list
X'2C'	Any code	List Error - No number of list entries
X'28'	Any code	List Error - Storage allocation failure for list
X'08'	Any code	List Error - A list entry had a failure. List Entry return/reason codes need to be analyzed.
X'00'	Any code	No List Entry errors, call successful

List Entry codes for Create Tag (BSNDD FUNC=CTAG(ID/NAME))

BSNDD_CTIDLISTE_RETURN/BSNDD_CTIDLISTE_REASON CODE DEFINITION

Table 199: List Entry return and reason codes reported by Policy Services Data Dictionary CTID function

Return code	Reason code	Description
X'60'	Any code	Entry Error - No Tag specified (CTID)
X'5C'	Any code	Entry Error - No Tag ID specified (CTID)
X'58'	Any code	Entry Error - Tag ID not found (CTID)
X'30'	Any code	Entry Error - No Tag specified (CTNM)
X'2C'	Any code	Entry Error - No Tag Name specified (CTNM)
X'28'	Any code	Entry Error - Tag Name not found (CTNM)
X'08'	Any code	List Error - A list entry had a failure. List Entry return/reason codes need to be analyzed

Data Dictionary VALE function: List and List Entry codes

This reference section provides detailed information about the List and List Entry return and reason codes reported by the Policy Services Data Dictionary validate function (VALE).

See also "Data Dictionary: Parmlist codes for all List functions" on page 502

List codes for Validate (BSNDD FUNC=VALE)

BSNDD_VALELIST_RETURN/BSNDD_VALELIST_REASON CODE DEFINITION

Table 200: List return and reason codes reported by Policy Services Data Dictionary VALE function

Return code	Reason code	Description
X'30'	Any code	List Error - Not a VALE list
X'2C'	Any code	List Error - No number of list entries

Return code	Reason code	Description
X'28'	Any code	List Error - Storage allocation failure for list
X'08'	Any code	List Error - A list entry had a failure. List entry return/reason codes need to be analyzed
X'00'	Any code	No List Entry errors, call successful

List Entry codes for Validate (BSNDD FUNC=VALE)

BSNDD_VALELISTE_RETURN/BSNDD_VALELISTE_REASON CODE DEFINITION

Table 201: List Entry return and reason codes reported by Policy Services Data Dictionary VALE function

Return code	Reason code	Description
X'30'	Any code	Entry Error - No Tag Address
X'2C'	Any code	Entry Error - No Value Address
X'28'	Any code	Entry Error - No Value Length
X'24'	Any code	Entry Error - Tag Validation Failed (see reason codes)
	X'C4'	Tag Error - Incorrect SIGNED/UNSIGNED setting
	X'C0'	Tag Error - Incorrect SCALE setting
	X'BC'	Tag Error - Invalid LOGICAL Type
	X'B8'	LOGICAL(INTEGER) PHYSICAL(EXTERNAL) sign error
	X'B4'	LOGICAL(INTEGER) PHYSICAL(EXTERNAL) validate error
	X'B0'	LOGICAL(INTEGER) PHYSICAL(INTERNAL) invalid
	X'AC'	LOGICAL(INTEGER) PHYSICAL(PACKED) validate error
	X'A8'	LOGICAL(INTEGER) PHYSICAL(ZONED) validate error
	X'A4'	LOGICAL(INTEGER) PHYSICAL(FLOATBHP) invalid
	X'A0'	LOGICAL(INTEGER) PHYSICAL(FLOATHFP) invalid
	X'9C'	LOGICAL(INTEGER) PHYSICAL(CHARACTER) validate error
	X'98'	LOGICAL(INTEGER) PHYSICAL(unknown) invalid physical representation in file
	X'94'	LOGICAL(FLOATINGPOINT) not implement
	X'90'	LOGICAL(CHARACTER) sign error
	X'8C'	LOGICAL(CHARACTER) not one of the following: – PHYSICAL(EXTERNAL) – PHYSICAL(BINARY) – PHYSICAL(FIXEDCHARACTER)
	X'88'	LOGICAL(CHARACTER) value not char
	X'80'	LOGICAL(BOOLEAN) sign error

Return code	Reason code	Description
	X'7C'	LOGICAL(BOOLEAN) not one of the following: – PHYSICAL(EXTERNAL) – PHYSICAL(BINARY) – PHYSICAL(FIXEDCHARACTER)
	X'64'	Validate Successful
X'20'	Any code	Entry Error - Range Validation Failed (see reason codes)
	X'128'	Tag ID error - Tag ID is zero
	X'124'	DDEF error - RANGE not found
	X'120'	BOUNDARY List error - Tag value less than Low Boundary
	X'11C'	BOUNDARY List error - Tag value greater than High Boundary
	X'118'	VALUE List error - Tag value not found in list
	X'C8'	Validate successful

Data Dictionary TRAN function: List and List Entry codes

This reference section provides detailed information about the List and List Entry return and reason codes reported by the Policy Services Data Dictionary transform function (TRAN).

See also "Data Dictionary: Parmlist codes for all List functions" on page 502

List codes for Transform (BSNDD FUNC=TRAN)

BSNDD_TRANLIST_RETURN/BSNDD_TRANLIST_REASON CODE DEFINITION

Table 202: List return and reason codes reported by Policy Services Data Dictionary TRAN function

Return code	Reason code	Description
X'30'	Any code	List Error - Not a TRAN list
X'2C'	Any code	List Error - No number of list entries
X'28'	Any code	List Error - Storage allocation failure for list
X'08'	Any code	List Error - A list entry had a failure. List entry return/reason codes need to be analyzed.
X'00'	Any code	No List Entry errors, call successful

List Entry codes for Transform (BSNDD FUNC=TRAN)

BSNDD_TRANLISTE_RETURN/BSNDD_TRANLISTE_REASON CODE SOURCE CODE DEFINITION

Table 203: List Entry return and reason codes reported by Policy Services Data Dictionary TRAN function

Return code	Reason code	Description
X'128'	Any code	Target Error - No Source Tag
X'124'	Any code	Target Error - No Source Value
X'120'	Any code	Target Error - PHYSICAL(EXTERNAL) conversion to external format failed (CTEFF)

Return code	Reason code	Description
	None	CTEFF = Conversion to external format failed
X'11C'	Any code	Target Error - PHYSICAL(INTERNAL) CTEFF
X'118'	Any code	Target Error - PHYSICAL(BINARY) CTEFF
X'114'	Any code	Target Error - PHYSICAL(PACKED) CTEFF
X'110'	Any code	Target Error - PHYSICAL(ZONED) CTEFF
X'10C'	Any code	Target Error - PHYSICAL(FLOATBHP) CTEFF
X'108'	Any code	Target Error - PHYSICAL(FLOATFHP) CTEFF
X'104'	Any code	Target Error - PHYSCIAL(FIXEDCHARACTER) CTEFF
X'100'	Any code	Target Error - PHYSICAL(STRINGL) Not supported
X'FC'	Any code	Target Error - PHYSICAL(STRINGLL) Not supported
X'F8'	Any code	Target Error - PHYSICAL(STRINGLLLL) Not supported
X'F4'	Any code	Target Error - PHYSICAL(STRINGLLBB) Not supported
X'F0'	Any code	Target Error - PHYSICAL(STRINGG) Not supported
X'EC'	Any code	Target Error - PHYSICAL(STCK) Not supported
X'E8'	Any code	Target Error - PHYSICAL(STCKE) Not supported
X'D0'	Any code	Target Error - Unknown PHYSICAL type
X'C4'	Any code	Source Error - No Source Tag
X'C0'	Any code	Source Error - No Source Value
X'BC'	Any code	Source Error - PHYSICAL(EXTERNAL) conversion to internal format failed (CTIFF)
	None	CTIFF = Conversion to internal format failed
X'B8'	Any code	Source Error - PHYSICAL(INTERNAL) CTIFF
X'B4'	Any code	Source Error - PHYSICAL(BINARY) CTIFF
X'B0'	Any code	Source Error - PHYSICAL(PACKED) CTIFF
X'AC'	Any code	Source Error - PHYSICAL(ZONED) CTIFF
X'A8'	Any code	Source Error - PHYSICAL(FLOATBHP) CTIFF
X'A4'	Any code	Source Error - PHYSICAL(FLOATFHP) CTIFF
X'A0'	Any code	Source Error - PHYSCIAL(FIXEDCHARACTER) CTIFF
X'9C'	Any code	Source Error - PHYSICAL(STRINGL) Not supported
X'98'	Any code	Source Error - PHYSICAL(STRINGLL) Not supported
X'94'	Any code	Source Error - PHYSICAL(STRINGLLLL) Not supported

Return code	Reason code	Description
X'90'	Any code	Source Error - PHYSICAL(STRINGLLBB) Not supported
X'8C'	Any code	Source Error - PHYSICAL(STRINGG) Not supported
X'88'	Any code	Source Error - PHYSICAL(STCK) Not supported
X'84'	Any code	Source Error - PHYSICAL(STCKE) Not supported
X'6C'	Any code	Source Error - Unknown PHYSICAL Type
X'08'	Any code	List Error - A list entry had a failure. List entry Return/Reason Codes need to be analyzed.

Data Dictionary COMP function: List and List Entry codes

This reference section provides detailed information about the List and List Entry return and reason codes reported by the Policy Services Data Dictionary compare format function (COMP).

See also "Data Dictionary: Parmlist codes for all List functions" on page 502

List codes for Compare (BSNDD FUNC=COMP)

BSNDD_COMPLIST_RETURN/BSNDD_COMPLIST_REASON CODE TARGET CODE DEFINITION

Table 204: List return and reason codes reported by Policy Services Data Dictionary COMP function

Return code	Reason code	Description
X'00'	Any code	Process ended normally
X'04'	Any code	List Warning - A list entry had an information. List entry return/reason codes can be analyzed.
X'08'	Any code	List Error - A list entry had a failure. List entry return/reason codes need to be analyzed
X'0C'	Any code	Environmental error. See reason code for details.
	X'10'	Incorrect parameter list
	X'14'	Storage obtain failed

List Entry codes for Compare (BSNDD FUNC=COMP)

BSNDD_COMPLISTE_RETURN/BSNDD_COMPLISTE_REASON CODE TARGET CODE DEFINITION

Table 205: List Entry return and reason codes reported by Policy Services Data Dictionary COMP function

Return code	Reason code	Description
X'00'	Any code	Process ended normally
X'04'	Any code	Process ended with warning
	X'04'	Source tag value for target tag value was not found
X'08'	Any code	Process ended with error
	X'08'	Incomparable value was found

Data Dictionary FORM function: List and List Entry codes

This reference section provides detailed information about the List and List Entry return and reason codes reported by the Policy Services Data Dictionary format function (FORM).

See also “Data Dictionary: Parmlist codes for all List functions” on page 502

List codes for Format (BSNDD FUNC=FORM)

BSNDD_FORMPLIST_RETURN/BSNDD_FORMLIST_REASON CODE TARGET CODE DEFINITION

Table 206: List return and reason codes reported by Policy Services Data Dictionary FORM function

Return code	Reason code	Description
X'30'	Any code	List Error - Not a FORM list
X'2C'	Any code	List Error - No number of list entries
X'28'	Any code	List Error - Storage allocation failure for list
X'08'	Any code	List Error - A list entry had a failure

List Entry codes for Format (BSNDD FUNC=FORM)

BSNDD_FORMLISTE_RETURN/BSNDD_FORMLISTE_REASON CODE TARGET CODE DEFINITION

Table 207: List Entry return and reason codes reported by Policy Services Data Dictionary FORM function

Return code	Reason code	Description
X'30'	Any code	Entry Error - No tag specified
X'2C'	Any code	Entry Error - No value specified
X'28'	Any code	Entry Error - Value of zero specified
X'24'	Any code	Entry Error - No presentation area specified
X'20'	Any code	Entry Error - Transform tag/value failure
	X'C4'	Invalid Tag - LOGICAL(FLOATINGPOINT)
	X'C0'	Invalid Tag - LOGICAL(STRING)
	X'BC'	Invalid Tag - LOGICAL(TIMEVALUE)
	X'B8'	Invalid Tag - LOGICAL(TIMESTAMP)
	X'94'	Invalid Tag - LOGICAL(UNKNOWN)
	X'90'	Invalid Tag - PHYSICAL(INTERNAL)
	X'8C'	Invalid Tag - PHYSICAL(BINARY)
	X'88'	Invalid Tag - PHYSICAL(PACKED)
	X'84'	Invalid Tag - PHYSICAL(ZONED)
	X'80'	Invalid Tag - PHYSICAL(FLOATBHP)
	X'7C'	Invalid Tag - PHYSICAL(FLOATHFP)
	X'78'	Invalid Value - PHYSICAL(FIXEDCHARACTER) PHYSICAL(BOOLEAN)
	X'68'	Invalid Tag - PHYSICAL(UNKNOWN)

Return code	Reason code	Description
	X'00'	Transform successful
X'1C'	Any code	Entry Error - Format transformed tag/value failure
	X'128'	Invalid Tag - ID is zero
	X'124'	Invalid Tag - Value length is zero
	X'114'	Internal Error - Presentation length of zero

Data Dictionary: Codes for non-List function calls

This reference section provides detailed information about the return and reason codes reported by the Policy Services Data Dictionary initialization (INIT), termination (TERM), connect (CONN), and disconnect (DISC) non-List function calls.

Initialization (BSNDD FUNC=INIT)

BSNDD_PARM_RETURN/BSNDD_PARM_REASON CODE DEFINITION

Table 208: Return and reason codes reported by Policy Services Data Dictionary initialization (INIT) non-List function call

Return code	Reason code	Description
X'00'	Any code	Initialization was successful
X'0C'	Any code	Invalid function requested (BSNDD FUNC=invalid value)
X'28'	Any code	Unable to connect the Data Dictionary definition
X'2C'	Any code	Unable to initialize the Data Dictionary definition structures
X'30'	Any code	Unable to allocate (obtain) Data Dictionary definition structures
X'34'	Any code	Unable to load Data Dictionary definition table
X'38'	Any code	Unable to connect to the Data Dictionary definition
X'3C'	Any code	Unable to allocate working storage

Termination (BSNDD FUNC=TERM)

BSNDD_PARM_RETURN/BSNDD_PARM_REASON CODE DEFINITION

Table 209: Return and reason codes reported by Policy Services Data Dictionary termination (TERM) non-List function call

Return code	Reason code	Description
X'00'	Any code	Termination was successful
X'0C'	Any code	Invalid function requested (BSNDD FUNC=invalid value)
X'10'	Any code	Unable to delete Data Dictionary modules or delete name token
X'14'	Any code	Unable to delete Data Dictionary Definition table
X'18'	Any code	Unable to deallocate (release) Data Dictionary definition structures
X'1C'	Any code	Unable to disconnect from the Data Dictionary definition

Return code	Reason code	Description
X'20'	Any code	Termination has occurred with active sessions missing disconnect requests

Connect (BSNDD FUNC=CONN)

BSNDD_PARM_RETURN/BSNDD_PARM_REASON CODE DEFINITION

Table 210: Return and reason codes reported by Policy Services Data Dictionary connect (CONN) non-List function call

Return code	Reason code	Description
X'00'	Any code	Connection was successful
X'04'	Any code	Storage allocation failure
X'08'	Any code	Duplicate instance requesting connection
X'0C'	Any code	Invalid function requested (BSNDD FUNC=invalid value)

Disconnect (BSNDD FUNC=DISC)

BSNDD_PARM_RETURN/BSNDD_PARM_REASON CODE DEFINITION

Table 211: Return and reason codes reported by Policy Services Data Dictionary disconnect (DISC) non-List function call

Return code	Reason code	Description
X'00'	Any code	Disconnect was successful
X'04'	Any code	Not used
X'08'	Any code	Storage deallocation failure
X'0C'	Any code	Invalid function requested (BSNDD FUNC=invalid value)
X'10'	Any code	Instance requesting disconnection does not exist

Return/reason codes: Sensor Data read/write (BSN8800-8999, BBE1451E)

This reference section provides detailed information about the return and reason codes reported by the Policy Services Sensor Data read/write interface in messages BSN8800-8999 and message BBE1451E.

Table 212: Return and reason codes reported by Policy Services Sensor Data read/write interface

Return code	Reason code	Description
X'04'	Any code	Warning (Function completed with information)
	X'25'	No log file open
	X'27'	No member access
	X'2A'	Non-queued record in set
	X'34'	Read entry not found
	X'3A'	Return length truncated
	X'3B'	Memory key not found

Return code	Reason code	Description
	X'44'	Null GET elements
	X'49'	End of list
	X’52’	The required key field definitions are incomplete. The other possibility is that the Sensor Data repository was not initialized. For more information about initializing the Sensor Data repository, refer to the *IMS Tools Base Configuration Guide*.
X'08'	Any code	Error (Function completed with error)
	X'02'	Bad packed option: must be 'C' or 'A'
	X'08'	Bad application name
	X'0C'	Element list is invalid
	X'13'	Member not found
	X'15'	Bad packed data area
	X'16'	Bad packed data length
	X'1C'	Invalid owner
	X'1E'	Bad record set
	X'1F'	Type not record set
	X'20'	Bad record
	X'21'	Type not record
	X'24'	No log file access
	X'2B'	Bad location: must be 'N' or 'O'
	X'30'	Invalid location for reading: must be 'R', 'M', or 'B'
	X'35'	KEEP value is invalid: must be 'Y' or 'N'
	X'39'	Invalid read option: must be 'H' or 'D'
	X'3C'	Begin read entry not found
	X'3D'	Bad time sequence setting
	X'3E'	Invalid time locale
	X'3F'	Invalid time zone
	X'40'	Invalid leap seconds
	X'41'	Invalid time type
	X'42'	Invalid time value
	X'47'	GET failed
	X'48'	Key not found

Return code	Reason code	Description
	X'4B'	Write null data to ADD
	X'51'	GET element transform error
X'0C'	Any code	Error (Function completed with error)
	X'03'	Bad group name
	X'05'	Test invalid option: must be 'Y', 'N', or blank
	X'07'	History could not be found
	X'0A'	Invalid record set RSI value
	X'0B'	Connection failed for group and repository
	X'0D'	Uninitialized environment
	X'0E'	No connection
	X'0F'	Invalid tag
	X'10'	Invalid handle
	X'11'	Invalid key
	X'12'	Invalid key length
	X'14'	Bad element address
	X'17'	Undefined set clock error
	X'18'	Invalid option
	X'19'	Cannot set history
	X'1A'	Bad supplier ID
	X'1B'	Bad supplier program
	X'1D'	No record position set
	X'22'	Delete failed
	X'23'	Cannot issue query
	X'26'	Cannot set control entities
	X'28'	Missing status area
	X'29'	Cannot clear control entities
	X'2C'	Adding bad element count
	X'2D'	Adding bad tag length
	X'2E'	Record already queued
	X'31'	Invalid region dump type
	X'32'	Dump log error

Return code	Reason code	Description
	X'33'	Log error
	X'36'	Read search error
	X'37'	Return area undefined
	X'38'	Return length invalid
	X'43'	GET elements bad count
	X'45'	GET bad tag in record
	X'4F'	Bad record type: record type must be non-null and cannot begin with an underscore ('_')
	X'50'	GET bad tag data length
X'10'	Any code	Error (Function completed with error)
	X'01'	Invalid function type
	X'04'	Invalid version number
	X'06'	Invalid processing task
	X'09'	Browse failed
	X'46'	Start failed for member list
	X'4A'	PUT member failed
	X'4C'	Data dictionary initialization failed
	X'4D'	Data dictionary connection failed
	X'4E'	End list failed

Return/reason codes: Sensor Data delete (BSN8800-8999)

This reference section provides detailed information about the return and reason codes reported by the Policy Services Sensor Data delete interface in messages BSN8800-8999.

Table 213: Return and reason codes reported by Policy Services Sensor Data delete interface

Return code	Reason code	Description
X'04'	Any code	Warning (Function completed with information)
	X'1F'	No entries matched
X'08'	Any code	Error (Function completed with error)
	X'0F'	Application not found
	X'21'	Invalid time locale
	X'22'	Invalid time zone
	X'23'	Invalid leap seconds
	X'24'	Invalid time type

Return code	Reason code	Description
	X'25'	Invalid date value
X'0C'	Any code	Error (Function completed with error)
	X'06'	Parser error
	X'08'	No input commands to process
	X'0D'	Connection to server repository failed
	X'0E'	Undefined set clock error
	X'10'	Invalid function
	X'14'	Both date and age specified
	X'15'	Invalid age specified
	X'16'	Required one of date or age
	X'17'	Invalid date specified
	X'1A'	Command does not allow for server
	X'1B'	Command does not allow for application
	X'1C'	Command does not allow for RECON ID
	X'1D'	Command does not allow for database
	X'1E'	At least one process failed
	X'28'	Delete by version failed
X'16'	Any code	Error (Function completed with error)
	X'01'	Open files failed
	X'02'	Input commands missing
	X'03'	Input command length missing
	X'04'	Input line count exceeded
	X'05'	Input command length invalid
	X'07'	Unable to access BPE CSCD for parsing
	X'09'	Null input to parse
	X'0A'	Load error
	X'0B'	Unable to open RECON log
	X'0C'	RECON translation failed
	X'11'	Bad conversion to time of day
	X'12'	Bad store clock conversion

Return codes: Register 15 high byte values

Calls made using the Client API and some of the calls made using the Association Manager API can result in multiple calls to other Policy Services components. The call can fail when being processed by the Client API component, or the Association Manager component or in one of the other Policy Services components.

Register 15 is used to identify the Policy Services component when a failure occurs. The high byte of register 15 is set to define the exact component of Policy Services that failed. The remaining three bytes of register 15 contain the return code for the component. The RETCODE= and RSNCODE= parameters of the Client API call are set to the failing component return/reason codes.

The following example shows the results of a BSNSC FUNC=ASLK call on return from processing:

- If register 15 contains X'22000008', then the call failed in the Client API component that was processing a FUNC=ASLK call:

  ```
  X'22' Client API call function being made was for FUNC=ASLK
  ```

  The resulting RETCODE would be X'08' and the RSNCODE would be one of the valid Client API reason codes.

- If register 15 contains X'32000008', then the call failed in the Association Manager component that was processing a FUNC=ASLK call:

  ```
  X'32' Association Manager call function being made was for FUNC=ASLK
  ```

  The resulting RETCODE would be X'08' and the RSNCODE would be one of the valid Association Manager reason codes.

- If register 15 contains X'61000008', then the call failed in the Policy Data Store component that was processing a FUNC=PTRD call:

  ```
  X'61' Policy Data Store call function being made was for FUNC=PTRD
  ```

  The resulting RETCODE would be X'08' and the RSNCODE would be one of the valid Policy Data Store reason codes.

Table 214: Register 15 high byte values for Action Manager interface

High byte of register 15	Action Manager (BSNAM FUNC=) calls
X'10'	Action Manager call function being made was for FUNC=AMIT
X'11'	Action Manager call function being made was for FUNC=AMGA
X'12'	Action Manager call function being made was for FUNC=AMUS
X'13'	Action Manager call function being made was for FUNC=AMP2
X'19'	Action Manager call function being made was for FUNC=AMTM

Note: See “Return/reason codes: Action Manager (BSN2800-2999)” on page 490.

Table 215: Register 15 high byte values for Client API interface

High byte of register 15	Client API (BSNSC FUNC=) calls
X'01'	Client API call function being made was for FUNC=INIT
X'15'	Client API call function being made was for FUNC=LSTP
X'16'	Client API call function being made was for FUNC=LSTT

High byte of register 15	Client API (BSNSC FUNC=) calls
X'17'	Client API call function being made was for FUNC=PAEV
X'18'	Client API call function being made was for FUNC=PACU
X'20'	Client API call function being made was for FUNC=INIT
X'21'	Client API call function being made was for FUNC=STRT
X'22'	Client API call function being made was for FUNC=ASLK
X'26'	Client API call function being made was for FUNC=ASGP
X'27'	Client API call function being made was for FUNC=ASFP
X'28'	Client API call function being made was for FUNC=ASUP
X'29'	Client API call function being made was for FUNC=TERM

Note: See "Return/reason codes: Client API interface (BSN1000-1009) (BSN2000-2099)" on page 483.

Table 216: Register 15 high byte values for Association Manager interface

High byte of register 15	Association Manager (BSNAS FUNC=) calls
X'32'	Association Manager call function being made was for FUNC=ASLK
X'33'	Association Manager call function being made was for FUNC=ASVT
X'34'	Association Manager call function being made was for FUNC=ASVS
X'35'	Association Manager call function being made was for FUNC=ASPT
X'36'	Association Manager call function being made was for FUNC=ASGP
X'37'	Association Manager call function being made was for FUNC=ASFP
X'38'	Association Manager call function being made was for FUNC=ASUP

Note: See "Return/reason codes: Association Manager (BSN1600-1799)" on page 487.

Table 217: Register 15 high byte values for Journal Manager interface

High byte of register 15	Journal Manager (BSNJM FUNC=) calls
X'40'	Journal Manager call function being made was for FUNC=INIT
X'41'	Journal Manager call function being made was for FUNC=STAU
X'42'	Journal Manager call function being made was for FUNC=WRIT
X'43'	Journal Manager call function being made was for FUNC=CMTU
X'49'	Journal Manager call function being made was for FUNC=TERM

Note: See “Return/reason codes: Journal Manager (BSN3400-3499)” on page 490.

Table 218: Register 15 high byte values for Policy Domain Data Store interface

High byte of register 15	Policy Domain Data Store (BSNPDDS FUNC=) calls
X'50'	Policy Domain Data Store call function being made was for FUNC=INIT
X'51'	Policy Domain Data Store call function being made was for FUNC=OPEN
X'52'	Policy Domain Data Store call function being made was for FUNC=CLSE
X'59'	Policy Domain Data Store call function being made was for FUNC=TERM

Note: See “Return/reason codes: Policy Domain Data Store (BSN5800-5999)” on page 495.

Table 219: Register 15 high byte values for Policy Data Store interface

High byte of register 15	Policy Data Store (BSNPDS FUNC=) calls
X'60'	Policy Data Store call function being made was for FUNC=INIT
X'61'	Policy Data Store call function being made was for FUNC=PTRD
X'62'	Policy Data Store call function being made was for FUNC=GETC
X'63'	Policy Data Store call function being made was for FUNC=PTRL
X'64'	Policy Data Store call function being made was for FUNC=PSRD
X'65'	Policy Data Store call function being made was for FUNC=PSRL
X'66'	Policy Data Store call function being made was for FUNC=PSFT
X'67'	Policy Data Store call function being made was for FUNC=STRL
X'68'	Policy Data Store call function being made was for FUNC=GETL
X'69'	Policy Data Store call function being made was for FUNC=TERM

Note: See “Return/reason codes: Policy Data Store (BSN7000-7199)” on page 499.

Table 220: Register 15 high byte values for Parser, Validation, Evaluation interface

High byte of register 15	Parser, Validation, Evaluation (BSNPA FUNC=) calls
X'70'	Parser, Validation, Evaluation call function being made was for FUNC=INIT
X'71'	Parser, Validation, Evaluation call function being made was for FUNC=PARS
X'72'	Parser, Validation, Evaluation call function being made was for FUNC=VALD
X'73'	Parser, Validation, Evaluation call function being made was for FUNC=EVAL

High byte of register 15	Parser, Validation, Evaluation (BSNPA FUNC=) calls
X'78'	Parser, Validation, Evaluation call function being made was for FUNC=CLUP
X'79'	Parser, Validation, Evaluation call function being made was for FUNC=TERM

Note: See "Return/reason codes: Parser, Validation, Evaluation (BSN4000-4199)" on page 491.

Table 221: Register 15 high byte values for Storage Manager interface

High byte of register 15	Storage Manager (BSNSM FUNC=) calls
X'80'	Storage Manager call function being made was for FUNC=INIT
X'81'	Storage Manager call function being made was for FUNC=GET
X'82'	Storage Manager call function being made was for FUNC=FREE
X'83'	Storage Manager call function being made was for FUNC=TERM

Note: See "Return/reason codes: Storage Manager (BSN2200-2399)" on page 489.

Table 222: Register 15 high byte values for Policy Environment Services interface

High byte of register 15	Policy Environment Services (BSNPES FUNC=) calls
X'85'	Policy Environment Services call function being made was for FUNC=INIT
X'86'	Policy Environment Services call function being made was for FUNC=STAT
X'89'	Policy Environment Services call function being made was for FUNC=TERM

Note: See "Return/reason codes: Policy Environment Services (BSN1500-1599)" on page 485.

Table 223: Register 15 high byte values for Data Dictionary interface

High byte of register 15	Data Dictionary (BSNDD FUNC=) calls
X'90'	Data Dictionary call function being made was for FUNC=INIT
X'91'	Data Dictionary call function being made was for FUNC=TERM

Note: See "Return/reason codes: Data Dictionary (BSN7600-7799, BBE1450E)" on page 500.

Table 224: Register 15 high byte values for Rule Data Store interface

High byte of register 15	Rule Data Store (BSNRDS FUNC=) calls
X'92'	Rule Data Store call function being made was for FUNC=INIT

High byte of register 15	Rule Data Store (BSNRDS FUNC=) calls
X'93'	Rule Data Store call function being made was for FUNC=TERM

Note: See “Return/reason codes: Rule Data Store (BSN6400-6599)” on page 496.

Table 225: Register 15 high byte values for Notification List Data Store interface

High byte of register 15	Notification List Data Store (BSNNLDS FUNC=) calls
X'94'	Notification List Data Store call function being made was for FUNC=INIT
X'95'	Notification List Data Store call function being made was for FUNC=TERM
X'96'	ETV call function being made was for FUNC=CONNECT
X'97'	ETV call function being made was for FUNC=DISCONNECT

Note: See “Return/reason codes: Notification List Data Store (BSN5200-5399)” on page 493.

Table 226: Register 15 high byte values for ITKB interface

High byte of register 15	ITKB (ITKB FUNC=) calls
X'98'	ITKB call function being made was for FUNC=CONNECT
X'99'	ITKB call function being made was for FUNC=DISCONNECT

Note: See the topic "HKT return and reason codes (repositories)" in *IMS Tools Base IMS Tools Knowledge Base User's Guide and Reference*.

Table 227: Register 15 high byte values for invalid calls

High byte of register 15	Client API (BSNSC FUNC=*invalid_func*) calls
X'01'	Client API call function being made before FUNC=INIT issued

Return codes: Sensor Data Extractor

The Sensor Data Extractor ends with one of the following return codes:

Table 228: Return codes reported by Policy Services Sensor Data Extractor

Return code	Description	User response
0	Job successfully ended.	None.
4	Job ended with a warning message.	Check the messages whose message numbers are suffixed by `'W'`. If this is not the expected result, correct the error, and rerun the job.
8	Job ended with an error message.	Check the messages whose message numbers are suffixed by `'E'`. Correct the error, and rerun the job.

Return code	Description	User response
12	Job abnormally ended and recovered by ESTAE routine.	This might be an internal system error. Contact IBM® Software Support.
16	Job failed to initialize the BPE environment.	Correct any errors, and rerun the job. If this situation persists, contact IBM® Software Support.

Return codes: Statistics Data Import Utility

The Statistics Data Import Utility ends with one of the following return codes:

Table 229: Return codes reported by Statistics Data Import Utility

Return code	Description	User response
0	Job successfully ended.	None.
4	Job ended with a warning message.	Check the messages whose message numbers are suffixed by `'W'`. If this is not the expected result, correct the error, and rerun the job.
8	Job ended with an error message.	Check the messages whose message numbers are suffixed by `'E'`. Correct the error, and rerun the job.
12	Job abnormally ended and recovered by ESTAE routine.	This might be an internal system error. Contact IBM® Software Support.
16	Job failed to initialize the BPE environment.	Correct any errors, and rerun the job. If this situation persists, contact IBM® Software Support.

Return codes: History Data Summarization Utility

The History Data Summarization Utility ends with one of the following return codes:

Table 230: Return codes reported by History Data Summarization Utility

Return code	Description	User response
0	Job successfully ended.	None.
4	Job ended with a warning message.	Check the messages whose message numbers are suffixed by `'W'`. If this is not the expected result, correct the error, and rerun the job.
8	Job ended with an error message.	Check the messages whose message numbers are suffixed by `'E'`. Correct the error, and rerun the job.
12	Job abnormally ended and recovered by ESTAE routine.	This might be an internal system error. Contact IBM® Software Support.
16	Job failed to initialize the BPE environment.	Correct any errors, and rerun the job. If this situation persists, contact IBM® Software Support.

Return codes: Policy Verification Utility

The Policy Verification Utility ends with one of the following return codes:

Table 231: Return codes reported by Policy Verification Utility

Return code	Description	User response
0	Job successfully ended.	None.
4	Job ended with a warning message.	Check the messages whose message numbers are suffixed by `'W'`. If this is not the expected result, correct the error, and rerun the job.
8	Job ended with an error message.	Check the messages whose message numbers are suffixed by `'E'`. Correct the error, and rerun the job.

Return code	Description	User response
12	Job abnormally ended and recovered by ESTAE routine.	This might be an internal system error. Contact IBM® Software Support.
16	Job failed to initialize the BPE environment.	Correct any errors, and rerun the job. If this situation persists, contact IBM® Software Support.

Gathering diagnostic information

Before you report a problem with Policy Services to IBM® Software Support, you need to gather the appropriate diagnostic information.

Procedure

1. Provide the following information for all Policy Services problems:
   - A clear description of the problem and the steps that are required to recreate the problem
   - All messages the that were issued preceding and following the problem
   - The timestamps of the messages
   - The Policy Services journal output
   - Product release number and the number of the last program temporary fix (PTF) that was installed
   - The version of IMS that you are using and the type and version of the operating system that you are using
   - A Load Module APAR Status report. Use the Tools Base Diagnostics Aid (HKTUDIAG) to generate a Load Module APAR Status report. For details, see *IMS Tools Base IMS Tools Common Services User's Guide and Reference*.
2. Provide additional information based on the type of problem that you experienced:
   For user interface abends, provide the following information
   - A screen shot of the panel that you were using when the abend occurred
   - The job log from the TSO session that encountered the abend
   - The job log from the server
   - A description of the task that you were doing before the abend occurred

   For errors that occur while processing an IMS Tools product, provide the following information
   - The complete job log
   - Print output
   - Contents of the any data sets that were used during the processing

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