

IBM IMS Tools Base for z/OS
1.7

Configuration Guide



Note:

Before using this information and the product it supports, read the information in [“Notices” on page 205.](#)

Fourth Edition (February 2023)

This edition applies to Version 1.7 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 SC27-9852-02.

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About this information

IBM® IMS Tools Base for z/OS® (also referred to as IMS Tools Base) provides common functionality for other IMS Tools products.

These topics are designed to help database administrators and system administrators configure the following IMS Tools Base components:

- IMS Tools Knowledge Base
- Policy Services
- IMS Tools Common Services (including IMS Tools Generic Exits and IMS Tools Online System Interface)
- Autonomics Director (for IMS)
- Distributed Access Infrastructure
- IMS Hardware Data Compression Extended

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 notes from IBM Software Support, referred to as "Tech notes"
- White papers that describe product business scenarios and solutions

Part 1. IMS Tools Base environment configuration

IBM IMS Tools Base for z/OS (also referred to as IMS Tools Base) provides common functionality for other IMS Tools products.

Before using a component that is included in IMS Tools Base, the component needs to be configured.

Before individual IMS Tools Base components are configured, use the following information to prepare and set up the general IMS Tools Base environment to support all installed components.

Topics:

- [Chapter 1, “IMS Tools Base configuration overview,” on page 3](#)
- [Chapter 2, “Initial product customization using IMS Tools Setup,” on page 9](#)
- [Chapter 3, “Migration and fallback,” on page 11](#)
- [Chapter 4, “Configuration checklist for IMS Tools Base components,” on page 27](#)
- [Chapter 5, “Summary of security-related settings,” on page 31](#)
- [Chapter 6, “Starting and stopping various IMS Tools Base servers,” on page 35](#)

Chapter 1. IMS Tools Base configuration overview

Components in IBM IMS Tools Base for z/OS (also referred to as IMS Tools Base) provide common functionality for other IMS Tools products. Before using a component that is included in IMS Tools Base, the component needs to be configured.

Topics:

- [“What's new in IMS Tools Base Configuration Guide” on page 3](#)
- [“IMS Tools Base support for autonomic capabilities” on page 5](#)
- [“Service updates and support information” on page 7](#)
- [“Product documentation and updates” on page 7](#)
- [“Accessibility features” on page 8](#)

What's new in IMS Tools Base Configuration Guide

This topic summarizes the technical changes for this edition.

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

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.

SC27-9852-03 - February 2023

Description	Related APARs
Documentation changes related to security settings.	N/A
The following topics have been added or updated:	
• “Defining SAF security” on page 31	
• “Configuring SAF security” on page 174	

SC27-9852-02 - December 2022

Description	Related APARs
A new component called <i>IMS Tools Common Pauser</i> has been added to IMS Tools Common Services. IMS Tools Common Pauser enables the BMP pause feature for IMS Tools products. The following topics have been added or updated: • “IMS Tools exit names for IMS Tools Generic Exits” on page 121 • Chapter 17, “Configuring IMS Tools Common Pauser,” on page 127 – “Setting up an IMS PROCLIB member” on page 127 – “Creating the base configuration module” on page 128 – “Verifying the installation” on page 130 – “Enabling IMS Tools Common Pauser” on page 130 – “(Optional) Enabling the CICS and ODBA applications pause feature” on page 132 – “(Optional) Customizing the base environment” on page 134	PH48392

SC27-9852-01 - November 2022

Description	Related APARs
The following topic has been updated: • Chapter 24, “Contents of the sample library file (SHKTSAMP),” on page 189	N/A

SC27-9852-00 - July 2022

Description	Related APARs
To use IMS Tools Base 1.7, you must migrate your repositories from IMS Tools Base 1.6. If anything goes wrong with migration, you can fall back from IMS Tools Base 1.7 to IMS Tools Base 1.6 by using the JCL for IMS Tools Base 1.6. For details, see: • Chapter 3, “Migration and fallback,” on page 11	N/A
In IMS Tools Base 1.7, you can delete a RECON environment that is defined to your IMS Tools Knowledge Base information management environment. For details, see: • “Deleting a RECON environment” on page 91	N/A
Several changes have been introduced to Distributed Access Infrastructure configuration in IMS Tools Base 1.7, including the capability of connecting to multiple Tools Access Servers (TASs). For details, see: • Chapter 22, “Configuring Distributed Access Infrastructure,” on page 169	N/A
Other documentation changes include the following new topics: • Chapter 5, “Summary of security-related settings,” on page 31 • Chapter 6, “Starting and stopping various IMS Tools Base servers,” on page 35 • “Stopping Distributed Access Infrastructure” on page 176	N/A

IMS Tools Base support for autonomic capabilities

You can use IMS Tools solution packs and IMS Tools Base components to automatically monitor database health and identify database problems.

The following table lists the IMS Tools Base components that support autonomic capabilities:

Table 1. IMS Tools Base components that support autonomic capabilities

Component	Description	Prerequisites
IMS Tools Knowledge Base	An IMS Tools Base component that provides common services for storing and viewing resources (such as reports, sensor data, policies, and rules) that are generated or used by other participating IMS Tools products.	None
Policy Services	An IMS Tools Base component that monitors specific database states by evaluating the sensor data that is collected by an IMS Tools product and by providing a response to any conditions that exceed customizable threshold values.	IMS Tools Knowledge Base
IMS Tools Common Services	An IMS Tools Base component that is a collection of support modules that provide common functionality for use by IMS Tools.	None
Autonomics Director	An IMS Tools Base component that automates ongoing database monitoring and maintenance tasks.	• IMS Tools Knowledge Base • Policy Services
Distributed Access Infrastructure	An IMS Tools Base component that enables distributed clients access to IMS Tools through TCP/IP socket communication.	IMS Tools Knowledge Base

The following table lists IMS Tools products that can be used with IMS Tools Base components to support autonomic capabilities:

Table 2. IMS Tools products and related IMS Tools Base components

IMS Tools product	Description	Prerequisites
IMS Database Solution Pack	Combines data management tools to provide all the capabilities you need to manage your IMS full-function databases and High Availability Large Databases (HALDBs). Includes utilities that automatically collect sensor data about your IMS databases. This data is stored in the IMS Tools Knowledge Base Sensor Data repository.	• IMS Tools Knowledge Base • Policy Services • IMS Tools Common Services • Autonomics Director
IMS Database Utility Solution	Combines data management tools to provide the capabilities you need to manage your IMS full-function databases and high availability large databases (HALDBs). Includes utilities that automatically collect sensor data about your IMS databases. This data is stored in the IMS Tools Knowledge Base Sensor Data repository.	• IMS Tools Knowledge Base • Policy Services • IMS Tools Common Services
IMS Fast Path Solution Pack	Combines data management tools to provide all the capabilities you need to manage your IMS Fast Path data entry databases (DEDBs). Includes utilities that automatically collect sensor data about your IMS DEDBs. This data is stored in the IMS Tools Knowledge Base Sensor Data repository.	• IMS Tools Knowledge Base • Policy Services • IMS Tools Common Services • Autonomics Director
IBM Management Console for IMS and Db2®	Consolidates key Db2 and IMS statistics into an intuitive, graphical web interface. These statistics are collected from other IMS Tools Base components and IMS Tools products. Although Management Console for IMS and Db2 supports some features of Autonomics Director, Management Console is not required to enable IMS autonomics capabilities.	• IMS Tools Knowledge Base • Policy Services • IMS Tools Common Services • Autonomics Director • Distributed Access Infrastructure

The following table lists other IBM products that support autonomic capabilities:

Table 3. IBM products that support autonomic capabilities

IBM product	Description	Prerequisites
IBM Unified Management Server for z/OS	IMS Administration Foundation for z/OS (also referred to as IMS Administration Foundation) features, which are activated by IMS Tools Base, can consolidate IMS statistics into an intuitive, graphical web interface. These statistics are collected from other IMS Tools Base components and IMS Tools products. Although IMS Administration Foundation supports some features of Autonomics Director, Unified Management Server is not required to enable IMS autonomics capabilities.	• IMS Tools Knowledge Base • Policy Services • IMS Tools Common Services • Autonomics Director • Distributed Access Infrastructure

Service updates and support information

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

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

[IBM Support: IMS 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 notes from IBM Software Support, referred to as "Tech notes"
- White papers that describe product business scenarios and solutions

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

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

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

Receiving documentation updates automatically

To automatically receive emails that notify you when new technote documents are released, when existing product documentation is updated, and when new product documentation is available, you can register with the IBM My Notifications service. You can customize the service so that you receive information about only those IBM products that you specify.

To register with the My Notifications service:

1. Go to <https://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 or any other IMS Tools information, you can take one of the following actions:

- Click the Feedback button at the top of the IBM Documentation topic that you are commenting on.
- Click the Contact Us tab at the bottom of any IBM Documentation topic.
- Send an email to ibmdocs@us.ibm.com. Be sure to include the book title, topic or section title, specific text, and your comment.

To help us respond quickly and accurately, 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.

Chapter 2. Initial product customization using IMS Tools Setup

IMS Tools Setup is a function that helps you quickly and efficiently perform the required post-SMP/E installation customization process for IMS Tools solution pack products. IMS Tools Setup is provided by IMS Tools Base.

What does IMS Tools Setup do?

After the selected IMS Tools solution pack products have been installed into SMP/E data sets, IMS Tools Setup provides a process to simplify the initial configuration that is required to begin using the products. IMS Tools Setup generates JCL members that you then submit as jobs, or perform as tasks, to complete the customization process.

IMS Tools Base components are also configured and customized during the IMS Tools Setup process. IMS Tools Base provides important supporting components and infrastructure that are required for the operation of many IMS Tools functions, such as storage repositories, autonomics, and interaction with IMS.

The goal of IMS Tools Setup is to greatly ease the time and effort it takes to have IMS Tools products up and running in your environment.

IMS Tools Setup is intended only for initial product installations, first-time users, and product evaluations. IMS Tools Setup is not intended for maintenance purposes.

IMS Tools products that can use IMS Tools Setup

The following IMS Tools products and solution packs can use IMS Tools Setup for initial configuration:

- IMS Tools Base for z/OS
- IMS Database Solution Pack for z/OS
- IMS Fast Path Solution Pack for z/OS
- IMS Recovery Solution Pack for z/OS
- IMS Database Utility Solution for z/OS
- IMS Administration Tool for z/OS
- IMS Cloning Tool for z/OS
- IMS Program Restart Facility for z/OS

Starting IMS Tools Setup

The IMS Tools Setup function (HKTQSETU) can be found in IMS Tools Base. You can start the function by running the following REXX EXEC:

```
EXEC 'smpehlq.SHKTCEXE(HKTQSETU)' 'HLQ(smpehlq)'
```

Note: *smpehlq* is the high-level qualifier for the IMS Tools Base SMP/E data sets.

The IMS Tools Setup ISPF panels provide an organized and logical approach to the customization tasks. The panels explain the operation and sequence of each member that is generated in the CUSTJCL data set. The correct JCL job and task operation order is very important.

Each panel contains embedded panel-context and individual field-context Help information. All information about using IMS Tools Setup is contained in the embedded Help. There is no separate user guide.

While using the IMS Tools Setup function to install IMS Tools products or to migrate your products from an earlier release to a later release, you need to specify the names of the libraries, or data sets, that are required for each IMS Tools product. Use the worksheets in [Chapter 25, “Data set names for IMS Tools Setup,”](#) on page 193 to make a summary of the data set names that will be used in your environment.

Completing IMS Tools Setup

After you run the HKTQSETU REXX EXEC, you can refer to the \$\$READ member in the generated *hlq.CUSTJCL* data set to view summary information about the JCL members that were generated. Additionally, all individual *hlq.CUSTJCL* members contain detailed descriptions of the functions for each job.

Each of the generated JCL members begins with the number sign (#) and is named in the logical sequence of operation. Any members ending with the at sign (@) require manual steps. You must begin with the first *#xxxx* member and submit the JCL job or perform the task. After that job or task completes, you continue on to the next member and submit that JCL job or perform that task, and so forth.

The first few members are all system-related (APF, LPA, SSN, MVSPPT), followed by security related members, TCP/IP administration, DBA related members, and others.

You must process all members in the correct order to complete the full customization task properly.

Each JCL member has its own descriptive comment section that explains what the member does and which group it might belong to.

Chapter 3. Migration and fallback

You can migrate from IMS Tools Base 1.6 to IMS Tools Base 1.7 by using the IMS Tools Setup function. If anything goes wrong with migration and you want to start it all over again, you can fall back from IMS Tools Base 1.7 to IMS Tools Base 1.6 by using the JCL for IMS Tools Base 1.6, which is generated by IMS Tools Setup.

Topics:

- [“Migrating from IMS Tools Base 1.6 to IMS Tools Base 1.7” on page 11](#)
- [“Determining the migration method” on page 11](#)
- [“Method A: Repository conversion” on page 12](#)
- [“Method B: Repository version setting” on page 22](#)

Migrating from IMS Tools Base 1.6 to IMS Tools Base 1.7

If you have used IMS Tools Base 1.6, you need to migrate to IMS Tools Base 1.7 by using the IMS Tools Setup function and sample JCL provided in *hlq.SHKTSAMP* library file.

Depending on the environment in which IMS Tools Base 1.6 has been used, two migration methods are provided:

- **Method A** - Migration that requires repository conversion
- **Method B** - Migration that requires repository version setting

Answer the questions in [“Determining the migration method” on page 11](#) to determine which migration method you should take, and read the appropriate topics.

Determining the migration method

Answer the following questions to determine which of the two migration methods you should take to migrate from IMS Tools Base 1.6 to IMS Tools Base 1.7.

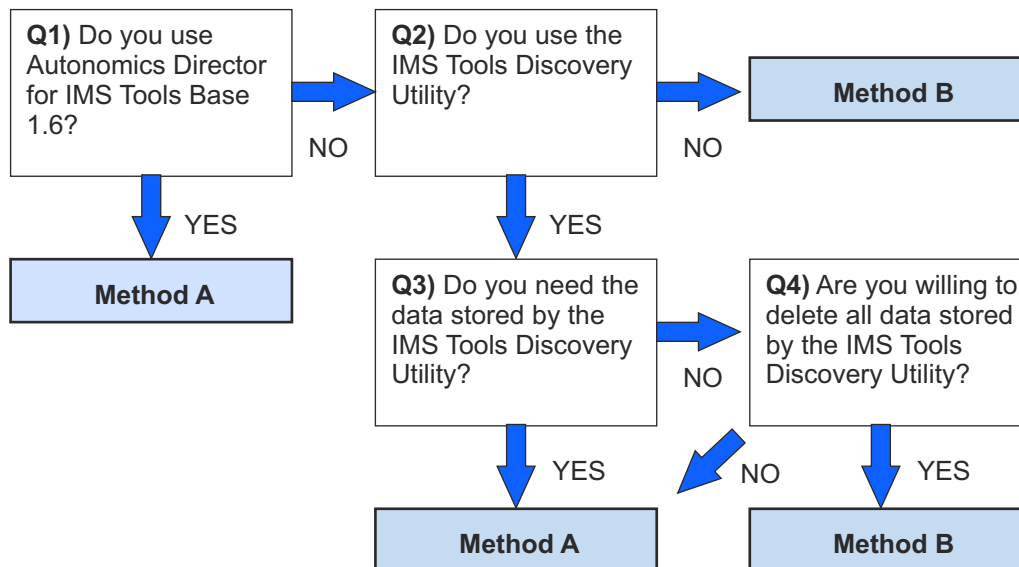


Figure 1. Determining the migration method

Table 4. Migration methods and related topics

Method	Description
Method A	This migration method requires conversion of IMS Tools Knowledge Base repositories during migration. Proceed to “Method A: Repository conversion” on page 12 and read the following subtopics in this order: • “Method A: Overview of repository conversion” on page 12 • “Method A: Repository conversion testing (Optional)” on page 14 • “Method A: Migrating from IMS Tools Base 1.6 to 1.7” on page 17 As a result of migration, if you want to fall back from IMS Tools Base 1.7 to 1.6, read the following topic: • “Method A: Falling back from IMS Tools Base 1.7 to 1.6” on page 20
Method B	This migration method requires version setting of IMS Tools Knowledge Base repositories during migration. Proceed to “Method B: Repository version setting” on page 22 and read the following subtopic: • “Method B: Migrating from IMS Tools Base 1.6 to 1.7” on page 22 As a result of migration, if you want to fall back from IMS Tools Base 1.7 to 1.6, read the following topic: • “Method B: Falling back from IMS Tools Base 1.7 to 1.6” on page 24 Note: For information about how to delete the data stored by the IMS Tools Discovery Utility, see the topic "IMS Tools Discovery Utility" in <i>IMS Tools Base IMS Tools Knowledge Base User's Guide and Reference</i>.

Method A: Repository conversion

This migration method requires conversion of IMS Tools Knowledge Base repositories during migration.

If, as a result of answering all the questions in [“Determining the migration method” on page 11](#), you are guided to take **Method A**, read the following topics.

Topics:

- [“Method A: Overview of repository conversion” on page 12](#)
- [“Method A: Repository conversion testing \(Optional\)” on page 14](#)
- [“Method A: Migrating from IMS Tools Base 1.6 to 1.7” on page 17](#)
- [“Method A: Falling back from IMS Tools Base 1.7 to 1.6” on page 20](#)

Method A: Overview of repository conversion

Before starting to use IMS Tools Base 1.7, you must first convert some of your IMS Tools Knowledge Base repositories from IMS Tools Base 1.6 to IMS Tools Base 1.7.

The following figure illustrates the process of converting IMS Tools Knowledge Base repositories from IMS Tools Base 1.6 to IMS Tools Base 1.7. The numbers in the figure correspond to the step numbers of the procedure that follows.

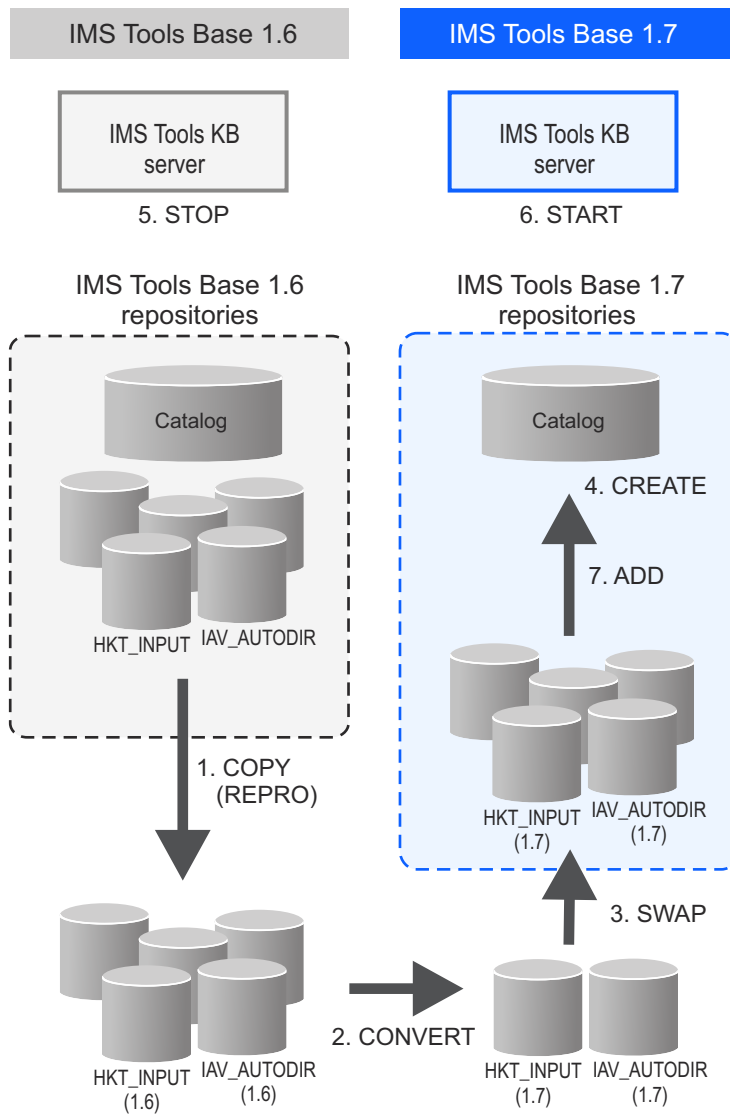


Figure 2. Overview of repository conversion

The procedure of converting IMS Tools Knowledge Base repositories from IMS Tools Base 1.6 to IMS Tools Base 1.7 can be summarized as follows:

1. Use the IDCAMS REPRO utility to copy all repository data sets except for Catalog.
2. Convert the Input repository and the Autonomics Director repository to IMS Tools Base 1.7.
3. Swap the Input repository and the Autonomics Director repository to IMS Tools Base 1.7.
4. Create the Catalog repository of IMS Tools Base 1.7.
5. Stop the IMS Tools Knowledge Base server of IMS Tools Base 1.6.
6. Start the IMS Tools Knowledge Base server of IMS Tools Base 1.7.
7. Add repositories to IMS Tools Base 1.7.

Method A: Repository conversion testing (Optional)

Before migrating from IMS Tools Base 1.6 to IMS Tools Base 1.7, you can test repository conversion. By running this test, you can check in advance if there will be any problems with the migration.

Before you begin

Before you start repository conversion testing, check the following:

- The procedure described in this topic assumes that you have successfully installed IMS Tools Base 1.7 by referring to the *Program Directory for IBM IMS Tools Base for z/OS*. Make sure that the most recent PTFs have been applied to IMS Tools Base and the IMS Tools products that you use.
- Confirm that a combined set of libraries is used and that IMS Tools Base libraries are APF-authorized.
- For the following items for IMS Tools Knowledge Base, Autonomics Director, and Distributed Access Infrastructure, use different names in IMS Tools Base 1.6 and 1.7:
 - Started task
 - XCF group
 - MVS™ subsystem name of Autonomics Director and Distributed Access Infrastructure
 - TCP listening port of Distributed Access Infrastructure

Notes:

- Specify this information in the IMS Tools Setup ISPF panels where you enter IMS Tools Base information.
- *hlq.CUSTxxxx* and *hlq.COMBINE.xxxxxxxx* are the data sets that contain various members generated by IMS Tools Setup.

About this task

The following figure illustrates the process flow of repository conversion testing:

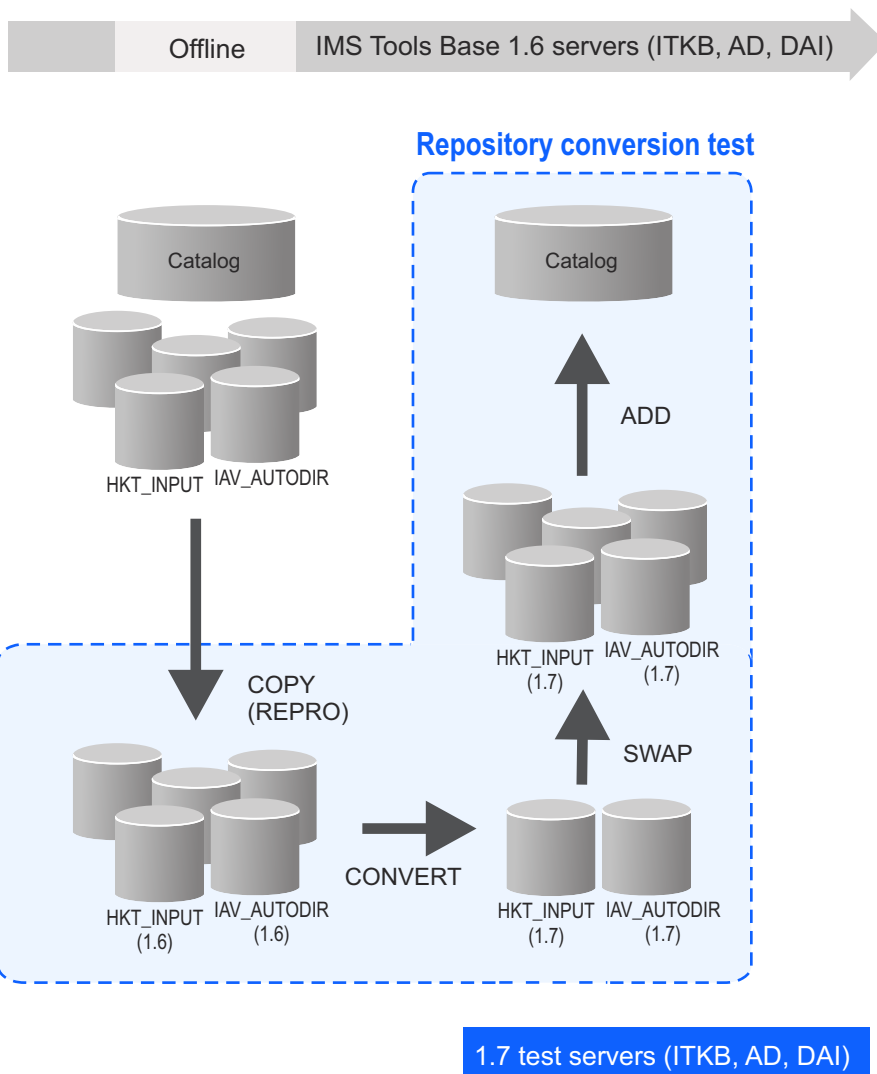


Figure 3. Repository conversion testing

Procedure

To test converting your repositories from IMS Tools Base 1.6 to IMS Tools Base 1.7, follow these steps:

1. Run the IMS Tools Setup function.

For information about how to start IMS Tools Setup, see Chapter 2, “Initial product customization using IMS Tools Setup,” on page 9. In the subsequent steps, you use some of the members that are generated during IMS Tools Setup.

2. Run the members of the generated *hlq.CUSTJCL* data set, starting from the first member to the member just before #B1ITKB1 in sequence.

Note: Before you run a JCL member that was generated by IMS Tools Setup, always read the descriptions in the JCL.

3. If the IMS Tools Knowledge Base server of IMS Tools Base 1.6 is not running, start it.
4. If you want to start the IMS Tools Base 1.6 environment after completion of copying all repository data sets except the Catalog repository, uncomment the STAREPS step in *hlq.SHKTSAMP(HKTMG171)*.
5. To convert IMS Tools Knowledge Base repositories for IMS Tools Base 1.7, run a repository conversion utility job step in *hlq.SHKTSAMP(HKTMG171)*. The utility performs the following tasks:

- a. Collects the status of the IMS Tools Knowledge Base 1.6 repositories.
- b. Stops the IMS Tools Knowledge Base 1.6 repositories.
- c. Uses the IDCAMS REPRO utility to copy all repository data sets except for Catalog to the target repository that was newly allocated.
- d. Starts the IMS Tools Knowledge Base 1.6 repositories according to your request.
- e. Converts the Input repository and the Autonomics Director repository.
- f. Swaps the Input repository and the Autonomics Director repository to IMS Tools Base 1.7.

Note: If the REPRREPS step of the HKTMG171 utility ends with RC=12 and z/OS message IEC161I with RC=072 is displayed because the Autonomics Director repository data sets are empty, resolve this issue by either of the following methods:

- Initialize the Autonomics Director repository data sets.
 - a. Start the Autonomics Director server of IMS Tools Base 1.6 only once to initialize the Autonomics Director repository data sets.
 - b. Stop the Autonomics Director server after message IAV0015I is issued.
 - c. Rerun the HKTMG171 utility.
- Disconnect the Autonomics Director repository from the IMS Tools Knowledge Base server of IMS Tools Base 1.6, and exclude the Autonomics Director repository from migration.
 - a. Access the **Administration** menu from the IMS Tools Knowledge Base main menu panel of IMS Tools Base 1.6.
 - b. Select option 3 (**List Repositories**), and press Enter. The Repositories panel is displayed.
 - c. Use the **Disconnect** row action (D) to disconnect the Autonomics Director repository (IAV_AUTODIR). Press Enter.

If the Autonomics Director repository is currently started (Stopped=N), use the **Stop** row action (P) to stop the repository before disconnecting it.
 - d. A confirmation message is displayed. To disconnect the repository, enter Y and press Enter.
 - e. The Repositories panel is refreshed; the disconnected repository is no longer listed.
 - f. Rerun the HKTMG171 utility.

After the repository conversion is complete, manually add the Autonomics Director repository to the IMS Tools Knowledge Base server of IMS Tools Base 1.7 as needed.

Refer to member HKTDFREP in SHKTSAMP library to create the Autonomics Director repository.
Refer to member HKTADREP in SHKTSAMP library to add the Autonomics Director repository.

6. To create the IMS Tools Knowledge Base Catalog repository for IMS Tools Base 1.7, run a Catalog creation job step in *hlq.SHKTSAMP(HKTMG172)*.
7. Change the name of the Catalog repository in the IMS Tools Knowledge Base 1.7 *hlq.CUSTPARM(FPQCFGxx)* to the data set name created in step [“6” on page 16](#).
8. Start the IMS Tools Knowledge Base server of IMS Tools Base 1.7, either by running *hlq.CUSTJCL(#B1ITKB2)*, which was generated by IMS Tools Setup, or by starting the STC (z/OS started task) for IMS Tools Knowledge Base.
9. To set up IMS Tools Knowledge Base repositories for IMS Tools Base 1.7, run a repository setup job step in *hlq.SHKTSAMP(HKTMG173)*. The utility performs the following tasks:
 - a. Adds new repositories to the Catalog repository of IMS Tools Base 1.7.
 - b. Sets repository version information.
10. To check if IMS Tools Knowledge Base repositories are available for IMS Tools Base 1.7, run a repository version check job step in *hlq.SHKTSAMP(HKTRIVP)*.
11. To register IMS Tools products with IMS Tools Knowledge Base, run *hlq.CUSTJCL(#B2ITKB1)*, which was generated by IMS Tools Setup.

12. Start Autonomics Director of IMS Tools Base 1.7, either by running *hlq.CUSTJCL(#B3AD1)*, which was generated by IMS Tools Setup, or by starting the STC (z/OS started task) for Autonomics Director.
13. To work in the IMS Tools Base 1.7 environment, update all monitor lists in Autonomics Director, such as the member name or the data set name for the sensor JCL.
14. Start Distributed Access Infrastructure of IMS Tools Base 1.7 by following these steps:
 - a) To start the Tools Access Server (TAS) for Distributed Access Infrastructure of IMS Tools Base 1.7, either run *hlq.CUSTJCL(#B4lpar)*, which was generated by IMS Tools Setup, or start the STC (z/OS started task) for the Tools Access Server.
 - b) To start the TCP server for Distributed Access Infrastructure of IMS Tools Base 1.7, either run *hlq.CUSTJCL(#B5lpar)*, which was generated by IMS Tools Setup, or start the STC for the TCP Server.
15. Confirm that Distributed Access Infrastructure is up and running by referring to *hlq.CUSTJCL(#B6DAI@)*, which was generated by IMS Tools Setup.

Method A: Migrating from IMS Tools Base 1.6 to 1.7

Follow the procedure in this topic when you migrate from IMS Tools Base 1.6 to IMS Tools Base 1.7, including conversion of IMS Tools Knowledge Base repositories.

Before you begin

Before you start migrating from IMS Tools Base 1.6 to 1.7, note the following:

- Confirm that you have answered all the questions in “Determining the migration method” on page 11 and have been guided to take **Method A** (migration that requires repository conversion).
- The procedure described in this topic assumes that you have successfully installed IMS Tools Base 1.7 by referring to the *Program Directory for IBM IMS Tools Base for z/OS*. Make sure that the most recent PTFs have been applied to the IMS Tools Base and the IMS Tools products that you use.
- Confirm that a combined set of libraries is used and that IMS Tools Base libraries are APF-authorized.
- For the following items for IMS Tools Knowledge Base and Autonomics Director, use the same names in both IMS Tools Base 1.6 and 1.7:
 - Started task
 - XCF group of IMS Tools Knowledge Base and Autonomics Director
 - MVS subsystem name of Autonomics Director and Distributed Access Infrastructure
 - TCP listening port of Distributed Access Infrastructure

Notes:

- Specify this information in the IMS Tools Setup ISPF panels where you enter IMS Tools Base information.
- *hlq.CUSTxxxx* and *hlq.COMBINE.xxxxxxxx* are the data sets that contain various members generated by IMS Tools Setup.
- Repository data sets of IMS Tools Base 1.7 are allocated with different names than the repository data set names in IMS Tools Base 1.6.
- Migration of Autonomics Director, IMS Tools Knowledge Base, and Distributed Access Infrastructure must be done at the same time; other IMS Tools Base components do not need to be migrated at the same time.

About this task

You must convert IMS Tools Knowledge Base repositories from IMS Tools Base 1.6 to 1.7. You can continue to use the rules and policies that you used in IMS Tools Base 1.6.

Use the IMS Tools Setup function and sample JCL provided in *hlq.SHKTSAMP* library file to migrate from IMS Tools Base 1.6 to 1.7. You do not need to run every job that is generated by IMS Tools Setup; run only the jobs that you need for migration by referring to the procedure in this topic.

Even if you want to migrate only IMS Tools Base from 1.6 to 1.7, select installation of all IMS Tools solution pack products that are installed in your environment.

Procedure

1. Obtain backup copies of IMS Tools Knowledge Base repositories and PROCLIB, JCLLIB, and PARMLIB libraries for IMS Tools Base 1.6. If the name of *hlq.CUSTxxxx* for IMS Tools Base 1.7 is the same as the one for IMS Tools Base 1.6, obtain backup copies of *hlq.CUSTxxxx* and *hlq.COMBINE.xxxxxxxx* libraries.
2. Run the IMS Tools Setup function to generate JCL. For information about how to start IMS Tools Setup, see Chapter 2, “Initial product customization using IMS Tools Setup,” on page 9. In the subsequent steps, you use some of the members that are generated during IMS Tools Setup.

Note: Before you run a JCL member that was generated by IMS Tools Setup, always read the descriptions in the JCL.

3. If either of the following IMS Tools Base 1.6 components is running, stop it:
 - Autonomics Director
 - Distributed Access Infrastructure
4. If the IMS Tools Knowledge Base server of IMS Tools Base 1.6 is not running, start it.
5. To convert IMS Tools Knowledge Base repositories for IMS Tools Base 1.7, run a repository conversion utility job step in *hlq.SHKTSAMP(HKTMG171)*.

The utility performs the following tasks:

- a. Collects the status of the IMS Tools Knowledge Base 1.6 repositories.
- b. Stops the IMS Tools Knowledge Base 1.6 repositories.
- c. Uses the IDCAMS REPRO utility to copy all repository data sets except for Catalog to the target repository that was newly allocated.
- d. Converts the Input repository and the Autonomics Director repository.
- e. Swaps the Input repository and the Autonomics Director repository to IMS Tools Base 1.7.

Note: If the REPRREPS step of the HKTMG171 utility ends with RC=12 and z/OS message IEC161I with RC=072 is displayed because the Autonomics Director repository data sets are empty, resolve this issue by either of the following methods:

- Initialize the Autonomics Director repository data sets.
 - a. Start the Autonomics Director server of IMS Tools Base 1.6 only once to initialize the Autonomics Director repository data sets.
 - b. Stop the Autonomics Director server after message IAV0015I is issued.
 - c. Rerun the HKTMG171 utility.
- Disconnect the Autonomics Director repository from the IMS Tools Knowledge Base server of IMS Tools Base 1.6, and exclude the Autonomics Director repository from migration.
 - a. Access the **Administration** menu from the IMS Tools Knowledge Base main menu panel of IMS Tools Base 1.6.
 - b. Select option 3 (**List Repositories**), and press Enter. The Repositories panel is displayed.
 - c. Use the **Disconnect** row action (D) to disconnect the Autonomics Director repository (IAV_AUTODIR). Press Enter.

If the Autonomics Director repository is currently started (Stopped=N), use the **Stop** row action (P) to stop the repository before disconnecting it.
 - d. A confirmation message is displayed. To disconnect the repository, enter Y and press Enter.

- e. The Repositories panel is refreshed; the disconnected repository is no longer listed.
- f. Rerun the HKTMG171 utility.

After the repository conversion is complete, manually add the Autonomics Director repository to the IMS Tools Knowledge Base server of IMS Tools Base 1.7 as needed.

Refer to member HKTDFREP in SHKTSAMP library to create the Autonomics Director repository.
Refer to member HKTADREP in SHKTSAMP library to add the Autonomics Director repository.

6. To create the IMS Tools Knowledge Base Catalog repository for IMS Tools Base 1.7, run a Catalog creation job step in *hlq.SHKTSAMP*(HKTMG172).
7. Stop the IMS Tools Knowledge Base server of IMS Tools Base 1.6.
8. To copy IMS Tools Base 1.7 modules into the combined set of libraries, run *hlq.CUSTJCL*(#A0COMB), which was generated by IMS Tools Setup.
9. To migrate IMS Tools Base (IMS Tools Knowledge Base, Policy Services, Autonomics Director, and Distributed Access Infrastructure), do the following tasks:
 - a) To delete IMS Tools Knowledge Base 1.6 modules from the z/OS Link Pack Area (LPA) dynamically, issue the following MVS command:

```
SETPROG LPA,DELETE,MODNAME(FPQCSSI2,FPQCXCF2),FORCE=YES CURRENT
```

- b) To add IMS Tools Base 1.7 modules to the LPA dynamically, run *hlq.CUSTJCL*(#A2LPA1), which was generated by IMS Tools Setup.
- c) To delete IMS Tools Knowledge Base, Autonomics Director, and Distributed Access Infrastructure subsystems, issue the following MVS commands:

```
SETSSI DELETE,SUBNAME=FPQ2,FORCE
SETSSI DELETE,SUBNAME=IAVx,FORCE
SETSSI DELETE,SUBNAME=AIIX,FORCE
```

- d) To add IMS Tools Knowledge Base, Autonomics Director, and Distributed Access Infrastructure subsystems dynamically to MVS, run *hlq.CUSTJCL*(#A2SSN1), which was generated by IMS Tools Setup.
- e) To copy the PROCLIB for IMS Tools Base 1.7, run the job steps COPYAD, COPYDAI, and COPYITKB in *hlq.CUSTJCL*(#A4CPY1), which was generated by IMS Tools Setup.
- f) Change the name of the Catalog repository, which was created in step “6” on page 19, in *hlq.CUSTPARM*(FPQCFGxx).
- g) Start the IMS Tools Knowledge Base server of IMS Tools Base 1.7, either by running *hlq.CUSTJCL*(#B1ITKB2), which was generated by IMS Tools Setup, or by starting the STC (z/OS started task) for the IMS Tools Knowledge Base.
- h) To set up IMS Tools Knowledge Base repositories for IMS Tools Base 1.7, run a repository setup job step in *hlq.SHKTSAMP*(HKTMG173). The utility performs the following tasks:
 - i) Adds new repositories to the Catalog repository of IMS Tools Base 1.7.
 - ii) Sets repository version information.
- i) To check if IMS Tools Knowledge Base repositories are available for IMS Tools Base 1.7, run a repository version check job step in *hlq.SHKTSAMP*(HKTRIVP).
- j) To register IMS Tools products with IMS Tools Knowledge Base, run *hlq.CUSTJCL*(#B2ITKB1), which was generated by IMS Tools Setup.
- k) Start Autonomics Director of IMS Tools Base 1.7, either by running *hlq.CUSTJCL*(#B3AD1), which was generated by IMS Tools Setup, or by starting the STC (z/OS started task) for the Autonomics Director.
- l) Start Distributed Access Infrastructure of IMS Tools Base 1.7 by following these steps:
 - i) To start the Tools Access Server (TAS) for Distributed Access Infrastructure of IMS Tools Base 1.7, either run *hlq.CUSTJCL*(#B4lpar), which was generated by IMS Tools Setup, or start the STC (z/OS started task) for the Tools Access Server.

- ii) To start the TCP server for Distributed Access Infrastructure of IMS Tools Base 1.7, either run `hlq.CUSTJCL(#B5lpar)`, which was generated by IMS Tools Setup, or start the STC for the TCP server.
 - m) Confirm that Distributed Access Infrastructure is up and running by referring to `hlq.CUSTJCL(#B6DAI@)`, which was generated by IMS Tools Setup.
10. If the IMS Tools Online System Interface is being used, restart the target IMS subsystem.
 11. If the IMS Tools Generic Exits are being used, confirm that the library names used in the following PROCLIB members are correct:
 - GLXEXIT0, GLXxxxx0
 - GPREXIT0, GPRxxxx0
 - GEXEXIT0, GEXxxxx0
 - GEXQEXIT, GEXQxxxx
 where xxxx is the IMSID.
 12. If IMS Hardware Data Compression Extended is being used, do the following tasks:
 - a) To create a generic dictionary and to make ISPF panels available for use, run `hlq.CUSTJCL(#B7HCO1)`, which was generated by IMS Tools Setup.
 - b) Relink IMS compression exit routines by referring to the topic "Relinking a compression exit routine" in *IMS Tools Base IMS Hardware Data Compression Extended User's Guide and Reference*.

Note: If you plan to reuse the compression dictionary that you used in the previous release of IMS Hardware Data Compression Extended, you can skip the step to unload and reload the test database or to create a DFSDDLTO job.
 13. If IMS Administration Tool ISPF is being used, confirm the library name used in IMS Administration Tool, as follows:
 - a) Start the IMS Administration Tool ISPF interface by running the following REXX EXEC:


```
EX 'IMS_Admin_Tool_HLQ.SATYSAMP(ATY$PRIM)' 'LISTXCF(Y)'
```
 - b) If the library name of IMS Tools Base 1.6 is specified in the **Tools Base DAI Loadlib** field, replace it with the library name of IMS Tools Base 1.7.

This operation must be done for each user ID that uses the IMS Administration Tool ISPF interface.

Method A: Falling back from IMS Tools Base 1.7 to 1.6

If you migrated from IMS Tools Base 1.6 to IMS Tools Base 1.7 by taking **Method A**, you can fall back from IMS Tools Base 1.7 to IMS Tools Base 1.6 by following the procedure described in this topic.

Before you begin

Note the following:

- Any data that has been created after migration from IMS Tools Base 1.6 to IMS Tools Base 1.7 cannot be used with IMS Tools Base 1.6.
- Prepare backup copies of repositories and libraries that you obtained in step 1 of [“Method A: Migrating from IMS Tools Base 1.6 to 1.7”](#) on page 17.

Procedure

To fall back from IMS Tools Base 1.7 to IMS Tools Base 1.6, do the following tasks:

1. If any of the following IMS Tools Base 1.7 components is running, stop it:
 - IMS Tools Knowledge Base
 - Autonomics Director
 - Distributed Access Infrastructure

2. Restore IMS Tools Knowledge Base repositories and PROCLIB, JCLLIB, and PARMLIB libraries for IMS Tools Base 1.6 from backup copies. If the name of *hlq.CUSTxxxx* for IMS Tools Base 1.7 is the same as the one for IMS Tools Base 1.6, restore *hlq.CUSTxxxx* and *hlq.COMBINE.xxxxxxxx* libraries for IMS Tools Base 1.6 from backup copies.
3. To delete IMS Tools Knowledge Base 1.7 modules from the z/OS Link Pack Area (LPA) dynamically, issue the following MVS command:

```
SETPROG LPA,DELETE,MODNAME(FPQCSSI2,FPQCXCF2),FORCE=YES CURRENT
```

4. To add IMS Tools Base 1.6 modules to the LPA dynamically, run *hlq.CUSTJCL(#A2LPA1)* for IMS Tools Base 1.6, which was generated by IMS Tools Setup.
5. To delete IMS Tools Knowledge Base, Autonomics Director, and Distributed Access Infrastructure subsystems, issue the following MVS commands:

```
SETSSI DELETE,SUBNAME=FPQ2,FORCE
SETSSI DELETE,SUBNAME=IAVx,FORCE
SETSSI DELETE,SUBNAME=AIIx,FORCE
```

6. To add IMS Tools Knowledge Base, Autonomics Director, and Distributed Access Infrastructure subsystems dynamically to MVS, run *hlq.CUSTJCL(#A2SSN1)* for IMS Tools Base 1.6, which was generated by IMS Tools Setup.
7. Confirm the name of the Catalog repository for IMS Tools Base 1.6, which is defined in *hlq.CUSTPARM(FPQCFGxx)*.
8. Start the IMS Tools Knowledge Base server of IMS Tools Base 1.6.
9. Start Autonomics Director of IMS Tools Base 1.6.
10. Start Distributed Access Infrastructure of IMS Tools Base 1.6.
11. If the IMS Tools Online System Interface is being used, restart the target IMS subsystem.
12. If the IMS Tools Generic Exits are being used, confirm that the library names used in the following PROCLIB members are correct:
 - GLXEXIT0, GLXxxxx0
 - GPREXIT0, GPRxxxx0
 - GEXEXIT0, GEXxxxx0
 - GEXQEXIT, GEXQxxxx

where xxxx is the IMSID.

13. If IMS Hardware Data Compression Extended is being used, do the following tasks:
 - a) To create a generic dictionary and to make ISPF panels available for use, run *hlq.CUSTJCL(#B7HCO1)* for IMS Tools Base 1.6, which was generated by IMS Tools Setup.
 - b) Relink IMS compression exit routines by referring to the topic "Relinking a compression exit routine" in *IMS Tools Base IMS Hardware Data Compression Extended User's Guide and Reference*.

Note: If you plan to reuse the compression dictionary that you used in the previous release of IMS Hardware Data Compression Extended, you can skip the step to unload and reload the test database or to create a DFSDDLTO job.

14. If IMS Administration Tool ISPF is being used, confirm the library name used in IMS Administration Tool, as follows:

- a) Start the IMS Administration Tool ISPF interface by running the following REXX EXEC:

```
EX 'IMS_Admin_Tool_HLQ.SATYSAMP(ATY$PRIM)' 'LISTXCF(Y)'
```

- b) If the library name of IMS Tools Base 1.6 is specified in the **Tools Base DAI Loadlib** field, replace it with the library name of IMS Tools Base 1.7.

This operation must be done for each user ID that uses the IMS Administration Tool ISPF interface.

Method B: Repository version setting

This migration method requires version setting of IMS Tools Knowledge Base repositories during migration.

If, as a result of answering all the questions in [“Determining the migration method” on page 11](#), you are guided to take **Method B**, read the following topics.

Topics:

- [“Method B: Migrating from IMS Tools Base 1.6 to 1.7” on page 22](#)
- [“Method B: Falling back from IMS Tools Base 1.7 to 1.6” on page 24](#)

Method B: Migrating from IMS Tools Base 1.6 to 1.7

Follow the procedure in this topic when you migrate from IMS Tools Base 1.6 to IMS Tools Base 1.7, including repository version setting.

Before you begin

Before you start migrating from IMS Tools Base 1.6 to 1.7, note the following:

- Confirm that you have answered all the questions in [“Determining the migration method” on page 11](#) and have been guided to take **Method B** (migration that requires repository version setting).
- The procedure described in this topic assumes that you have successfully installed IMS Tools Base 1.7 by referring to the *Program Directory for IBM IMS Tools Base for z/OS*. Make sure that the most recent PTFs have been applied to the IMS Tools Base and the IMS Tools products that you use.
- Confirm that a combined set of libraries is used and that IMS Tools Base libraries are APF-authorized.
- For the following items for IMS Tools Knowledge Base, use the same names in both IMS Tools Base 1.6 and 1.7:
 - Started task
 - XCF group of IMS Tools Knowledge Base
 - MVS subsystem name of Distributed Access Infrastructure
 - TCP listening port of Distributed Access Infrastructure

Notes:

- Specify this information in the IMS Tools Setup ISPF panels where you enter IMS Tools Base information.
- *hlq.CUSTxxxx* and *hlq.COMBINE.xxxxxxxx* are the data sets that contain various members generated by IMS Tools Setup.
- Migration of IMS Tools Knowledge Base and Distributed Access Infrastructure must be done at the same time; other IMS Tools Base components do not need to be migrated at the same time.

About this task

You can continue to use the rules and policies that you used in IMS Tools Base 1.6.

Use the IMS Tools Setup function and sample JCL provided in *hlq.SHKTSAMP* library file to migrate from IMS Tools Base 1.6 to 1.7. You do not need to run every job that is generated by IMS Tools Setup; run only the jobs that you need for migration by referring to the procedure in this topic.

Even if you want to migrate only IMS Tools Base from 1.6 to 1.7, select installation of all IMS Tools solution pack products that are installed in your environment.

Procedure

1. Obtain backup copies of IMS Tools Knowledge Base repositories and PROCLIB, JCLLIB, and PARMLIB libraries for IMS Tools Base 1.6. If the name of *hlq.CUSTxxxx* for IMS Tools Base 1.7 is the same as the one for IMS Tools Base 1.6, obtain backup copies of *hlq.CUSTxxxx* and *hlq.COMBINE.xxxxxxxx* libraries.
2. Run the IMS Tools Setup function to generate JCL. For information about how to start IMS Tools Setup, see [Chapter 2, “Initial product customization using IMS Tools Setup,”](#) on page 9. In the subsequent steps, you use some of the members that are generated during IMS Tools Setup.

Note: Before you run a JCL member that was generated by IMS Tools Setup, always read the descriptions in the JCL.

3. If either of the following IMS Tools Base 1.6 components is running, stop it:
 - Distributed Access Infrastructure
 - IMS Tools Knowledge Base
4. To copy IMS Tools Base 1.7 modules into the combined set of libraries, run *hlq.CUSTJCL(#A0COMB)*, which was generated by IMS Tools Setup.
5. To migrate IMS Tools Base (IMS Tools Knowledge Base, Policy Services, and Distributed Access Infrastructure), do the following tasks:
 - a) To delete IMS Tools Knowledge Base 1.6 modules from the z/OS Link Pack Area (LPA) dynamically, issue the following MVS command:

```
SETPROG LPA,DELETE,MODNAME(FPQCSSI2,FPQCXCF2),FORCE=YES CURRENT
```

- b) To add IMS Tools Base 1.7 modules to the LPA dynamically, run *hlq.CUSTJCL(#A2LPA1)*, which was generated by IMS Tools Setup.
- c) To delete IMS Tools Knowledge Base and Distributed Access Infrastructure subsystems, issue the following MVS commands:

```
SETSSI DELETE,SUBNAME=FPQ2,FORCE  
SETSSI DELETE,SUBNAME=AIIX,FORCE
```

- d) To add IMS Tools Knowledge Base and Distributed Access Infrastructure subsystems dynamically to MVS, run *hlq.CUSTJCL(#A2SSN1)*, which was generated by IMS Tools Setup.
- e) To copy the PROCLIB for IMS Tools Base 1.7, run the job steps COPYAD, COPYDAI, and COPYITKB in *hlq.CUSTJCL(#A4CPY1)*, which was generated by IMS Tools Setup.
- f) Start the IMS Tools Knowledge Base server of IMS Tools Base 1.7, either by running *hlq.CUSTJCL(#B1ITKB2)*, which was generated by IMS Tools Setup, or by starting the STC (z/OS started task) for the IMS Tools Knowledge Base.
- g) To set up IMS Tools Knowledge Base repositories for IMS Tools Base 1.7, run a repository version information setup job step (see the following example):

```
//*****  
//*  
//* Instructions:  
//*  
//* 1. Change "srvname" to your site's V1R7 ITKB XCF group name.  
//* 2. Change "itb17hlq" to your site's high level qualifier for the  
//* Tools Base V1R7 SMP/E data sets.  
//*  
//*****  
//*  
//RSETITKB EXEC PGM=HKTRINIT,PARM='ITKBSVR=srvname'  
//STEPLIB DD DISP=SHR,DSN=itb17hlq.SHKTL0AD  
//SYSPRINT DD SYSOUT=*  
//SYSIN DD *  
RSETITKB  
//
```

- h) To check if IMS Tools Knowledge Base repositories are available for IMS Tools Base 1.7, run a repository version check job step in *hlq.SHKTSAMP(HKTRIVP)*.

- i) To register IMS Tools products with IMS Tools Knowledge Base, run `hlq.CUSTJCL(#B2ITKB1)`, which was generated by IMS Tools Setup.
 - j) Start Distributed Access Infrastructure of IMS Tools Base 1.7 by following these steps:
 - i) To start the Tools Access Server (TAS) for Distributed Access Infrastructure of IMS Tools Base 1.7, either run `hlq.CUSTJCL(#B4lpar)`, which was generated by IMS Tools Setup, or start the STC (z/OS started task) for the Tools Access Server.
 - ii) To start the TCP server for Distributed Access Infrastructure of IMS Tools Base 1.7, either run `hlq.CUSTJCL(#B5lpar)`, which was generated by IMS Tools Setup, or start the STC for the TCP server.
 - k) Confirm that Distributed Access Infrastructure is up and running by referring to `hlq.CUSTJCL(#B6DAI@)`, which was generated by IMS Tools Setup.
6. If the IMS Tools Online System Interface is being used, restart the target IMS subsystem.
7. If the IMS Tools Generic Exits are being used, confirm that the library names used in the following PROCLIB members are correct:
- GLXEXIT0, GLXxxxx0
 - GPREXIT0, GPRxxxx0
 - GEXEXIT0, GEXxxxx0
 - GEXQEXIT, GEXQxxxx
- where xxxx is the IMSID.
8. If IMS Hardware Data Compression Extended is being used, do the following tasks:
- a) To create a generic dictionary and to make ISPF panels available for use, run `hlq.CUSTJCL(#B7HCO1)`, which was generated by IMS Tools Setup.
 - b) Relink IMS compression exit routines by referring to the topic "Relinking a compression exit routine" in *IMS Tools Base IMS Hardware Data Compression Extended User's Guide and Reference*.
- Note:** If you plan to reuse the compression dictionary that you used in the previous release of IMS Hardware Data Compression Extended, you can skip the step to unload and reload the test database or to create a DFSDDLTO job.
9. If IMS Administration Tool ISPF is being used, confirm the library name used in IMS Administration Tool, as follows:
- a) Start the IMS Administration Tool ISPF interface by running the following REXX EXEC:

```
EX 'IMS_Admin_Tool_HLQ.SATYSAMP(ATY$PRIM)' 'LISTXCF(Y)'
```

- b) If the library name of IMS Tools Base 1.6 is specified in the **Tools Base DAI Loadlib** field, replace it with the library name of IMS Tools Base 1.7.

This operation must be done for each user ID that uses the IMS Administration Tool ISPF interface.

Method B: Falling back from IMS Tools Base 1.7 to 1.6

If you migrated from IMS Tools Base 1.6 to IMS Tools Base 1.7 by taking **Method B**, you can fall back from IMS Tools Base 1.7 to IMS Tools Base 1.6 by following the procedure described in this topic.

Before you begin

Note the following:

- Any data that has been created after migration from IMS Tools Base 1.6 to IMS Tools Base 1.7 cannot be used with IMS Tools Base 1.6.
- Because IMS Tools Knowledge Base repositories that have been migrated for IMS Tools Base 1.7 can no longer be used with IMS Tools Base 1.6, you need to restore them from the backup copies that you obtained in [“Method B: Migrating from IMS Tools Base 1.6 to 1.7”](#) on page 22.

Procedure

To fall back from IMS Tools Base 1.7 to IMS Tools Base 1.6, do the following tasks:

1. If either of the following IMS Tools Base 1.7 components is running, stop it:
 - IMS Tools Knowledge Base
 - Distributed Access Infrastructure
2. Restore IMS Tools Knowledge Base repositories and PROCLIB, JCLLIB, and PARMLIB libraries for IMS Tools Base 1.6 from backup copies. If the name of *hlq.CUSTxxxx* for IMS Tools Base 1.7 is the same as the one for IMS Tools Base 1.6, restore *hlq.CUSTxxxx* and *hlq.COMBINE.xxxxxxxx* libraries for IMS Tools Base 1.6 from backup copies.
3. To delete IMS Tools Knowledge Base 1.7 modules from the z/OS Link Pack Area (LPA) dynamically, issue the following MVS command:

```
SETPROG LPA,DELETE,MODNAME(FPQCSSI2,FPQCXCF2),FORCE=YES CURRENT
```

4. To add IMS Tools Base 1.6 modules to the LPA dynamically, run *hlq.CUSTJCL(#A2LPA1)* for IMS Tools Base 1.6, which was generated by IMS Tools Setup.
5. To delete IMS Tools Knowledge Base and Distributed Access Infrastructure subsystems, issue the following MVS commands:

```
SETSSI DELETE,SUBNAME=FPQ2,FORCE  
SETSSI DELETE,SUBNAME=AIIX,FORCE
```

6. To add IMS Tools Knowledge Base and Distributed Access Infrastructure subsystems dynamically to MVS, run *hlq.CUSTJCL(#A2SSN1)* for IMS Tools Base 1.6, which was generated by IMS Tools Setup.
7. Confirm the name of the Catalog repository for IMS Tools Base 1.6, which is defined in *hlq.CUSTPARM(FPQCFGxx)*.
8. Start the IMS Tools Knowledge Base server of IMS Tools Base 1.6.
9. Start Distributed Access Infrastructure of IMS Tools Base 1.6.
10. If the IMS Tools Online System Interface is being used, restart the target IMS subsystem.
11. If the IMS Tools Generic Exits are being used, confirm that the library names used in the following PROCLIB members are correct:
 - GLXEXIT0, GLXxxxx0
 - GPREXIT0, GPRxxxx0
 - GEXEXIT0, GEXxxxx0
 - GEXQEXIT, GEXQxxxx

where xxxx is the IMSID.

12. If IMS Hardware Data Compression Extended is being used, do the following tasks:
 - a) To create a generic dictionary and to make ISPF panels available for use, run *hlq.CUSTJCL(#B7HCO1)* for IMS Tools Base 1.6, which was generated by IMS Tools Setup.
 - b) Relink IMS compression exit routines by referring to the topic "Relinking a compression exit routine" in *IMS Tools Base IMS Hardware Data Compression Extended User's Guide and Reference*.

Note: If you plan to reuse the compression dictionary that you used in the previous release of IMS Hardware Data Compression Extended, you can skip the step to unload and reload the test database or to create a DFSDDLTO job.

13. If IMS Administration Tool ISPF is being used, confirm the library name used in IMS Administration Tool, as follows:

- a) Start the IMS Administration Tool ISPF interface by running the following REXX EXEC:

```
EX 'IMS_Admin_Tool_HLQ.SATYSAMP(ATY$PRIM)' 'LISTXCF(Y)'
```

- b) If the library name of IMS Tools Base 1.6 is specified in the **Tools Base DAI Loadlib** field, replace it with the library name of IMS Tools Base 1.7.

This operation must be done for each user ID that uses the IMS Administration Tool ISPF interface.

Chapter 4. Configuration checklist for IMS Tools Base components

Use this checklist to manually configure the IMS Tools Base components that can be used with other IMS Tools products.

Important: If you use the IMS Tools Setup function for post-SMP/E-installation customization, configuration of IMS Tools Base components is performed automatically (IMS Tools Setup generates and runs the required IMS Tools Base configuration JCL).

Preparing for IMS Tools Base configuration

- __ 1. [APF-authorize the IMS Tools Base program libraries](#)
- __ 2. [Plan the initial sizes of the IMS Tools Base IMS Tools Knowledge Base repositories](#)
 - __ a. [Determine the size of the Catalog and Registry repositories](#)
 - __ b. [Calculate the size of the Input repository](#)
 - __ c. [Calculate the size of the Output repository](#)
 - __ d. [Determine the size of the Sensor Data repository](#)
 - __ e. [Calculate the size of your Autonomics Director repository](#)

Configuring IMS Tools Knowledge Base

- __ 1. [Create your repositories](#)
 - __ a. [Define \(allocate\) your repository data sets](#)
 - __ b. [Define IMS Tools Base IMS Tools Knowledge Base to the operating system](#)
 - __ c. [Customize IMS Tools KB server configuration parameters](#)
 - __ d. [Start and stop the master IMS Tools server](#)
 - __ e. [Configure multiple servers for failover and task distribution \(Optional\)](#)
 - __ f. [Add your repositories to the IMS Tools KB server](#)
 - __ g. [Initialize the Sensor Data and Input repositories](#)
- __ 2. [Verify the installation of IMS Tools Knowledge Base](#)
 - __ a. [Start the report service user interface](#)
 - __ b. [Import and view a test user report](#)
- __ 3. [Secure your repositories with the System Authorization Facility \(SAF\)](#)
- __ 4. [Store reports in IMS Tools Knowledge Base](#)
 - __ a. [Register IMS Tools products with IMS Tools Knowledge Base](#)
 - __ b. [View a list of registered products and reports](#)
- __ 5. [Add one or more RECON environments](#)
 - __ a. [Add a new RECON environment](#)
 - __ b. [View RECON information](#)

Configuring IMS Tools Common Services

- __ 1. [Configure IMS Tools Generic Exits](#)
 - __ a. [Enable the Generic Logger exit for use with IMS Tools](#)

- __ b. [Enable the Generic Partner exit for use with IMS Tools](#)
- __ c. [Enable the Generic MSC exit for use with IMS Tools](#)
- __ d. [Enable the Generic QSN exit for use with IMS Tools](#)
- __ 2. [Configure IMS Tools Online System Interface](#)
 - __ a. [Implement IMS Tools Online System Interface](#)
 - __ b. [Set up the PROCLIB member](#)

Configuring Distributed Access Infrastructure

- __ 1. [Customize the Distributed Access Infrastructure sample configuration members](#)
- __ 2. [Customize the execution JCL for Distributed Access Infrastructure](#)
- __ 3. [Add Distributed Access Infrastructure program attributes to the z/OS program properties table \(PPT\)](#)
- __ 4. [Start Distributed Access Infrastructure](#)
- __ 5. [Verify that Distributed Access Infrastructure is running](#)
- __ 6. [Verify the installation and configuration of Distributed Access Infrastructure](#)

Configuring Policy Services

- __ 1. [Complete post-installation tasks for Policy Services](#)
 - __ a. [Allocate the generation data set journal](#)
 - __ b. [Modify the SAF \(RACF\) security settings](#)
 - __ c. [Support email and texting delivery types](#)
- __ 2. [Start the Policy Services user interface with an initial set of policies and rules required by the IMS Tools product](#)
 - __ a. [Start the Policy Services user interface](#)
 - __ b. [Create a maintenance environment](#)
 - __ c. [Install the initial domain policies and rules from the IBM maintenance data set](#)
 - __ d. [Create directory entries and notification lists](#)
 - __ e. [\(Optional\) Customize and copy rules to your locale](#)
 - __ f. [Update policies that are impacted by deleted rules](#)
 - __ g. [List installed maintenance packages](#)
 - __ h. [List installed policies and rules](#)
 - __ i. [Create a policy from a BSNGLOBL policy and copying to a user locale](#)
 - __ j. [Promote initial maintenance environment to initial operation environment](#)

Configuring Autonomics Director

- __ 1. [Configure the Autonomics Director server environment](#)
 - __ a. [Configure the Autonomics Director server](#)
 - __ b. [\(Optional\) Create the BPE PROCLIB member](#)
- __ 2. [Install and update the Autonomics Director subsystem interface](#)
- __ 3. [Prepare skeleton JCL for IMS Tools Base Autonomics Director](#)
 - __ a. [Create skeleton JCL for use with Data Sensors](#)
 - __ b. [Create skeleton JCL for group-managed reorganization](#)
 - __ c. [Creating skeleton JCL for Fast Path Online Space Management utility](#)

Configuring IMS HD Compression Extended

- __ 1. [Install the generic dictionary for the Detail Analyze function](#)
- __ 2. [Install the generic dictionary into an IMS exit](#)
- __ 3. [Link the HSDCE load modules to an APF-authorized library](#)
- __ 4. [Verify the installation and configuration](#)

APF-authorizing the IMS Tools Base program libraries

Before using any of the components in IMS Tools Base, you must make certain changes to your MVS system to allow IMS Tools Base to operate with the required level of authority.

Important: If you use the IMS Tools Setup function for post-SMP/E-installation customization, APF-authorizing the program libraries is performed automatically (IMS Tools Setup generates and runs the required configuration JCL).

To manually APF-authorize the IMS Tools Base program libraries:

1. Add the required libraries to your MVS APF list.

Add the libraries in the following table to your MVS APF list and any other library that is specified in the STEPLIB of each batch utility job or IMS control region.

Table 5. IMS Tools Base load libraries to be APF-authorized

Library	Components
SAIILINK	Distributed Access Infrastructure
SGLXLOAD	IMS Tools Generic Exits and Resource Manager Structure utility
SFOILOAD	IMS Tools Online System Interface
SHKTLOAD	Autonomics Director, IMS Tools Knowledge Base, Policy Services, and Resource Manager Structure utility
SHCOLMOD	IMS Hardware Data Compression Extended

2. Complete either of the following steps to activate the updated APF list:
 - To temporarily APF-authorize the libraries, use the SETPROG APF system command.
For more information, see *z/OS MVS System Commands*.
 - To permanently APF-authorize the libraries, add the libraries to the APF statement in the PROGxx member of SYS1.PARMLIB and re-IPL the system.
For more information, see *z/OS MVS Initialization and Tuning Reference*.

Chapter 5. Summary of security-related settings

IMS Tools Base optionally controls access to servers and repositories by using the System Authorization Facility (SAF). To use SAF in IMS Tools Base, you need to complete security-related settings.

Configuring IMS Tools Base components

You can configure the following IMS Tools Base components to specify whether to enable SAF security check for that component.

IMS Tools Knowledge Base

IMS Tools Knowledge Base optionally control access to repositories by using SAF. To enable SAF, you must specify the SAF security class name in the SAF_CLASS parameter in member FPQCONFIG of the *hlq.SHKTSAMP* library file.

For details, see [“Customizing IMS Tools KB server configuration parameters”](#) on page 49.

IMS Tools Online System Interface

To specify whether you want the IMS Tools Online System Interface to perform SAF authorization for IMS type-1 commands, use the RACFCHK parameter in the IMS Tools Online System Interface PROCLIB member.

For details, see [“PROCLIB member keyword parameters”](#) on page 124.

Autonomics Director

To enable SAF and RACF support to protect the use of Autonomics Director operational commands from the Autonomics Director user interface, use the RACFAPPL parameter in the Autonomics Director server PROCLIB member.

For details, see [“Autonomics Director server parameters”](#) on page 143.

Distributed Access Infrastructure

To enable Distributed Access Infrastructure to control access to TAS and SOT servers, use the SecurityAppl configuration parameter in the TAS configuration file.

For details, see [Chapter 22, “Configuring Distributed Access Infrastructure,”](#) on page 169.

Defining SAF security

To enable SAF security check, you must define appropriate resource profiles.

IMS Tools Knowledge Base

IMS Tools Knowledge Base optionally restricts access to the repositories using the System Authorization Facility (SAF). To enable SAF, security administrators must define resource profiles in the selected resource class.

```

RDEFINE FACILITY FPQREP.CATALOG      UACC(NONE)
RDEFINE FACILITY FPQREP.HKT_REGISTRY UACC(NONE)
RDEFINE FACILITY FPQREP.HKT_INPUT    UACC(NONE)
RDEFINE FACILITY FPQREP.HKT_00000000 UACC(NONE)
RDEFINE FACILITY FPQREP.BSN_SENSOR   UACC(NONE)
RDEFINE FACILITY FPQREP.IAV_AUTODIR  UACC(NONE)

PERMIT FPQREP.CATALOG      CLASS(FACILITY) ID(tsouser) ACCESS(READ)
PERMIT FPQREP.HKT_REGISTRY CLASS(FACILITY) ID(tsouser) ACCESS(UPDATE)
PERMIT FPQREP.HKT_INPUT    CLASS(FACILITY) ID(tsouser) ACCESS(UPDATE)
PERMIT FPQREP.HKT_00000000 CLASS(FACILITY) ID(tsouser) ACCESS(UPDATE)
PERMIT FPQREP.BSN_SENSOR   CLASS(FACILITY) ID(tsouser) ACCESS(UPDATE)
PERMIT FPQREP.IAV_AUTODIR  CLASS(FACILITY) ID(tsouser) ACCESS(UPDATE)

```

Figure 4. Example of SAF definitions for IMS Tools Knowledge Base

For details, see [Chapter 10, “Configuring SAF security,”](#) on page 63.

Policy Services

To access the Input repository (to perform any functions provided by the Policy Services user interface) or the Sensor Data repository (to add sensor data), Policy Services user interface session user IDs and IMS Tools session user IDs must have appropriate access authorities.

For details, see [“SAF \(RACF\) security settings”](#) on page 96.

Autonomics Director

Autonomics Director server supports SAF and RACF protection of the use of Autonomics Director client commands from the user interface. You must define appropriate access authorities in *hlq.SHKTSAMP* member IAVADRAC.

```

RDEFINE APPL adracf      UACC(NONE) AUDIT(NONE)

PERMIT adracf CLASS(APPL) ID(tsouser) ACCESS(READ)
PERMIT adracf CLASS(APPL) ID(tsouser) ACCESS(UPDATE)

```

Figure 5. Example of SAF definitions for Autonomics Director

For details, see [“Configuring Autonomics Director SAF security”](#) on page 146.

Distributed Access Infrastructure

Before starting to use Distributed Access Infrastructure, you must set appropriate security permissions for the following user IDs:

- User ID that accesses the TCP server on which TCP/IP services are run
- User IDs of all clients that access the configured IMS Tools products

Because an OMVS segment is required for TCP/IP services, a RACF user without an OMVS segment will fail to access the TCP server. Therefore, an OMVS segment must be defined for the user ID that runs the TCP server. For details, see [“Configuring SAF security”](#) on page 174.

The TCP server authenticates a user by verifying the user ID and password on the z/OS system where the TCP server is running. You can manage two types of security schemes to control client access to the TCP server: group-based security and application class-based security.

```

ADDGROUP daigrp OWNER(SYS1)
CONNECT tsouser GROUP(daigrp) OWNER(SYS1)

RDEFINE APPL daiappl      UACC(NONE) AUDIT(NONE)
PERMIT daiappl CLASS(APPL) ID(tsouser) ACCESS(READ)

```

Figure 6. Example of SAF definitions for Distributed Access Infrastructure

For details, see the topic "[Distributed Access Infrastructure security](#)" in *IMS Tools Base Distributed Access Infrastructure User's Guide and Reference*.

Chapter 6. Starting and stopping various IMS Tools Base servers

After installing and configuring IMS Tools Base, you need to follow different procedures to start and stop different IMS Tools Base servers.

IMS Tools Knowledge Base server

The master IMS Tools Knowledge Base server can be run as a batch job for testing, but should be run as a started task for production purposes.

You can stop the IMS Tools Knowledge Base server by issuing an MVS operator command regardless of whether the server is running as a batch job or as a started task.

Purpose	Procedure
To start the IMS Tools Knowledge Base server as a batch job	Add JOB statements in the JCL for the IMS Tools Knowledge Base server, and then submit the job.
To start the IMS Tools Knowledge Base server as a started task	Issue the START command with the procedure name: <pre>START procedure_name</pre>
To stop the IMS Tools Knowledge Base server	Issue one of the following operator commands: <pre>STOP ITKB_server_name MODIFY ITKB_server_name,SHUTDOWN</pre>

For details, see [“Starting and stopping the master IMS Tools KB server” on page 51.](#)

Autonomics Director server

You can stop the Autonomics Director server by using commands or the Autonomics Director ISPF interface.

Purpose	Procedure
To start the Autonomics Director server as a batch job	Add JOB statements in the JCL for the Autonomics Director server, and then submit the job.
To start the Autonomics Director server as a started task	Issue the START command with the procedure name: <pre>START procedure_name</pre>
To stop the Autonomics Director server	Issue one of the following operator commands: <pre>STOP AD_server_name MODIFY AD_server_name,STOP SERVER</pre>

For details, see [“Configuring an Autonomics Director server” on page 141.](#)

Distributed Access Infrastructure TCP server and TAS

To start Distributed Access Infrastructure, run the TCP server and the Tools Access Server (TAS).

To stop Distributed Access Infrastructure, first stop the TCP server to prevent any new connections, and then stop the TAS.

Purpose	Procedure
To start Distributed Access Infrastructure TCP server and TAS as a batch job	Add JOB statements in the JCL for the TCP server and the TAS, and then submit the job.
To start Distributed Access Infrastructure TCP server and TAS as a started task	Issue the START command with the procedure name: <pre>START procedure_name</pre>
To stop Distributed Access Infrastructure TCP server and TAS	Issue the following STOP commands: <pre>STOP TCP_server_name STOP TAS_server_name</pre>

For details, see [“Starting Distributed Access Infrastructure ” on page 174](#) and [“Stopping Distributed Access Infrastructure” on page 176](#).

Part 2. Configuring IMS Tools Knowledge Base

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.

Topics:

- [Chapter 7, “Sizing your IMS Tools Knowledge Base repositories,” on page 39](#)
- [Chapter 8, “Configuring the IMS Tools Knowledge Base server environment,” on page 47](#)
- [Chapter 9, “Verifying the IMS Tools Knowledge Base installation,” on page 59](#)
- [Chapter 10, “Configuring SAF security,” on page 63](#)
- [Chapter 11, “Registering products,” on page 69](#)
- [Chapter 12, “RECON ID \(locale\) administration,” on page 83](#)

Chapter 7. Sizing your IMS Tools Knowledge Base repositories

IMS Tools Knowledge Base uses a collection of repositories to store information that is generated and used by participating IMS Tools Knowledge Base products.

IMS Tools Knowledge Base uses several types of repositories to handle the storage of information such as reports, policies, and sensor data. Before you define the repository data sets, determine the appropriate size of your repositories. The following list introduces the IMS Tools Knowledge Base repositories:

Catalog repository

The Catalog repository is used by the IMS Tools Knowledge Base server to store internal control information.

Registry repository

The Registry repository contains information about the registered tools products that are participating in the IMS Tools Knowledge Base environment. IMS Tools products must be registered with IMS Tools Knowledge Base in order to store product-generated reports and to use functions provided by IMS Administration Tool.

Input repository

The Input repository contains information about the customer environment, RECON data, rule thresholds, and Policy Services data (policies, rules, rule thresholds, directory entries, and notification lists).

Output repository

The Output repository stores reports that are generated by participating tools products. IMS Tools products that are registered with IMS Tools Knowledge Base can store reports in the Output repository.

For ease of data management (especially within a sysplex), it is possible to create more than one Output repository. The report access function provides you with a seamless view of reports across multiple Output repositories.

Sensor Data repository

The Sensor Data repository stores data that is captured by the DB Sensor function as it measures the condition, or state, of one or more databases at specific instances in time. The data can be used for later analysis and policy evaluation.

The Sensor Data repository is required by IMS Tools products that have the Data Sensor function: IMS Database Reorganization Expert, IMS Database Solution Pack, IMS Database Utility Solution, IMS Fast Path Solution Pack, and IMS Recovery Solution Pack.

Autonomics Director repository

The Autonomics Director repository stores parameters of monitored databases and groups. It also stores the evaluation history for those databases.

The Autonomics Director repository is required by Autonomics Director.

Important: If you are planning to use IMS Tools Knowledge Base to store reports only, the Sensor Data repository and Autonomics Director repository are not required.

Repository data sets

Each repository has a primary and secondary data set pair. Both the primary and secondary data set pair have an index data set (RID) and repository member data set (RMD). The secondary data set pair is a copy of the primary repository and is used for recovery only. In addition to the primary and secondary data set pairs, you may optionally define a spare data set pair for every repository except the Catalog repository.

Guidelines for the size of the Catalog and Registry repositories

The Catalog repository and Registry repository are required by IMS Tools Base IMS Tools Knowledge Base. Both repositories have recommended minimum allocations.

The following table displays the minimum size allocations that are recommended for the Catalog repository data sets. There is no recommendation for the spare data set because a spare data set is not permitted for the Catalog repository.

Table 6. Minimum allocations recommended for the Catalog repository data sets

Repository data set type	RID (index data)	RMD (member data)
Catalog primary data set	5 cylinders	1 cylinder
Catalog secondary data set	5 cylinders	1 cylinder

The following table displays the minimum size allocations that are recommended for the Registry repository data sets:

Table 7. Minimum allocations recommended for the Registry repository data sets

Repository data set type	RID (index data)	RMD (member data)
Registry primary data set	5 cylinders	1 cylinder
Registry secondary data set	5 cylinders	1 cylinder
Registry spare data set (optional)	5 cylinders	1 cylinder

Calculating the size of the Input repository

The Input repository is required by IMS Tools Knowledge Base and Policy Services. The appropriate size of the Input repository depends on multiple factors, such as whether you plan to use Policy Services, the number of IMS Tools products that will use Policy Services, and the number of locales in which Policy Services is used.

About this task

Policies, rules, rule thresholds, directory entries, and notification list data are stored in the Input repository. The allocation for the input data set must be large enough to hold the initial set of policies, rules, and rule thresholds that are installed from the Policy Services ISPF Dialogue, and for user defined directory entries and notification lists, which are used by Policy Services.

The RECON ID definitions are also stored in the Input repository. You may associate each RECON ID with its IMS RECON data set names and with its related IMS libraries (for example, RESLIB, DBDLIB, PSBLIB, ACBLIB, and IMSCATHLQ).

The following table shows the recommended RMD space requirements for the data types used by Policy Services:

Table 8. Input repository RMD space requirements

Data type	Number of cylinders
IMS Tools Base IMS Tools Knowledge Base RECON ID definition requirements	1
Space requirement for Policy Services	1
Set of policies and rules for each IMS Tools product	1

Table 8. Input repository RMD space requirements (continued)

Data type	Number of cylinders
Notification lists	1
Locale-specific data for each IMS Tools product and locale	1

The formulas in this task are based on general guidelines for calculating the initial size of the Input repository. The actual size requirements can vary for each IMS environment.

Procedure

To calculate the size of the Input repository data set:

1. Choose one of the following options:

- If you are not planning to use IMS Tools Base Policy Services, allocate 1 cylinder for the data component (RMD).
- If you are planning to use Policy Services, use the following formula to help estimate the appropriate number of cylinders for the RMD:

```
1 cylinder for IMS Tools KB RECON ID requirements +
1 cylinder for Policy Services requirements +
1 cylinder x number of IMS Tool products using Policy Services +
1 cylinder for notification lists +
1 cylinder x number of locales x number of IMS Tools using Policy Services
= Total number of cylinders for the RMD
```

2. If you are planning to use Policy Services, use the following formulas to help estimate the appropriate number of cylinders for the RID:

- a) Calculate the number of *information units* (policies, rules, directory entries, notification lists) that Policy Services will create. The RID (index component) for the Input repository uses one cylinder per 2,880 Policy Services information units.

A minimum of 272 information units are automatically created for an installation of Policy Services.

```
272 information units +
(estimated number of domain installations x 20 information units) +
estimated number of policies +
estimated number of directory entries +
estimated number of notification lists
= Total number of information units that will be created by Policy Services
```

- b) Calculate how many cylinders you need based on the number of information units that will be created by Policy Services (the total from the formula in [step a](#)), the number of products that will be using Policy Services, and the number of locales.

```
(total number of information units that will be created by Policy Services
÷ 2880) +
1 cylinder x number of IMS Tool products using Policy Services +
1 cylinder x number of locales x number of IMS Tools using Policy Services
= Total number of cylinders for the RID
```

Example

Suppose you are planning to configure and use Policy Services with IMS Database Reorganization Expert and there are 4 locales. You estimate that you will create 500 policies, 400 directory entries, 10 notification lists, and install 1 Policy Services domain.

As you can see in the following example, your minimum allocation for the RMD (data component) would be 27 cylinders.

```
1 cylinder for IMS Tools KB RECON ID = 1
1 cylinder for Policy Services requirements = 1
```

```
1 cylinder x 1 product = 1
1 cylinder for notification lists = 1
1 cylinder x 4 locales x 1 product = 4
Total = 8 cylinders for the RMD
```

As you can see in the following example, the minimum allocation for the RID (index component) would be 1 cylinder.

```
272 information units +
500 policies +
400 directory entries +
10 notification lists +
1 domain x 20 information units
Total = 1202 information units

1202 ÷ 2880 = 1 approximately
1 cylinder x 1 product = 1
1 cylinder x 4 locales x 1 product = 4
Total = 6 cylinders for the RID
```

The Input repository uses one cylinder per 2,880 Policy Services information units, so only 1 cylinder is required in this example.

What to do next

Eventually, you might need to create new Policy Services REORG Domain maintenance environments to do any of the following customization tasks:

- Add, copy, and modify policies
- Create new rule thresholds, directory entries, and notification lists
- Apply IBM-supplied maintenance

For each new maintenance environment, you must increase the allocation of the data component RMD (data component) by multiplying the initial installation requirements by the number of maintenance environments you might create over time.

In the following example, you would need to increase the RMD allocation by 19 cylinders to support three new maintenance environments:

```
1 RECON + (3 environments x 6 cylinders)
```

Calculating the size of the Output repository

The Output repository is required by IMS Tools Knowledge Base. You can determine the space requirements for the Output repository by estimating the total number of report lines that will be stored in the repository.

About this task

The amount of space required for the Output repository depends on the following conditions:

- Whether you achieve the same rate of compression for the types of reports that you keep
- The size and number of reports you choose to retain
- Whether you reclaim abandoned space by reorganizing the data sets in a timely manner

If you have multiple IMS Tools products that will store reports in IMS Tools Knowledge Base, use the [“Output repository worksheet”](#) on [page 43](#) to record the total amount of cylinders you will need to allocate based on the formulas that are described in the following procedure.

Procedure

To calculate the size of the Output repository data set:

1. Use the following formula to help estimate the appropriate number of cylinders for the RMD (data component):

$$\begin{aligned} & (\text{number of lines of reports} \times 2) \div 10,000 \\ & = \text{total number of cylinders for the RMD} \end{aligned}$$

The formula is based on the following guidelines:

- a. Estimate the number of lines of reports you expect to retain at any one time. Factor in history retention for each report
- b. Double the value of this number to allow for growth.

The RMD (data component) for the Output repository uses approximately 1 cylinder per 10K lines of reports.

The number of lines per cylinder can be difficult to estimate because the value depends on the compression achieved for the reports you store (compression ratio dependent). The space requirement is also affected by the reorganization state of the data sets. The number might range from 7,400 to 11,700 lines per cylinder. You should monitor space usage as you add reports to the Output repository.

2. Use the following formula to calculate the size of the RID (index component):

$$\begin{aligned} & (\text{estimated number of reports}) \div 2880 \\ & = \text{total number of cylinders for the RID} \end{aligned}$$

The minimum size of the RID (index component) is 1 cylinder.

The RID (index component) for the Output repository uses one cylinder per 2,880 reports.

Output repository worksheet

Use this worksheet to calculate the total number of cylinders that you should allocate for each product or component. Record the total at the bottom of the worksheet.

IMS Tools that can store reports in IMS Tools KB include (but are not limited to) the products listed on this worksheet. There are blank spaces at the bottom of the worksheet for you to add any additional products that will use the Output repository.

You can use this worksheet to record the total amount of cylinders you need to allocate for one Output repository data set, or you can choose to allocate multiple Output repositories (one repository for each IMS Tools product that uses IMS Tools KB to store reports).

Table 9. Worksheet for calculating the Output repository

Category	IMS Tools product	RID (index data)	RMD (member data)
IMS Performance Solution Pack	IMS Performance Analyzer for z/OS		
IMS Recovery Solution Pack	IMS Database Recovery Facility		
	IMS Database Recovery Facility: Extended Functions		
	IMS Recovery Expert		
	IMS High Performance Image Copy for z/OS		
	IMS Index Builder for z/OS		
IMS Fast Path Solution Pack	IMS High Performance Fast Path Utilities		
	IMS High Performance Image Copy for z/OS		

Table 9. Worksheet for calculating the Output repository (continued)

Category	IMS Tools product	RID (index data)	RMD (member data)
IMS Database Solution Pack	Database Sensor		
	IMS Database Reorganization Expert for z/OS		
	IMS Online Reorganization Facility		
	IMS High Performance Image Copy for z/OS		
	IMS High Performance Load for z/OS		
	IMS High Performance Unload for z/OS		
	IMS High Performance Pointer Checker for z/OS		
	IMS High Performance Prefix Resolution for z/OS		
	IMS Index Builder for z/OS		
IMS Database Utility Solution	Database Sensor		
	IMS Database Reorganization Expert for z/OS		
	IMS High Performance Image Copy for z/OS		
	IMS High Performance Load for z/OS		
	IMS High Performance Unload for z/OS		
	IMS High Performance Pointer Checker for z/OS		
	IMS Index Builder for z/OS		
Other IMS Tools products	IMS Buffer Pool Analyzer for z/OS		
Other products			
Total		_____ cylinders	_____ cylinders

Guidelines for the size of the Sensor Data repository

Sensor data is stored in the IMS Tools KB Sensor Data repository. The Sensor Data repository is required by IMS Database Reorganization Expert, IMS Database Solution Pack, IMS Database Utility Solution, IMS Fast Path Solution Pack, and IMS Recovery Solution Pack.

Use the following procedure to determine the initial size of the Sensor Data repository data set.

Procedure

1. The size of the RMD (data component) for the Sensor Data repository varies depending on the number of databases and groups that are stored. Each DB/CA (Database/change accumulation) can have REORG and RECOVERY sensor data stored.

Use the following formula to help estimate the appropriate size for REORG and RECOVERY sensor data of the RMD.

For the RMD (data component):

$$\text{Data component size (KB)} = 1 + 2 * \text{NumSensor} * (\text{NumDB} + \text{NumCA}) * 0.3$$

In this formula, the variables have the following values:

NumSensor

Number of sensor members kept

NumDB

Number of databases, areas, or partitions

NumCA

Number of change accumulation groups

Convert from kilobytes to cylinders and use cylinder allocations.

2. Use the following formula to calculate the size of the RID (index component):

$$\text{Index component size (KB)} = 10 + 2 * \text{NumSensor} * (\text{NumDB} + \text{NumCA}) * 0.25$$

Example

In the following example, there are 2000 databases, 500 CA groups, and 4 sensor members kept for each DB/CA:

$$\begin{aligned} \text{Data (KB)} &= 1 + 2 * 4 * (2000 + 500) * 0.3 = 6001 \text{ KB} \\ \text{Index (KB)} &= 10 + 2 * 4 * (2000 + 500) * 0.25 = 5010 \text{ KB} \end{aligned}$$

Calculating the size of the Autonomics Director repository

Autonomics Director data is stored in the MS Tools Knowledge Base Autonomics Director repository. This repository is required by Autonomics Director.

About this task

The formulas in this task are based on general guidelines for calculating the initial size of the Autonomics Director repository. The actual size requirements can vary for each IMS environment. The following table displays the minimum size allocations that are recommended for the Autonomics Director repository data sets:

Table 10. Minimum allocations recommended for the Autonomics Director repository data sets

Repository data set type	RID (index data)	RMD (member data)
Autonomics Director primary data set	2 cylinders	10 cylinders
Autonomics Director secondary data set	2 cylinders	11 cylinders
Autonomics Director spare data set (optional)	2 cylinders	12 cylinders

You can also use the following procedure to determine the initial size of the Autonomics Director repository data set.

Procedure

To calculate the size of the Autonomics Director repository data set:

1. The size of the RMD (data component) for the Autonomics Director repository varies depending on the number of databases, groups, and evaluation results that are stored. Use the following formula to help estimate the appropriate size for the RMD (data component):

$$\text{Data component size (KB)} = 100 + (\text{NumMon} + \text{NumGrp}) + (\text{NumMon} * (2 * \text{NumEval})) + (\text{NumGrp} * 256)$$

In this formula, the variables have the following values:

NumMon

Number of monitored databases, areas, or partitions

NumEval

Number of evaluations to keep for a monitored databases, areas, or partitions

NumGrp

Number of groups

Convert from kilobytes to cylinders and use cylinder allocations.

2. Use the following formula to calculate the size of the RID (index component):

$$\text{Index component size (KB)} = 10 + (\text{NumMon} + \text{NumGrp})$$

In this formula, the variables have the following values:

NumMon

Number of monitored databases, areas, or partitions

NumGrp

Number of groups

Convert from kilobytes to cylinders and use cylinder allocations. The minimum size of the RID (index component) is 1 cylinder.

Example

In the following example, there are 2000 monitored databases, 500 DBRC groups, and 10 evaluations stored for each database (10 REORG evaluation records for each DB and 10 RECOVERY evaluation records for each DB):

$$\text{NumMon} = 2000, \text{NumGrp} = 500, \text{NumEval} = 10$$

The Autonomics Director repository calculation is:

$$\begin{aligned} \text{Data (KB)} &= 100 + (2000 + 500) + (2000 \times (2 \times 10)) + (500 \times 256) = 170600 \text{ KB} \\ \text{Index (KB)} &= 2000 + 500 = 2500 \text{ KB} \end{aligned}$$

Round values up: data to MB multiple, index to 512 KB multiple:

$$\begin{aligned} \text{Data component size (KB)} &= 171 \text{ MB} \\ \text{Index component size (KB)} &= 3 \text{ MB} \end{aligned}$$

Chapter 8. Configuring the IMS Tools Knowledge Base server environment

IMS Tools Base IMS Tools Knowledge Base stores information resources that are generated or used by IMS Tools products (such as reports, sensor data, policies, and rules) in central repositories.

For recommendations about repository sizes, see [Chapter 7, “Sizing your IMS Tools Knowledge Base repositories,”](#) on page 39.

Topics:

- [“Defining \(allocating\) repository data sets”](#) on page 47
- [“Defining IMS Tools KB to the operating system”](#) on page 48
- [“Customizing IMS Tools KB server configuration parameters”](#) on page 49
- [“Starting and stopping the master IMS Tools KB server”](#) on page 51
- [“\(Optional\) Configuring multiple servers for failover and task distribution”](#) on page 53
- [“Adding the repositories to the IMS Tools KB server”](#) on page 54
- [“Initializing the Sensor Data and Input repositories”](#) on page 55

Defining (allocating) repository data sets

The IMS Tools Knowledge Base repositories must be defined and available before you use the IMS Tools Knowledge Base server.

Each repository is implemented by at least two pairs of VSAM data sets: a primary pair and a secondary pair. The primary VSAM data sets service the data requests and the secondary VSAM data sets are used for recovery. An additional (third) pair of data sets is recommended to allow data set sparing.

Each data set pair is composed of a repository index data set (RID) and a repository member data set (RMD).

You must customize the VSAM cluster definitions for your installation by changing the data set names and the allocation parameters. The primary and secondary cluster definitions should be identical except for the volume where they are allocated.

Recommendation: The secondary cluster should be at least 1 cylinder larger than the primary cluster. That way, if a device error occurs in the primary cluster, there is still enough space to write to the secondary cluster prior to the termination of writing to the specific repository data set.

The cluster names for the primary and secondary Catalog repository are specified as parameters during server startup.

It is suggested that the primary and secondary clusters be allocated on different volumes in the event of a device failure. All repository cluster definitions must specify the REUSE option.

Defining repositories during an initial product installation

The following procedure is appropriate for defining repository data sets to an initial installation of IMS Tools Knowledge Base.

This procedure refers to sample members of the *hlq*.SHKTSAMP library file. (Substitute the *hlq* variable with the installation data set high-level qualifier.)

Copy the appropriate members to your own data sets and customize the parameters to conform to your standards and environment. Most sample members contain descriptive customization information.

To define the primary and secondary VSAM data sets, complete the following procedure:

1. Customize the VSAM cluster definitions by modifying your copy of member HKTDFREP.

2. Run one or more of the following job steps in member HKTDFREP:

- Run the ALLOCAT1 job step.
- Run the ALLOCAT2 job step if you plan to configure and use Policy Services.
- Run the ALLOCAT3 job step if you plan to configure and use Autonomics Director.

Ensure that the HKTDFREP job completes with a return code=0.

Defining IMS Tools KB to the operating system

You must define IMS Tools Knowledge Base to the operating system of every system that hosts either a server or an application that either reads or writes to the IMS Tools Knowledge Base server (including the IMS Tools Knowledge Base ISPF user interface).

Updating SYS1.PARMLIB

Update the SYS1.PARMLIB file with the appropriate information that defines IMS Tools Base IMS Tools Knowledge Base to the operating system that hosts the participating IMS tool.

This procedure stages the configuration settings. These changes take effect at the next initial program load (IPL).

Note: To use IMS Tools Knowledge Base immediately, you can dynamically define IMS Tools Knowledge Base, as explained in [“Defining IMS Tools Knowledge Base dynamically” on page 49](#).

To update the SYS1.PARMLIB file, complete the following steps:

1. Authorize the LOAD library that is used by the server for the authorized program facility (APF) by adding the following statement to the PROGxx PARMLIB member:

```
APF ADD DSNAME(hlq.SHKTLOAD) VOL(volser)
```

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

2. Add the following Program Properties Table (PPT) definition to the SCHEDxx member and issue the z/OS **SET SCH=** command to activate the updated PPT.

```
PPT PGMNAME(FPQINI0$) /* PROGRAM NAME = FPQINI0$ */
      CANCEL           /* PROGRAM CAN BE CANCELED */
      KEY(7)           /* PROTECT KEY ASSIGNED IS 7 */
      NOSWAP           /* PROGRAM IS NON-SWAPPABLE */
      NOPRIV           /* PROGRAM IS NOT PRIVILEGED */
      DSI              /* REQUIRES DATA SET INTEGRITY */
      PASS             /* CANNOT BYPASS PASSWORD PROTECTION */
      SYST             /* PROGRAM IS A SYSTEM TASK */
      AFF(NONE)        /* NO CPU AFFINITY */
      NOPREF           /* NO PREFERRED STORAGE FRAMES */
```

3. Add two server modules to LPA by using one of the following methods:

- **Use IEALPAxx PARMLIB member**

Add the following statement to the IEALPAxx PARMLIB member:

```
INCLUDE LIBRARY(hlq.SHKTLOAD) MODULES(FPQCSSI2,FPQCXCF2)
```

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

The SHKTLOAD library, which contain the modules, must be cataloged in the system master catalog. If the SHKTLOAD library is cataloged in the user catalog, the volume serial number of the DASD volume in which the data set resides must be specified on the VOLUME parameter.

```
INCLUDE LIBRARY(hlq.SHKTLOAD) VOLUME(volser) MODULES(FPQCSSI2,FPQCXCF2)
```

- **Use LPALSTxx PARMLIB member**

Add the LPA library to the LPALSTxx PARMLIB member, and copy two server modules, FPQCSSI2 and FPQCXCF2, from the SHKTLOAD library to the LPA library.

The LPA library must be cataloged in the system master catalog. If the LPA library is cataloged in the user catalog, the volume serial number of the DASD volume in which the data set resides must be specified in parentheses, immediately following the LPA library.

For more information about IEALPAXx and LPALSTxx PARMLIB members, see *z/OS MVS Initialization and Tuning Reference*.

4. Define a subsystem for the server by adding the following statement to the IEFSSNxx PARMLIB member. The name of the subsystem must be FPQ2.

```
SUBSYS SUBNAME(FPQ2) INITRTN(FPQCSSI2)
```

5. The following message is issued during the next IPL, indicating that the subsystem started:

```
FPQ3001I STACKING PC - FPQ2 SUBSYSTEM INSTALLED
```

Defining IMS Tools Knowledge Base dynamically

To dynamically define IMS Tools Knowledge Base to the operating system that hosts the participating IMS tool, complete the following procedure:

1. Add the LOAD library that is used by the server to the APF list by issuing the following operator command:

```
SETPROG APF,ADD,DSNAME=hlq.SHKTLOAD,VOL=volser
```

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

2. Add the following Program Properties Table (PPT) definition to the SCHEDxx member and issue the z/OS **SET SCH=** command to activate the updated PPT.

```
PPT PGMNAME(FPQINI0$) /* PROGRAM NAME = FPQINI0$ */
      CANCEL           /* PROGRAM CAN BE CANCELED */
      KEY(7)           /* PROTECT KEY ASSIGNED IS 7 */
      NOSWAP           /* PROGRAM IS NON-SWAPPABLE */
      NOPRIV           /* PROGRAM IS NOT PRIVILEGED */
      DSI              /* REQUIRES DATA SET INTEGRITY */
      PASS             /* CANNOT BYPASS PASSWORD PROTECTION */
      SYST             /* PROGRAM IS A SYSTEM TASK */
      AFF(NONE)        /* NO CPU AFFINITY */
      NOPREF           /* NO PREFERRED STORAGE FRAMES */
```

3. Add two server modules to LPA by issuing the following operator command:

```
SETPROG LPA,ADD,DSNAME=hlq.SHKTLOAD,MODNAME=(FPQCSSI2,FPQCXCF2)
```

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

Note: Ensure that you wait for the command to complete processing.

4. Add the subsystem for the server by issuing the following operator command. The name of the subsystem must be FPQ2.

```
SETSSI ADD,SUBNAME=FPQ2,INITRTN=FPQCSSI2
```

5. The following message confirms that the subsystem started:

```
FPQ3001I STACKING PC - FPQ2 SUBSYSTEM INSTALLED
```

Customizing IMS Tools KB server configuration parameters

You must set appropriate values for a number of configuration parameters to ensure successful operation of the IMS Tools Knowledge Base server.

This procedure refers to sample members of the *hlq*.SHKTSAMP library file. (Substitute the *hlq* variable with the installation data set high-level qualifier.)

Copy the appropriate members to your own data sets and customize the parameters to conform to your standards and environment. Most sample members contain descriptive customization information.

To customize the configuration parameters for the IMS Tools Knowledge Base server, complete the following steps:

1. Copy member FPQBPCFG to the data set referenced by the PROCLIB DD in the server JCL.

No modifications are required in this step.

2. Copy member FPQCONFIG to the data set referenced by the PROCLIB DD in the server JCL and modify the member as explained in the comments.

The parameters you must modify are the server XCF group name and the catalog data set names.

Parameter reference for FPQCONFIG

All of the FPQCONFIG parameters are explained in the following table:

Table 11. Parameters for FPQCONFIG

Parameter	Description
MAX_COMMUNICATION_RETRY	Number of times an XCF request is allowed to retry This request failed earlier due to insufficient XCF_THREADS. Value: An integer between 1 and 255 The default value is 3
MBR_CORE_MAX	Maximum storage allocated to save client XCF data Controls the amount of storage that will be allocated in the server address space per member (report). When a member exceeds this size, a data space is allocated. Value: An integer between 32 and 4096 (KB) The default value is 128
PRIMARY_CATALOG_REPOSITORY_INDEX PRIMARY_CATALOG_REPOSITORY_MEMBER	Names of the primary VSAM KSDS CATALOG repository data sets
SECONDARY_CATALOG_REPOSITORY_INDEX SECONDARY_CATALOG_REPOSITORY_MEMBER	Names of the secondary VSAM KSDS CATALOG repository data sets
SAF_CLASS	SAF security class name Value: A name using 1 to 8 characters No security specified if SAF_CLASS is not present
VSAM_BUFNO	Number of VSAM buffers for repository access Value: An integer between 3 and 65535 The default value is 10

Table 11. Parameters for FPQCONFIG (continued)

Parameter	Description
VSAM_BUFSIZE	VSAM buffer size for repository access This value must be as large as the control interval size of the data and index component of any of the four repository data sets. Value: An integer between 8 and 32 KB (must be a multiple of 4) The default value is 8
XCF_GROUP_NAME	XCF group name that a server is to join. This group name acts as the server name. Value: An 8-character name that is padded on the right with blanks. Allowed characters include: A-Z, 0-9, and national characters (\$, #, @) To allow a client application to connect, this parameter must be the same as the ITKBSRVR parameter.
XCF_THREADS	Number of threads started to accept client data from XCF Allocates resources for concurrent communication with the server. Threads are occupied for the duration of XCF buffer transmission (usually very brief). Value: An integer between 4 and 99 The default value is 4

Starting and stopping the master IMS Tools KB server

The master IMS Tools Knowledge Base server can be run as a batch job for testing, but should be run as a started task for production purposes.

Starting the IMS Tools Knowledge Base server as a batch job

The master IMS Tools Knowledge Base server can be run as a batch job for testing.

Before you begin

This procedure refers to sample members of the *hlq*.SHKTSAMP library file. (Substitute the *hlq* variable with the installation data set high-level qualifier.)

Copy the appropriate members to your own data sets and customize the parameters to conform to your standards and environment. Most sample members contain descriptive customization information.

Procedure

To run the IMS Tools Knowledge Base server as a batch job for testing, complete the following procedure:

1. Customize your copy of member HKTSRVRJ to meet your system standards.
2. Ensure that the data set that is referenced in the STEPLIB DD statement is APF-authorized.
3. The BPE and FPQ configuration member names that are specified in the PARM statement must be members in the data set that is specified in the PROCLIB DD statement.

The FPQ configuration member was modified when you customized the IMS Tools Knowledge Base server configuration parameters.

4. Submit the job and review the server messages as described in this step.

When the server is started the very first time, it initializes the empty Catalog repository and issues message FPQ0025I.

When the server successfully opens the Catalog repository, it issues message FPQ2016I.

When the server issues message FPQ2002I, stating that it is the master server, it can accept client connections.

Note: If another server with the same server name is active somewhere else in the sysplex, you do not receive message FPQ2002I.

The IMS Tools Knowledge Base server writes the startup parameters to the data set that is specified in the FPQPRINT DD statement.

Starting the IMS Tools Knowledge Base server as a started task

The master IMS Tools Knowledge Base server should be run as a started task for production purposes.

Before you begin

To run the IMS Tools Knowledge Base server as a started task, copy member HKTSRVRP (found in the sample library *hlq.SHKTSAMP*) to the appropriate system PROCLIB and modify the member for your system.

Procedure

Issue the **START** command with the procedure name:

Command syntax	Example
<code>START <i>procedure-name</i></code>	<code>START ITKBSRV</code>

Stopping the IMS Tools Knowledge Base server

The following procedures are appropriate for stopping the IMS Tools Knowledge Base server. These commands can be used regardless of whether the server is running as a batch job or as a started task.

Procedure

Stop the server by following one of these procedures:

- To shut down only the master server, issue one of the following operator commands from the system that the server is running on:

Command syntax	Example
<code>STOP <i>jobname</i></code>	<code>STOP ITKBSRV</code>
<code>P <i>jobname</i></code>	<code>P ITKBSRV</code>
<code>MODIFY <i>jobname</i>,SHUTDOWN</code>	<code>MODIFY ITKBSRV,SHUTDOWN</code>
<code>F <i>jobname</i>,SHUTDOWN</code>	<code>F ITKBSRV,SHUTDOWN</code>

Note: *jobname* is the name of the server job.

- To shut down the master server and any secondary servers in the XCF group, issue one of the following operator commands from any system that is running a server for this server group:

Command syntax	Example
<code>MODIFY jobname,SHUTDOWN ALL</code>	<code>MODIFY ITKBSRV,SHUTDOWN ALL</code>
<code>F jobname,SHUTDOWN ALL</code>	<code>F ITKBSRV,SHUTDOWN ALL</code>

Note: *jobname* is the name of the server job.

(Optional) Configuring multiple servers for failover and task distribution

The IMS Tools Knowledge Base server can provide information management services for all clients (such as IMS Tools products or ISPF sessions) in a sysplex.

While only one server is required in the IMS Tools Knowledge Base information management environment, you can choose to run more than one server to:

- Separate data and workload tasks
- Provide failover recovery

Server configuration for separating data and workload tasks

You can configure multiple master IMS Tools Knowledge Base servers to allow separation of data and workload tasks.

To configure multiple master servers in order to separate data and workload, you must:

- Use unique server names (XCF_GROUP_NAME)
- Allocate an appropriate set of repository data sets for each server

A client (such as IMS Tools products or ISPF sessions) selects which server it will connect to by specifying the XCFGROUP name in the server name parameter.

Server configuration for failover

Failover recovery is facilitated by starting one or more secondary servers on different systems in the sysplex. Secondary IMS Tools Knowledge Base servers allow you to avoid common failure scenarios and maintain high availability in your environment.

To run multiple servers in order to provide for failover recovery, you must:

- Configure each server with identical server names by using use same FPQCONFIG member
- Configure each server with the same repository data sets

Configuring one or more secondary servers allows you to minimize the impact of a planned or unplanned outage of the master server. To implement an environment of master and secondary servers, you start the servers using the same procedure JCL.

Process flow for failover servers

When an IMS Tools Knowledge Base server starts up, it queries the sysplex to determine if there are any existing servers using the same XCF group name. If none exists, the server takes on the role of the master server, allocates the repositories, and opens them appropriately.

If the server determines that a master server is already running, that server takes on the role of a secondary server. In this role, the server waits until the master server terminates and then takes on the role of the master server.

If there are more than one secondary server, only one becomes the master server. The remaining servers continue to operate in the secondary role.

Once active as a master server, the server will open the repositories and attempt recovery for any repository in a failed state. The server is then available for processing. Any client that was connected to the original master server will have to reconnect to resume processing.

Adding the repositories to the IMS Tools KB server

After defining repositories, you must add the repositories to the IMS Tools Knowledge Base server and initialize the repositories.

Before you begin

You must start the IMS Tools Knowledge Base server before you begin this task.

About this task

This procedure registers and adds the repositories to the IMS Tools Knowledge Base server Catalog repository.

The ADD statement associates the repositories with their VSAM cluster data set names:

- The name of the Registry repository must be HKT_REGISTRY
- The name of the Input repository must be HKT_INPUT
- The name of the Output repository must be HKT_O0000000

If there is more than one Output repository, the second repository name must be HKT_O0000001, and so forth.

- The name of the Sensor Data repository must be BSN_SENSOR
- The name of the Autonomics Director repository must be IAV_AUTODIR

The following procedure is appropriate for adding repositories to an initial IMS Tools Knowledge Base installation.

You use a batch job to add the repositories to the IMS Tools Knowledge Base server. The job adds the repositories in the server's Catalog repository.

This procedure refers to sample members of the *hlq*.SHKTSAMP library file. (Substitute the *hlq* variable with the installation data set high-level qualifier.)

Copy the appropriate members to your own data sets and customize the parameters to conform to your standards and environment. Most sample members contain descriptive customization information.

Common problems with this procedure can include the following issues:

- The FPQ subsystem is not started.
- The server is not started.
- The server name in the XCFGROUP parameter does not match the server name that is specified in member FPQCONFIG.

Procedure

To add the repositories to the IMS Tools Knowledge Base server during initial installation, complete the following procedure:

1. Modify member HKTADREP by following the commented instructions included in the member.
2. Add the repositories by running the ADREP1, ADREP2, and ADREP3 job steps in member HKTADREP, and ensure that the job completes with a return code=0.

Initializing the Sensor Data and Input repositories

After you add the repositories to the IMS Tools Knowledge Base server, you must run the HKTJrint job. The HKTJrint job adds internal RECON information to the Input repository and sets the retention period of the Sensor Data repository.

Although you must run the HKTJrint job when you initially configure an IMS Tools Knowledge Base environment, you can also run this job any time after configuration is completed to adjust the sensor data retention period and list the RECON definitions.

This procedure refers to a sample member of the *hlq*.SHKTSAMP library file. (Substitute the *hlq* variable with the installation data set high-level qualifier.) Copy the appropriate member to your own data sets and customize the parameters to conform to your standards and environment. Most sample members contain descriptive customization information. An extra description of the processing options is presented here.

To customize the Sensor Data and Input repositories, complete the following procedure:

1. Modify member HKTJrint by following the commented instructions included in the member.
2. Change the value for the ITKBSRVR parameter in the EXEC parameters of the HKTJrint job.
3. Optional: Change the value for the DAYS parameter in the INITSNSR control statement of member HKTJrint.

Note: You can also modify the DAYS parameter later by using the **Administration > Set retention for sensor data** drop-down menu of the IMS Tools Knowledge Base report service user interface.

4. Submit the job.

If the job does not end with return code=0, examine the messages in the SYSprint file.

Common problems with the HKTJrint procedure include the following issues:

- The FPQ subsystem is not started.
- The server is not started.
- The server name in the ITKBSRVR parameter does not match the server name that is specified in member FPQCONFIG.
- The Input repository or Sensor Data repository is not correctly defined by HKTDfrep.
- The Input repository or Sensor Data repository is not added by HKTADrep.
- The Input repository or Sensor Data repository is not started. Check the server job log for error messages.

HKTJrint input

HKTRINIT input commands are specified in the SYSIN file.

- You can include multiple commands, but each command must be coded on a separate input line.
- Commands cannot span multiple lines.
- Each command is performed independently and does not affect the next command. If a command fails, the failure does not affect the execution of subsequent commands.
- The same command can be requested for multiple servers, as in the following example:

```
INITSNSR ITKBSRVR=SERVER1,DAYS=30  
INITSNSR ITKBSRVR=SERVER2,DAYS=60
```

- The IMS Tools Knowledge Base server name must be associated with each command through the ITKBSRVR parameter. The ITKBSRVR parameter can be specified on each command. If this parameter is coded in the EXEC parameters of the job, the value of the ITKBSRVR parameter is used by each command in the job unless another ITKBSRVR parameter is explicitly coded on a command. Specifically, an ITKBSRVR parameter that is coded on a command overrides the value that is coded in the EXEC parameter for that command.
- Blanks lines and comments are ignored.

HKTJRINT commands

Table 12. Commands in member HKTJRINT

Command	Description
INITITKB	The INITITKB command initializes RECON and locale information in the Input repository (HKT_INPUT). If the Input repository was previously initialized, a message is issued and the initialization request is ignored.
INITSNSR	The INITSNSR command initializes information in the Sensor Data repository (BSN_SENSOR) and sets the Sensor Data retention period. If the Sensor Data repository was previously initialized, INITSNSR can be used to reset the sensor data retention period.
LISTRECN	The LISTRECN command displays the RECON and locale information that is defined in the repository.

HKTJRINT parameters

The execution parameters in the following table can be specified in the EXEC parameters of the JCL.

Table 13. Parameters in member HKTJRINT that can be specified in the EXEC parameters

Parameter	Description
ITKBSRVR	The ITKBSRVR parameter specifies the name of the IMS Tools Knowledge Base server XCF group. There is no default value for this parameter. When specified in the EXEC parameters, the value of the ITKBSRVR parameter is used by each input command, unless a command overrides the value of the EXEC parameter. If this parameter is not coded in the EXEC parameters, a server name must be specified with each command. For example, the following statement specifies that SERVER1 will be used for all inputted commands, unless a command overrides the value. <pre>//INIT EXEC PGM=HKTRINIT,PARM='ITKBSRVR=SERVER1'</pre>
LOG	The LOG parameter specifies whether log processing is to occur. This parameter is optional, and is typically used only when requested by IBM support. Valid values are YES and NO. The default value is NO. When LOG=YES is specified, add the following statement to the HJTJRINT JCL: <pre>//HKTLOG DD SYSOUT=*</pre>

The execution parameters in the following table can be specified on each input command.

Table 14. Parameters in member HKTJRINT that can be specified for each input command

Parameter	Description
ITKBSRVR	The ITKBSRVR parameter specifies the name of the IMS Tools Knowledge Base server XCF group. There is no default value for this parameter. You are required to specify ITKBSRVR in each command unless the ITKBSRVR parameter is coded in the EXEC parameters. If ITKBSRVR is coded both in the EXEC parameters and on the command, the value that is specified by the command is used.
DAYS	The DAYS parameter specifies the minimum number of days that sensor data and utility history data is retained in the Sensor Data repository. This parameter is optional. The valid range of values is 1 - 32767. The DAYS parameter is only used by the INITSNSR command, but it can be coded on all commands. When the DAYS parameter is used with other commands, a warning message is issued to indicate that the parameter is ignored. If the Sensor Data repository is being initialized for the first time, the default value of the DAYS parameter is 365. If initialization was completed previously and the DAYS parameter is not coded, the existing value is used to reset the retention period. To determine an appropriate value, consider the type and extent of analysis of sensor data you might want to perform. For instance, you might be interested in performing trend analysis or comparative analysis.

Chapter 9. Verifying the IMS Tools Knowledge Base installation

When the previous configuration steps are completed, you can start the IMS Tools Knowledge Base user interface and verify the installation of the IMS Tools Knowledge Base product by importing and viewing a test report.

Topics:

- “Starting the report service user interface” on page 59
- “Installation verification procedure (IVP)” on page 60

Starting the report service user interface

The interactive report service user interface has extensive and flexible search capabilities that can quickly locate the reports you need and then display them from anywhere in the sysplex environment.

Procedure

To activate the report service user interface for IMS Tools Knowledge Base:

1. From the ISPF Primary Option Menu panel, select option **6 (Command)**.

The **ISPF Command Shell** is displayed.

2. Invoke the IMS Tools Knowledge Base client interface by using one of the following methods:

- To access IMS Tools Knowledge Base from the IMS Tools Base main menu, enter the following command:

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

The IMS Tools Base main menu appears. Select option **1 (IMS Tools Knowledge Base)** and press Enter.

- To access IMS Tools Knowledge Base directly, enter the following command:

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

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

The IMS Tools Knowledge Base main menu appears.

3. In the IMS Tools Knowledge Base panel, specify the **Knowledge Base Server Name**.
4. Specify N for **History**.

The Server Name and History values are preserved in your user profile and are automatically set during future access of this panel.

5. From the **Administration** menu actions, select option **3 (List Repositories)**. Press Enter.

```
Administration  Help
3  1. List Deferred Reports
   2. List Installed Products
   3. List Repositories
   4. List Recon Information
   5. Set retention for sensor data
```

Figure 7. Administration menu actions

The **Repositories** panel is displayed.

The repositories you defined are displayed with their current state (Stopped state is Y or N).

Make sure none of the repositories are stopped.

If a repository is stopped, it can be started from the Repository list display. If a start fails, check the server job log for messages that indicate the problem.

Installation verification procedure (IVP)

The following installation verification procedure (IVP) allows you to verify the installation of the IMS Tools Knowledge Base product by importing and viewing a test report.

Note: This procedure refers to a sample member of the *hlq*.SHKTSAMP library file. Copy the appropriate member to your own data sets and customize the parameters to conform to your standards and environment. Most sample members contain descriptive customization information.

IVP prerequisites

Before starting the installation verification procedure, you must perform the following required configuration procedures.

- Define the repository data sets
- Dynamically define IMS Tools Knowledge Base to the operating system
- Customize IMS Tools Knowledge Base server configuration parameters
- Start the IMS Tools Knowledge Base server
- Configure the repositories

Importing a test user report

To import a test user report, complete the following procedure:

1. Modify member HKTIVP following the commented instructions included in the member

Refer to member HKTIVP in the sample library *hlq*.SHKTSAMP.

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

Follow the commented instructions included in the member.

2. Submit the job and ensure it completes with a return code=0.

Common problems with this procedure can include the following issues:

- The repositories are not defined to the server.
- The repositories are not defined correctly (for example, cluster names do not match the definition statements).
- The server is not started.

Viewing the test user report

After importing the test report into the IMS Tools Knowledge Base repository, you can access the report and view its contents.

To view the contents of the test user report, complete the following procedure:

1. Start the IMS Tools Knowledge Base ISPF user interface.
2. On the IMS Tools Knowledge Base main menu panel, specify the IMS Tools Knowledge Base server name.
3. Select option **9 (List of all reports available)**. Press Enter.

The report should appear in the resulting **Available Reports List**.

4. Use the **View** row action (S) to display the contents of the report. Press Enter.

The contents of the report is displayed in the standard ISPF user interface.

5. The IVP's test report only serves to verify that the IMS Tools Knowledge Base server is operating successfully. After this verification is complete, you can delete the test report.

This completes the installation verification procedure.

Chapter 10. Configuring SAF security

IMS Tools Knowledge Base optionally restricts access to the repositories using the System Authorization Facility (SAF).

The SAF enablement parameter is located in member FPQCONFIG. Refer to member FPQCONFIG in the sample library *hlq.SHKTSAMP*.

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

Follow the commented instructions included in the member.

Important: After performing this task, it is essential that you complete the remaining tasks in the required configuration checklist.

To enable SAF, complete the following steps:

1. Have your security administrator select the Resource Class for the definition of the repository resources.

It is recommended that you use an existing Class, such as FACILITY.

2. In the selected Class, define the following resource profiles:

Table 15. Resource profiles

Resource profile	Description
FPQREP.*	The FPQREP.* profile controls access to all repositories.
FPQREP.CATALOG	The FPQREP.CATALOG profile controls access to the Catalog repository.
FPQREP.HKT_REGISTRY	The FPQREP.HKT_REGISTRY profile controls access to the Registry repository.
FPQREP.HKT_INPUT	The FPQREP.HKT_INPUT profile controls access to the Input repository.
FPQREP.HKT_O0000000	The FPQREP.HKT_O0000000 profile controls access to the Output repository. Resource profiles should also be defined for any additional Output repositories (for example: FPQREP.HKT_O0000001, FPQREP.HKT_O0000002).
FPQREP.BSN_SENSOR	The FPQREP.BSN_SENSOR profile controls access to the Sensor Data repository.
FPQREP.IAV_AUTODIR	The FPQREP.IAV_AUTODIR profile controls access to the Autonomics Director repository.

3. Assign ALTER access for FPQREP.* resource to the IDs of all users who will be administrators of the IMS Tools Knowledge Base server (server administrators). For FPQREP.*, see [Table 15 on page 63](#).

Server administrators can set up the IMS Tools Knowledge Base server during initial installation and create, reorganize, and update the repositories.

4. Assign READ access for resources except FPQREP.* to the IDs of all users of the IMS Tools Knowledge Base repository.

5. Assign UPDATE access for resources except FPQREP.* to the IDs of all users who will be administrators of the IMS Tools Knowledge Base repository (repository administrators).

Repository administrators can create, reorganize, and update the repositories.

Assign UPDATE access for the FPQREP.HKT_00000000 resource for all users who need to add reports to the Output repository.

6. Update the configuration parameter for the IMS Tools Knowledge Base server.

In the member pointed to by the FPQCONFIG startup parameter of the server, set SAF_CLASS=*parameter* on the security Resource Class selected by your security administrator.

7. Restart the IMS Tools Knowledge Base server.

Note: Changes to resource profiles or to the access granted to users that the server has already interacted with does not take effect until the server is recycled.

Function and access cross-reference

Table 16. Function and access cross-reference for Report Service

Function	FPQREP. Catalog	FPQREP. HKT_Registry	FPQREP. HKT_ Input	FPQREP. HKT _Onnnnnnnn	FPQREP. BSN_Sensor	FPQREP. IAV_Autodir
Output Report Administration (user interface)	Read	Update	Update	Update	NA	NA
Add Reports	Read	Read	Read	Update	NA	NA
Read Reports	Read	Read	Read	Read	Read	NA

Table 17. Function and access cross-reference for Policy Services

Function	FPQREP. Catalog	FPQREP. HKT_Registry	FPQREP. HKT_ Input	FPQREP. HKT _Onnnnnnnn	FPQREP. BSN_Sensor	FPQREP. IAV_Autodir
Policy Services Administration (user interface)	Read	Read	Update	NA	NA	NA
Evaluate Policy	Read	Read	Read	NA	Read	Update

Table 18. Function and access cross-reference for Sensor Data

Function	FPQREP. Catalog	FPQREP. HKT_Registry	FPQREP. HKT_ Input	FPQREP. HKT _Onnnnnnnn	FPQREP. BSN_Sensor	FPQREP. IAV_ Autodir
Add Sensor data	Read	Read	Read	NA	Update	Update
Read Sensor data	Read	Read	Read	NA	Read	Read

Table 19. Function and access cross-reference for Function Combinations (multiple functions within an IMS Tools job)

Function	FPQREP. Catalog	FPQREP. HKT_ Registry	FPQREP. HKT_ Input	FPQREP. HKT _Onnnnnnn	FPQREP. BSN_ Sensor	FPQREP. IAV_ Autodir
Evaluate policy, and read sensor data “1” on page 65	Read	Read	Read	NA	Read	Update
Evaluate policy, read sensor data, and write reports “2” on page 65	Read	Read	Read	Update	Read	Update
Evaluate policy, add sensor data, and write reports “3” on page 65	Read	Read	Read	Update	Update	Update

Notes:

1. Use these settings for tools that do policy evaluation but do not write reports.
2. Use these settings for tools that do policy evaluation when add sensor data was a separate job.
3. Use these settings for tools that do these functions as a single job.

Example 1: Implementing restrictive security using RACF

If you are adding policy and sensor services to an existing IMS Tools Knowledge Base installation, review the security requirements for the new repository and new repository roles.

The security settings in this example are fairly restrictive. With these settings established, the user executing a utility that writes reports or writes sensor data will require explicit access.

Note: Reports and sensor data are written to the repositories by many utilities. It might be more convenient to RDEFINE these resource profiles with UACC(UPDATE) rather than UACC(NONE) to allow this broader access.

Defining resources:

```
RDEF FACILITY FPQREP.CATALOG UACC(NONE) AUDIT(NONE)
RDEF FACILITY FPQREP.HKT_REGISTRY UACC(NONE) AUDIT(NONE)
RDEF FACILITY FPQREP.HKT_INPUT UACC(NONE) AUDIT(NONE)
RDEF FACILITY FPQREP.HKT_00000000 UACC(NONE) AUDIT(NONE)
RDEF FACILITY FPQREP.BSN_SENSOR UACC(NONE) AUDIT(NONE)
RDEF FACILITY FPQREP.IAV_AUTODIR UACC(NONE) AUDIT(NONE)
```

Defining access for an Output Reports administrator:

```
PERMIT FPQREP.CATALOG CLASS(FACILITY) ID(ADMIN1) ACCESS(UPDATE)
PERMIT FPQREP.HKT_REGISTRY CLASS(FACILITY) ID(ADMIN1) ACCESS(UPDATE)
PERMIT FPQREP.HKT_INPUT CLASS(FACILITY) ID(ADMIN1) ACCESS(UPDATE)
PERMIT FPQREP.HKT_00000000 CLASS(FACILITY) ID(ADMIN1) ACCESS(UPDATE)
PERMIT FPQREP.BSN_SENSOR CLASS(FACILITY) ID(ADMIN1) ACCESS(UPDATE)
PERMIT FPQREP.IAV_AUTODIR CLASS(FACILITY) ID(ADMIN1) ACCESS(UPDATE)
```

Defining access for a Policy Services administrator:

```
PERMIT FPQREP.CATALOG CLASS(FACILITY) ID(ADMIN2) ACCESS(READ)
PERMIT FPQREP.HKT_INPUT CLASS(FACILITY) ID(ADMIN2) ACCESS(UPDATE)
```

Defining access for a user who needs to add reports:

```
PERMIT FPQREP.CATALOG CLASS(FACILITY) ID(USER1) ACCESS(READ)
PERMIT FPQREP.HKT_REGISTRY CLASS(FACILITY) ID(USER1) ACCESS(READ)
PERMIT FPQREP.HKT_INPUT CLASS(FACILITY) ID(USER1) ACCESS(READ)
PERMIT FPQREP.HKT_00000000 CLASS(FACILITY) ID(USER1) ACCESS(UPDATE)
```

Defining access for a user who needs to add sensor data:

```
PERMIT FPQREP.CATALOG CLASS(FACILITY) ID(USER2) ACCESS(READ)
PERMIT FPQREP.HKT_INPUT CLASS(FACILITY) ID(USER2) ACCESS(READ)
PERMIT FPQREP.BSN_SENSOR CLASS(FACILITY) ID(USER2) ACCESS(UPDATE)
PERMIT FPQREP.IAV_AUTODIR CLASS(FACILITY) ID(USER2) ACCESS(UPDATE)
```

Defining access for a user who needs to review reports:

```
PERMIT FPQREP.CATALOG CLASS(FACILITY) ID(USER3) ACCESS(READ)
PERMIT FPQREP.HKT_REGISTRY CLASS(FACILITY) ID(USER3) ACCESS(READ)
PERMIT FPQREP.HKT_INPUT CLASS(FACILITY) ID(USER3) ACCESS(READ)
PERMIT FPQREP.HKT_00000000 CLASS(FACILITY) ID(USER3) ACCESS(READ)
```

Defining access for a user who needs to add reports, add sensor data and use policy evaluation:

```
PERMIT FPQREP.CATALOG CLASS(FACILITY) ID(USER4) ACCESS(READ)
PERMIT FPQREP.HKT_INPUT CLASS(FACILITY) ID(USER4) ACCESS(READ)
PERMIT FPQREP.HKT_00000000 CLASS(FACILITY) ID(USER4) ACCESS(UPDATE)
PERMIT FPQREP.BSN_SENSOR CLASS(FACILITY) ID(USER4) ACCESS(UPDATE)
PERMIT FPQREP.IAV_AUTODIR CLASS(FACILITY) ID(USER4) ACCESS(UPDATE)
```

Refreshing RACF:

```
SETROPTS CLASSACT(FACILITY)
SETROPTS RACLIST(FACILITY) REFRESH
```

Example 2: Implementing less restrictive security using RACF

This example is less restrictive and allows anyone to read or write to the output repository while restricting control functions:

Defining resources:

```
RDEF FACILITY FPQREP.CATALOG UACC(READ) AUDIT(NONE)
RDEF FACILITY FPQREP.HKT_REGISTRY UACC(READ) AUDIT(NONE)
RDEF FACILITY FPQREP.HKT_INPUT UACC(READ) AUDIT(NONE)
RDEF FACILITY FPQREP.HKT_00000000 UACC(UPDATE) AUDIT(NONE)
RDEF FACILITY FPQREP.BSN_SENSOR UACC(UPDATE) AUDIT(NONE)
RDEF FACILITY FPQREP.IAV_AUTODIR UACC(UPDATE) AUDIT(NONE)
```

Defining access for an Output Reports administrator:

```
PERMIT FPQREP.CATALOG CLASS(FACILITY) ID(ADMIN2) ACCESS(UPDATE)
PERMIT FPQREP.HKT_REGISTRY CLASS(FACILITY) ID(ADMIN2) ACCESS(UPDATE)
PERMIT FPQREP.HKT_INPUT CLASS(FACILITY) ID(ADMIN2) ACCESS(READ)
PERMIT FPQREP.HKT_00000000 CLASS(FACILITY) ID(ADMIN2) ACCESS(UPDATE)
```

Defining access for a Policy Services administrator:

```
PERMIT FPQREP.CATALOG CLASS(FACILITY) ID(ADMIN2) ACCESS(READ)
PERMIT FPQREP.HKT_INPUT CLASS(FACILITY) ID(ADMIN2) ACCESS(UPDATE)
```

Defining access for a user who needs to add reports, add sensor data, and use policy evaluation:

```
PERMIT FPQREP.CATALOG CLASS(FACILITY) ID(USER1) ACCESS(READ)
PERMIT FPQREP.HKT_INPUT CLASS(FACILITY) ID(USER1) ACCESS(READ)
PERMIT FPQREP.HKT_00000000 CLASS(FACILITY) ID(USER1) ACCESS(UPDATE)
PERMIT FPQREP.BSN_SENSOR CLASS(FACILITY) ID(USER1) ACCESS(UPDATE)
PERMIT FPQREP.IAV_AUTODIR CLASS(FACILITY) ID(USER1) ACCESS(UPDATE)
```

Refreshing RACF:

```
SETOPTS CLASSACT(FACILITY)
SETOPTS RACLIST(FACILITY) REFRESH
```

Chapter 11. Registering products

You use the product administration utility (HKTAPRA0) to register IMS Tools products, user products, and reports to the IMS Tools Knowledge Base information management environment.

Topics:

- [“Registering IMS Tools products” on page 69](#)
- [“Registering user products and reports” on page 70](#)
- [“Listing registered products and reports” on page 70](#)
- [“Reference: HKTAPRA0 \(product administration utility\)” on page 71](#)
- [“Reference: Product registration JCL for IMS Tools” on page 80](#)

Registering IMS Tools products

IMS Tools Knowledge Base provides the product administration utility (HKTAPRA0) to register IMS Tools products and their reports to the IMS Tools information management environment.

Note: Always refer to the appropriate product information and description for any IMS Tools product to determine if the product is enabled for operation with the IMS Tools Knowledge Base environment, and what release or maintenance level is required.

For registration of IMS Tools products and reports, the HKTAPRA0 program is run by product-specific registration JCL located in the sample library for each product.

The product registration JCL provides all the necessary product and report information to the HKTAPRA0 program.

For selected IMS Tools products, registration includes enhanced information such as product library data sets, product functions and JCL templates, variable entities, and variable values that can be used to support IMS Administration Tool features.

Important: If you use the IMS Tools Setup function for post-SMP/E-installation customization, product registration is performed automatically (IMS Tools Setup generates and runs the required IMS Tools product registration JCL).

To manually register IMS Tools products and reports, complete the following procedure:

1. Locate the registration JCL for the IMS Tools product.

Refer to [“Reference: Product registration JCL for IMS Tools” on page 80](#) to find:

- The sample library data set name and member name where the product registration JCL resides.
- Any required APAR maintenance update.

2. The registration JCL includes commented instructions for any required modifications.

The JCL uses the ADDPROD, LIST, and LISTX commands of the product administration utility (HKTAPRA0).

[“Reference: HKTAPRA0 \(product administration utility\)” on page 71](#)

3. Submit the job and ensure that it completes with a return code=0 (RC=0).

Registering user products and reports

IMS Tools Knowledge Base provides the product administration utility (HKTAPRA0) to register non-IMS Tools products and their reports to the IMS Tools information management environment.

About registering user products

For registration of non-IMS Tools products, the product administration utility (HKTAPRA0) is run by the job step "Define products and reports for non-IMS Tools output" in member HKTADMIN, located in IMS Tools Base sample library *hlq.SHKTSAMP*.

All of the product information is derived from the input parameters. Be careful to avoid using information reserved for IMS Tools products.

About registering user reports

Reports can come from non-IMS Tools sources. For example: DBRC reports.

To access user-defined reports, the reports must be registered and added to the IMS Tools Knowledge Base repository. You must provide unique report index information for each report. The HKTAPRA0 utility's **ADDRPT** command assigns the report title and retention attributes.

Note: The **ADDRPT** command is used only for non-IMS Tools products.

The PRODUCTID keyword value is used to determine if this request is for a user product. If the value is not in the range of IBM-reserved values, it is treated as a user product.

Procedure

To register non-IMS Tools products, complete the following procedure:

1. Locate the sample JCL in member HKTADMIN, which is located in IMS Tools Base sample library *hlq.SHKTSAMP*.

Use the job step "Define products and reports for non-IMS Tools output".

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

2. The job step includes commented instructions for any required modifications.

The JCL uses the **ADDPROD**, **ADDRPT**, and **LIST** commands of the product administration utility (HKTAPRA0).

[“Reference: HKTAPRA0 \(product administration utility\)” on page 71](#)

3. Submit the job and ensure that it completes with a return code=0 (RC=0).

Listing registered products and reports

IMS Tools Knowledge Base provides the product administration utility (HKTAPRA0) to list products and reports for IMS Tools products and non-IMS Tools products.

The product administration utility (HKTAPRA0) is run by the job step "List products registered in the IMS Tools KB" in member HKTADMIN, located in IMS Tools Base sample library *hlq.SHKTSAMP*.

This job step section of the JCL in HKTADMIN displays any products and reports registered to IMS Tools Knowledge Base. This includes IMS Tools products and reports, and non-IMS Tools products and reports.

To list registered products and reports, complete the following procedure:

1. Locate the sample JCL in member HKTADMIN, which is located in IMS Tools Base sample library *hlq.SHKTSAMP*.

Use the job step "List products registered in the IMS Tools KB".

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

2. The job step includes commented instructions for any required modifications.

The JCL uses the LIST command of the product administration utility (HKTAPRA0).

See [“Reference: HKTAPRA0 \(product administration utility\)” on page 71](#).

3. Submit the job and ensure that it completes with a return code=0 (RC=0).

ID reference for IMS Tools products

The product identifier of each IMS Tools product or product component can be found in the sample product registration JCL that is distributed with the product.

For the name and location of the registration JCL for IMS Tools products, see [“Reference: Product registration JCL for IMS Tools” on page 80](#).

If you cannot find the product identifier in any registration JCL, run the LIST command and specify PRODUCTID=*. Then, you can find the identifier in the output report written to the OUTPRT data set.

Reference: HKTAPRA0 (product administration utility)

IMS Tools Knowledge Base provides the product administration utility (HKTAPRA0) to register products and their reports to the IMS Tools information management environment.

Topics:

- [“Product registration overview” on page 71](#)
- [“Parameters and DD statements for HKTAPRA0” on page 72](#)
- [“ADDPROD command reference for IMS Tools products” on page 73](#)
- [“ADDPROD command reference for non-IMS Tools products” on page 75](#)
- [“ADDRPT command reference for user-defined reports” on page 76](#)
- [“LIST command reference for all products and reports” on page 78](#)

Product registration overview

The product administration utility (HKTAPRA0) is run by the following JCL jobs:

- For IMS Tools products: Individual IMS Tools product registration JCL
[“Reference: Product registration JCL for IMS Tools” on page 80](#)

If you use the IMS Tools Setup function for post-SMP/E-installation customization, product registration is performed automatically (IMS Tools Setup generates and runs the required IMS Tools product registration JCL).

- For user-defined products: Sample JCL in member HKTADMIN

JCL section "Define products and reports for non-IMS Tools output" in member HKTADMIN, located in IMS Tools Base sample library *hlq.SHKTSAMP*.

The product administration utility is a batch program that performs the registration process by using either a supplied table (for IMS Tools products and reports) or user-specified parameters (for user-defined products and reports).

The commands provided by the utility have the following functions:

- Build repository registry entries for IMS Tools products and their reports (**ADDPROD**)
Uses the product definition table provided in the IMS Tools product-specific registration JCL.
- Build repository registry entries for non-IMS Tools products (**ADDPROD**)
Uses the product parameters specified in the sample registration JCL located in member HKTADMIN.
- Build repository registry entries for non-IMS Tools product reports (**ADDRPT**)
- List products and reports for IMS Tools products and non-IMS Tools products (**LIST**)

- Installation verification (**LISTX**)

The **LISTX** command is provided for installation verification purposes, and is not intended for general use by the user.

The product administration utility assigns 2-character identifiers to products and to a product's reports. Long and short text names are associated with these IDs. IMS Tools Knowledge Base relies on product ID and report ID definitions when writing reports to the repository.

For selected IMS Tools products, the product administration utility registers product library data sets, product functions and JCL templates, variable entities, and variable values that can be used to support IMS Administration Tool features.

Parameters and DD statements for HKTAPRA0

Product registration JCL requires an EXEC statement to run the product administration utility (HKTAPRA0), a PARM parameter to specify the IMS Tools Knowledge Base server, and the appropriate DD statements and utility control statements.

Parameter reference for HKTAPRA0

The following parameter is provided on the EXEC statement of the product registration JCL:

<i>Table 20. Parameter reference for HKTAPRA0</i>	
Parameter	Description
ITKBSRVR	The name of the IMS Tools Knowledge Base server XCF group. The IMS Tools Knowledge Base repository stores detailed product and function registration information that is required for IMS Tools products to participate in an IMS environment. The server XCF group name can be up to 8 characters in length. This parameter is required.

DD statement reference HKTAPRA0

The following DD statements must be specified in the product registration JCL:

STEPLIB

Specifies the SHKTLOAD load module library of IMS Tools Knowledge Base and one or more load module libraries of the IMS Tools products and product components that are to be registered.

SYSIN

Specifies an input sequential data set or an inline system input stream where one or more HKTAPRA0 commands are written.

SYSPRINT

Specifies an output sequential data set or a SYSOUT stream where the command echos back and where processing messages are to be written.

The record format must be FB and the logical record length (LRECL) must be 133.

The following DD statements are optional:

OUTRPT

Specifies an output sequential data set or a SYSOUT stream where the output of the **LIST** command is to be written.

The record format must be FBA and the logical record length (LRECL) must be 133.

This DD statement is needed only when the **LIST** command is used.

OUTRPTX

Specifies an output sequential data set or a SYSOUT stream where the output of the **LISTX** command is to be written.

The record format must be FBA and the logical record length (LRECL) must be 133.

This DD statement is only used with the **LISTX** command.

The following DD statements are required to support IMS Administration Tool features:

TEMPLATE

Specifies the sample library that contains JCL template members for the IMS Tools product to be registered to support IMS Administration Tool features.

product_library_smpellq

Specifies the product library of the IMS Tools product to be registered to support IMS Administration Tool features.

product_library_smpellq is the low-level qualifier for SMP/E data sets.

ADDPROD command reference for IMS Tools products

Use the **ADDPROD** command of the product administration utility (HKTAPRA0) to manually register an IMS Tools product to IMS Tools Knowledge Base.

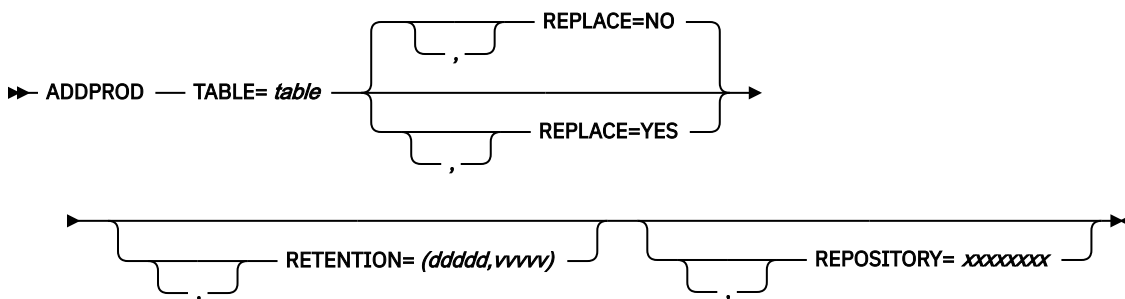
For registration of IMS Tools products, the product administration utility (HKTAPRA0) is run by individual IMS Tools product registration JCL.

See [“Reference: Product registration JCL for IMS Tools”](#) on page 80.

Note: If you use the IMS Tools Setup function for post-SMP/E-installation customization, product registration (ADDPROD) is performed automatically (IMS Tools Setup runs the required IMS Tools product registration JCL).

Syntax diagram for ADDPROD, registering an IMS Tools product

The following syntax diagram shows the usage of the **ADDPROD** command when registering an IMS Tools product:



The first time a product or a product component is registered, non-release and release-specific information is added to the registry.

Subsequent registrations of the product or component add information about the new release but do not change the non-release information.

If a release is already defined, the release information is replaced only if the keyword REPLACE=YES is specified.

Report definitions are always attempted. If some reports were registered previously, only the new reports are added.

Keyword reference for ADDPROD, registering an IMS Tools product

The following keywords are available to customize the product registration. For a listing of the product IDs, see the individual product documentation.

Table 21. Keywords for ADDPROD, registering an IMS Tools product

Keyword	Description
TABLE	The name of a load module that is provided by the IMS Tools product. The data set containing the IMS Tools product load module should be concatenated to STEPLIB. This keyword is required.
REPLACE=YES NO	Indicates whether the utility is allowed to replace the product release-specific information. The default value is NO. The setting REPLACE=YES and the value set for REPOSITORY are mutually exclusive. The value for REPOSITORY and the value for RETENTION cannot be specified with REPLACE=YES. This keyword is optional.
REPOSITORY	Specifies which Output repository the reports for this product are to be written to. The repository must already be defined and connected. The value is the repository name without the initial O. For example, use 1234567 for a repository name of O1234567. If no value is specified, the standard Output repository is used (O0000000). The setting REPLACE=YES and the value set for REPOSITORY are mutually exclusive. The value for REPOSITORY cannot be specified with REPLACE=YES.
RETENTION	Specifies the retention value for the product reports. This value is applied to all of this product's reports that do not specify retention information. Values are <i>dddddd,vvvvv</i> where <i>dddddd</i> is a value from 0 to 32767 that specifies the number of days a report must be kept before it can be deleted, and <i>vvvvv</i> is a value from 0 to 32767 that specifies the number of versions of the report that must be retained. A report must exceed both of these values before it is deleted. A setting of 0,0 requests the retention of only the current version of the report; no history version of the report is retained. If no value is specified, the settings from the product's definition table is used. The setting REPLACE=YES and the value set for RETENTION are mutually exclusive. The value for RETENTION cannot be specified with REPLACE=YES.

Example: Registering an IMS Tools product

The following example shows a portion of the product registration JCL that registers an IMS Tools product:

```
//DREP      EXEC PGM=HKTAAPRA0,PARM='ITKBSRVR=svrname'  
//STEPLIB   DD DISP=SHR,DSN=hlq1.SHKTLOAD  
//SYSPRINT  DD SYSOUT=*  
//OUTRPT    DD SYSOUT=*  
//TEMPLATE  DD DISP=SHR,DSN=hlq1.smpellq  
//smpellq   DD DISP=SHR,DSN=hlq1.smpellq
```

```
//SYSIN      DD *
ADDPROD TABLE=table_name,REPLACE=YES
/*
```

ADDPROD command reference for non-IMS Tools products

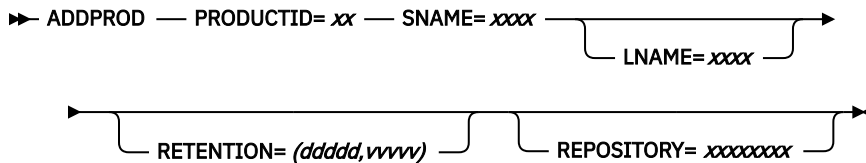
Use the **ADDPROD** command of the product administration utility (HKTAPRA0) to manually register a non-IMS Tools product to IMS Tools Knowledge Base.

For registration of non-IMS Tools products, the product administration utility (HKTAPRA0) is run by the JCL section "Define products and reports for non-IMS Tools output" in member HKTADMIN, located in IMS Tools Base sample library *hlq.SHKTSAMP*.

All of the product information is derived from the input keyword values. Be careful to avoid using information reserved for IMS Tools products.

Syntax diagram for ADDPROD, registering a user product

The following syntax diagram shows the usage of the **ADDPROD** command when registering a user product:



Keyword reference for ADDPROD, registering a user product

The following keywords are available to customize the product registration:

Table 22. Keywords for ADDPROD for user products

Keyword	Description
PRODUCTID	The PRODUCTID value is used to determine if this request is for a user product. If the value is not in the range of IBM-reserved values, it is treated as a user product. In this case, ADDPROD creates only a product definition. Product ID values available for defining user products are Ux, Vx, and Wx where x is A-Z, 0-9, @, #, \$. All other product ID values are reserved for IMS Tools products usage. This keyword is required.
SNAME	Specifies a 15-character product name. Permitted characters include A-Z, a-z, 0-9, @, #, \$, -, _, and blank. SNAME cannot exist in IBM-reserved names or any existing definition. This keyword is required.
LNAME	Specifies a 50-character product name. Permitted characters include A-Z, a-z, 0-9, @, #, \$, -, _, and blank. SNAME is used if the LNAME keyword is not specified. LNAME cannot exist in IBM-reserved names or any existing definition. This keyword is optional.

Table 22. Keywords for ADDPROD for user products (continued)

Keyword	Description
REPOSITORY	Specifies which Output repository the reports for this product are to be written to. The repository must already be defined and connected. The value is the repository name without the initial O. For example, use 1234567 for a repository name of O1234567. If no value is specified, the standard Output repository will be used (O0000000).
RETENTION	Specifies the retention value for the product. Values are <i>dddd,vvvv</i> where <i>dddd</i> is a value from 0 to 32767 that specifies the number of days a report must be kept before it can be deleted, and <i>vvvv</i> is a value from 0 to 32767 that specifies the number of versions of the report that must be retained. A report must exceed both of these values before it will be deleted. A setting of 0,0 requests the retention of only the current version of the report; no history version of the report will be retained. The default values are 30 days and 7 versions.

Example: Registering a user product

The following example shows a portion of the HKTADMIN JCL that registers a user product:

```
//DREP      EXEC PGM=HKTAPRA0,PARM='ITKBSVR=servername'
//STEPLIB   DD DISP=SHR,DSN=hlq1.SHKTL0AD
//SYSPRINT  DD SYSOUT=*
//OUTRPT    DD SYSOUT=*
//SYSIN     DD *
ADDPROD     PRODUCTID=UB
            LNAME=(LONGER-NAME-UP-TO-50-CHARACTERS)
            SNAME=(SHORT-NAME)
/*
```

ADDRPT command reference for user-defined reports

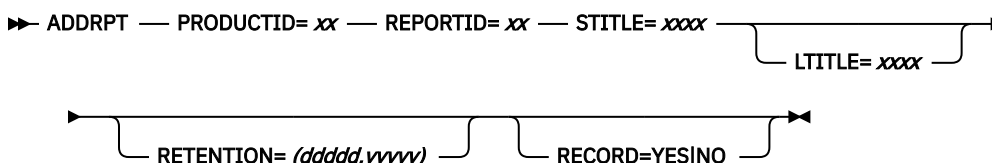
Use the **ADDRPT** command of the product administration utility (HKTAPRA0) to manually register non-IMS Tools product reports to IMS Tools Knowledge Base.

For non-IMS Tools products, the product administration utility (HKTAPRA0) is run by the JCL section "Define products and reports for non-IMS Tools output" in member HKTADMIN, located in IMS Tools Base sample library *hlq.SHKTSAMP*.

All of the product report information is derived from the input keyword values. Be careful to avoid using information reserved for IMS Tools products.

Syntax diagram for ADDRPT, registering user-defined reports

The following syntax diagram shows the usage of the **ADDRPT** command when registering user-defined reports:



Keyword reference for ADDRPT, registering user-defined reports

The following keywords are available to customize the report registration:

Table 23. Keywords for ADDRPT, registering user-defined reports

Keyword	Description
PRODUCTID	The product ID for user-defined products are Ux, Vx, and Wx where x is any valid character. The product ID must be previously defined using ADDPROD. All other product IDs are reserved for use by IMS Tools products. Defining reports for non-user products should be done only as required by an IMS Tools product. This keyword is required.
REPORTID	Specifies a 2-character report identifier. Permitted characters include A-Z, 0-9, @, #, \$. This keyword is required.
STITLE	Specifies a 25-character short report title. Permitted characters include A-Z, a-z, 0-9, @, #, \$, -, _, and blank. STITLE must not be previously defined for this product.
LTITLE	Specifies a 60-character long report title. Permitted characters include A-Z, a-z, 0-9, @, #, \$, -, _, and blank. STITLE is used if the LTITLE keyword is not specified. LTITLE must not be previously defined for this product.
RETENTION	Specifies the retention value for the report. Values are <i>dddddd,vvvvv</i> where <i>dddddd</i> is a value from 0 to 32767 that specifies the number of days a report must be kept before it can be deleted, and <i>vvvvv</i> is a value from 0 to 32767 that specifies the number of versions of the report that must be retained. A report must exceed both of these values before it will be deleted. A setting of 0,0 requests the retention of only the current version of the report; no history version of the report will be retained. If no value is specified, the default product settings will be used.
RECORD=YES NO	A value of NO causes the report to not be recorded with IMS Tools Knowledge Base. The default value is YES.

Example: Registering a user-defined report

The following example shows a portion of the HKTADMIN JCL for registering user-defined reports:

```
//DREP      EXEC PGM=HKTAPRA0,PARM='ITKBSVR=servername'  
//STEPLIB   DD DISP=SHR,DSN=hlq1.SHKTLLOAD  
//SYSPRINT  DD SYSOUT=*  
//OUTRPT    DD SYSOUT=*  
//SYSIN     DD *
```

```
ADDRPT  PRODUCTID=UB REPORTID=1C STITLE=(SHORT-TITLE)
/*
```

LIST command reference for all products and reports

Use the **LIST** command of the product administration utility (HKTAPRA0) to manually list any products and reports that are registered with IMS Tools Knowledge Base.

The product administration utility (HKTAPRA0) is run by the JCL section "List products registered in the IMS Tools KB" in member HKTADMIN, located in IMS Tools Base sample library *hlq*.SHKTSAMP.

This section of the JCL in HKTADMIN displays any products and reports registered to IMS Tools Knowledge Base. This includes IMS Tools products and reports, and non-IMS Tools products and reports.

Syntax diagram for LIST command

The following syntax diagram shows the usage of the **LIST** command when listing registered products and reports:

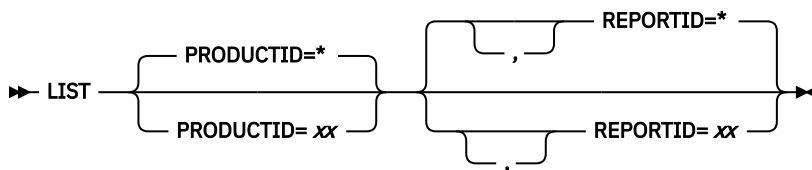


Table 24. Parameters for **LIST** command (continued)

Keyword	Description
REPORTID	Specifies a 2-character report identifier. Permitted characters include A-Z, 0-9, @, #, \$. You can use the single "*" wildcard character to specify all reports. For example: REPORTID=* The % character is not a supported wildcard character.

Using wildcard expressions with **PRODUCTID** and **REPORTID** keywords

The wildcard character "*" can only be used by itself.

The following example is valid:

```
LIST PRODUCTID=*
```

The following examples are not valid:

```
LIST PRODUCTID=A*
```

```
LIST PRODUCTID=*B
```

If you use the wildcard character for **PRODUCTID**, you must use the wildcard character with **REPORTID**. For example:

```
LIST PRODUCTID=*,REPORTID=*
```

Example 1: Listing all registered products and reports

The following example shows a portion of the JCL in member HKTADMIN for listing registered products and reports.

Specify **LIST PRODUCTID=*** to list all products (product titles, product IDs).

This example produces the same result as Example 3.

```
//DREP      EXEC PGM=HKTAPRA0,PARM='ITKBSRVR=servername'
//STEPLIB   DD DISP=SHR,DSN=h1q1.SHKTLOAD
//SYSPRINT  DD SYSOUT=*
//OUTRPT    DD SYSOUT=*
//SYSIN     DD *
LIST PRODUCTID=*
/*
```

Example output:

```
PRODUCT  ID: DU RELEASE  010200 LONG NAME:  IMS High Performance Unload

REPORT ID  LONG TITLE
UA         IPRUL-HISAM STATISTICS
UB         IPRUL-DATA SET STATISTICS
UC         IPRUL-HALDB DEFINITION
UD         IPRUL-LARGEST DATABASE RECORDS
U0         IPRUL-ENVIRONMENT
U1         IPRUL-HPSIN CONTROL STATEMENTS
U2         IPRUL-DECODED DBD
U3         IPRUL-DBD SUMMARY
U4         IPRUL-HALDB PROCESSED
U5         IPRUL-SEGMENT COUNT SUMMARY
U6         IPRUL-SEGMENT STATISTICS
U7         IPRUL-HDAM ROOT ADDRESSABLE AREA STATISTICS
U8         IPRUL-HDAM RAP CHAIN I/O SUMMARY
```

U9	IPRUL-DISTRIBUTION OF DATABASE RECORD SIZES
PRODUCT ID: DL	RELEASE 020100 LONG NAME: IMS High Performance Load
REPORT ID	LONG TITLE
RA	IPRRL-DATA SET STATISTICS
RB	IPRRL-POINTER COUNT SUMMARY
RC	IPRRL-POINTER STATISTICS
RD	IPRRL-HALDB PARTITION DEFINITION
R0	IPRRL-ENVIRONMENT
R1	IPRRL-HPSIN CONTROL STATEMENTS
R2	IPRRL-DECODED DBD
R3	IPRRL-DBD SUMMARY
R4	IPRRL-HALDB PROCESSED
R5	IPRRL-SEGMENT COUNT SUMMARY
R6	IPRRL-SEGMENT STATISTICS
R7	IPRRL-HDAM ROOT ADDRESSABLE AREA STATISTICS
R8	IPRRL-DISTRIBUTION OF DATABASE RECORD SIZES
R9	IPRRL-HISAM STATISTICS

Example 2: Listing all reports for one registered product

Specify LIST PRODUCTID=xx to list all reports for the product (report titles, report IDs).

```
//DREP      EXEC PGM=HKTAPRA0,PARM='ITKBSRVR=svrname'
//STEPLIB   DD DISP=SHR,DSN=h1q1.SHKTLOAD
//SYSPRINT  DD SYSOUT=*
//OUTRPT    DD SYSOUT=*
//SYSIN     DD *
LIST PRODUCTID=IB
/*
```

Example 3: Listing all reports for all registered products

Specify LIST PRODUCTID=*, REPORTID=* to list all products (product titles, product IDs) and all reports for each product (report titles, report IDs).

This example produces the same result as Example 1.

```
//DREP      EXEC PGM=HKTAPRA0,PARM='ITKBSRVR=svrname'
//STEPLIB   DD DISP=SHR,DSN=h1q1.SHKTLOAD
//SYSPRINT  DD SYSOUT=*
//OUTRPT    DD SYSOUT=*
//SYSIN     DD *
LIST PRODUCTID=*,REPORTID=*
/*
```

Example 4: Listing one report for one registered product

```
//DREP      EXEC PGM=HKTAPRA0,PARM='ITKBSRVR=svrname'
//STEPLIB   DD DISP=SHR,DSN=h1q1.SHKTLOAD
//SYSPRINT  DD SYSOUT=*
//OUTRPT    DD SYSOUT=*
//SYSIN     DD *
LIST PRODUCTID=UB,REPORTID=1C
/*
```

Reference: Product registration JCL for IMS Tools

IMS Tools product registration JCL jobs are located in individual IMS Tools product sample library members.

The product administration utility (HKTAPRA0) is run by the IMS Tools product registration JCL jobs.

The following reference specifies - for individual IMS Tools products - the sample library data set name and member name where the product registration JCL resides.

Required minimum APAR/PTF maintenance updates are also indicated.

Table 25. Reference for IMS Tools product registration JCL location

Product name	Sample member name	Library name	Minimum APAR requirements
IMS Administration Tool	ATYITKB	SATYSAMP	None
IMS Buffer Pool Analyzer 1.4	BPLITKB	SBPLSAMP	PH18012
IMS Database Solution Pack – Full-Function Database Sensor	BBEITKB	SHPSSAMP	None
IMS Database Solution Pack – IMS High Availability Large Database Toolkit	IHCCITKB	SIHCSAMP	PI84931
IMS Database Solution Pack – IMS Online Reorganization Facility	HRFCITKB	SHRFSAMP	None
IMS Database Reorganization Expert 4.1	HPSGITKB	SHPSSAMP	PI67173
IMS Database Utility Solution - Full-Function Database Sensor	DFAITKB	SHPSSAMP	None
IMS Database Utility Solution – IMS High Availability Large Database Toolkit	IHCCITKB	SIHCSAMP	PI84931
IMS Fast Path Solution Pack	HFPCITKB	SHFPSAMP	None
IMS High Performance Image Copy 4.2	FABJITKB	SHPSSAMP	PI67175
IMS High Performance Load 2.1	HPSRITKB	SHPSSAMP	PI67177
IMS High Performance Pointer Checker 3.1	FABPITKB	SHPSSAMP	PI67178
IMS High Performance Prefix Resolution 3.1	FABYITKB	SHPSSAMP	PI67179
IMS High Performance Unload 1.2	HPSUITKB	SHPSSAMP	PI67180
IMS Index Builder 3.1	IIUITKB	SIIUCNTL	PI67182
IMS Library Integrity Utilities 2.2	FABLITKB	SHPSSAMP	PI67745
IMS Tools Base 1.7 – Distributed Access Interface	AIITKB	SAIISAMP	None
IMS Tools Base 1.7 – Policy Services	BSNITKB	SHKTSAMP	None
IMS Tools Base 1.7 – Repository Server	FPQITKB	SHKTSAMP	None
IMS Tools Base 1.7 – Generic Exits and Tools Online System Interface	GLXITKB	SGLXSAMP	None
IMS Tools Base 1.7 – Hardware Data Compression Extended	HCOITKB	SHCOSAMP	None
IMS Tools Base 1.7 – IMS Tools Knowledge Base	HKTITKB	SHKTSAMP	None
IMS Tools Base 1.7 – Autonomics Director	IAVITKB	SHKTSAMP	None

Table 25. Reference for IMS Tools product registration JCL location (continued)

Product name	Sample member name	Library name	Minimum APAR requirements
IMS Performance Solution Pack and IMS Performance Analyzer 4.4 and 4.5	IPIDITKB	SIPISAMP	None
IMS Program Restart Facility 2.2	IRTITKB	SIRTSAMP	PI85566
IMS Recovery Solution Pack - Database Recovery Facility, Database Recovery Facility Extended Function, and Recovery Sensor components	FRXITKB	SFRXSAMP	PI83674
IMS Recovery Solution Pack - IMS Recovery Expert	BSYITKB	SBSYSAMP	PI85335

Chapter 12. RECON ID (locale) administration

You use options from the **Administration** menu of the IMS Tools Knowledge Base main menu to perform RECON ID administration tasks.

Topics:

- [“Locales” on page 83](#)
- [“Adding a new RECON environment” on page 83](#)
- [“Viewing RECON information” on page 87](#)
- [“Updating a RECON environment” on page 89](#)
- [“Deleting a RECON environment” on page 91](#)

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 naming of policies, rules, and notification lists.

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.

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 locale.

The locale 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 locale definition (BSNGLOBL) is also automatically defined by IMS Tools Knowledge Base to serve as the default locale for Policy Services.

Adding a new RECON environment

You must describe your RECON environments to IMS Tools Knowledge Base. When reports are written to the Output repository, they are indexed by an internal identifier that represents the RECON environment associated with the RECON1 data set name. Other IMS Tools products will use the RECON information for other purposes.

About this task

When you create a new RECON environment, the RECON ID, RECON1, RECON2, and RECON3 values must each be unique among the RECON IDs that have already been defined.

Procedure

To add a new RECON environment, complete the following steps:

1. Access the **Administration** menu from the IMS Tools Knowledge Base main menu panel.

For example:

```
Administration  Help
-----
| 1. List Deferred Reports
| 2. List Installed Products
| 3. List Repositories
| 4. List Recon Information
| 5. Set retention for sensor data
|
-----
```

Figure 8. Administration menu options

2. Select option **4 (List Recon Information)**. Press Enter.

The **Recon Information** panel is displayed.

For example:

```
Help
-----
SERVER: FPQSPLEX          Recon Information          Row 1 to 5 of 5
Command ==>              Scroll ==>

Select a row action or press END to exit.

Command NEW

Row actions: U - Update V - View D - Delete
For Autonomics Director only: S - Select
Command S selects the Recon, then exits this panel.

Recon ID  Recon1 Dataset Name          Description
-
MYRECON1  IMS1.RECON1                  IMS 1 IN LA
-
MYRECON2  IMS2.RECON1
-
MYRECON3  IMS3.RECON1
-
MYRECON4  IMS4.RECON1
-
MYRECON5  IMS5.RECON1
***** Bottom of data *****
```

Figure 9. Recon Information panel

3. In the Command line, type NEW and press Enter.

The **Add Recon Information** panel is displayed.

```
Help
-----
SERVER: FPQSPLEX          Add Recon Information          IMS Tools KB 1.7.0
Command ==>

Type Definition for Recon, then press ENTER or press END to exit.

Recon ID . . . . .
Recon1 . . . . .
Recon2 . . . . .
Recon3 . . . . .
IMSPLEX . . . . .
TOIXCF . . . . .
RACF Class . . . . .
IMS CMD Security . . .
Description

Add IMS Datasets? . . (Y/N)
```

Figure 10. Add Recon Information panel

The following table provides descriptions of the fields.

Only the Recon ID, Recon1, and Description values are used by the Output repository. The remaining fields are used by other IMS Tools products.

Table 26. Add Recon Information panel field descriptions

Field	Description
Recon ID	An 8-character short name that is associated with the RECON1 data set name.
Recon1	The full name that describes the RECON1 data set. IMS Tools Knowledge Base associates reports with the RECON1 data set name.
Recon2	The name associated with the RECON2 data set. Not used in this version of IMS Tools Knowledge Base.
Recon3	The name associated with the RECON3 data set. Not used in this version of IMS Tools Knowledge Base.
IMSPLEX	The name given to the IMSPLEX if the RECON data sets were defined as being part of an IMSPLEX.
TOIXCF	The XCF group name used to communicate with IMS Tools Online System Interface (TOSI), if TOSI is installed in this environment. For more information about TOSI, see <i>IMS Tools Base IMS Tools Common Services User's Guide and Reference</i> .
RACF Class	The RACF security class to be used by any product that uses TOSI to handle security on IMS commands.
IMS CMD Security	The type of IMS command security to be performed. Values are: IMS Command security to use IMS security (for example, CIMS) APPL Command security to use RACF APPL security NONE No command security is performed
Description	A 64-character description of the RECON ID.
Add IMS Datasets?	Specify whether to add IMS data sets to the RECON data set. IMS data sets are needed for the following conditions: • To use the Autonomics Director monitor list, add DBDLIB for a non-IMS-managed ACBs environment or IMSCATHLQ for an IMS-managed ACBs environment. • To use the DBD/PSB Map Viewer, which is part of the IMS Library Integrity Utilities extension of IMS Administration Foundation and Management Console, add DBDLIB and PSBLIB.

4. Enter the appropriate values for the required fields and press Enter.

Optional: To add IMS data sets:

a. Enter Y in the **Add IMS Datasets** field.

The **Recon Extended Dataset Selection** panel is shown:

```

Help
-----
SERVER: FPQSPLEX          Recon Extended Dataset Selection      Row 1 to 5 of 5
Command ==>              Scroll ==> PAGE

Select library type or press END to exit.

Row action: s - Select

  Library Type
  ACBLIB
  S DBDLIB
  FMTLIB
  IMSCATHLQ
  PSBLIB
  RESLIB
***** Bottom of data *****

```

Figure 11. Recon Extended Dataset Selection panel

- b. Select the library type or types and press Enter.

The **Dataset Concatenation** panel or panels are shown.

```

Help
-----
SERVER: FPQSPLEX          DBDLIB Dataset Concatenation          I Row 1 to 9 of 16
Command ==>              Scroll ==> PAGE

Define datasets by providing data set name(s) to DBDLIB. Concatenated datasets
should be entered in the sequence they are to be used.

Press ENTER to create definition or END to exit.

Row actions: D - Delete I - Insert.

  Dataset Name
  -
  -
  -
  -
  -

```

Figure 12. DBDLIB Dataset Concatenation panel

- c. Type the data set names and press Enter.

For example, to add IMSLA1.IMS111.DBDLIB1, IMSLA1.IMS111.DBDBLIB2, and IMSLA1.IMS111.DBDLIB31:

```

Help
-----
SERVER: FPQSPLEX          ACBLIB Dataset Concatenation          I Row 1 to 9 of 16
Command ==>              Scroll ==> PAGE

Define datasets by providing data set name(s) to ACBLIB. Concatenated datasets
should be entered in the sequence they are to be used.

Press ENTER to create definition or END to exit.

Row actions: D - Delete I - Insert.

  Dataset Name
  - IMSLA1.IMS111.DBDLIB1
  - IMSLA1.IMS111.DBDBLIB2
  - IMSLA1.IMS111.DBDLIB31
  -
  -
  -

```

Figure 13. Example of ACBLIB Dataset Concatenation panel entries

Results

The **Recon Information** panel is refreshed. The new RECON is displayed in the list.

What to do next

To use the new RECON information in Autonomics Director, you must perform the Autonomics Director REFRESH RECON process. See the topic "Refreshing the Autonomics Director server resources" in *IMS Tools Base Autonomics Director User's Guide and Reference*.

Viewing RECON information

You can view the RECON information that is defined to your IMS Tools Knowledge Base information management environment.

About this task

IMS relies on Database Recovery Control (DBRC) to record and manage information about the database environment. DBRC keeps this information in a set of VSAM data sets that are collectively called the Recovery Control (RECON) data sets.

IMS Tools Knowledge Base associates reports with a RECON environment. The IMS Tools Knowledge Base Output repository uses the RECON1 data set name as one of the index values for stored reports.

Procedure

To view RECON information, complete the following steps:

1. Access the **Administration** menu from the IMS Tools Knowledge Base main menu panel.

For example:



Figure 14. Administration menu options

2. Select option **4 (List Recon Information)**. Press Enter.

The **Recon Information** panel is displayed.

For example:

```

Help
-----
SERVER: FPQSPLEX          Recon Information          Row 1 to 5 of 5
Command ==>              Scroll ==>

Select a row action or press END to exit.

Command NEW

Row actions: U - Update V - View D - Delete
For Autonomics Director only: S - Select
Command S selects the Recon, then exits this panel.

      Recon ID  Recon1 Dataset Name          Description
-   MYRECON1   IMS1.RECON1                  IMS 1 IN LA
-   MYRECON2   IMS2.RECON1
-   MYRECON3   IMS3.RECON1
-   MYRECON4   IMS4.RECON1
-   MYRECON5   IMS5.RECON1
***** Bottom of data *****

```

Figure 15. Recon Information panel

3. Use the **View** row action (V) to view the information for a specific RECON data set. Press Enter.

The **View Recon Information** panel is displayed.

For example:

```

Help
-----
SERVER: FPQSPLEX          View Recon Information          IMS Tools KB 1.7.0
Command ==>

Press END to exit.

Recon ID . . . . . : MYRECON1
Recon1 . . . . . : IMS1.RECON1
Recon2 . . . . . : IMS1.RECON2
Recon3 . . . . . : IMS1.RECON3
IMSPLEX . . . . . : PLEX1
TOIXCF . . . . . :
RACF Class . . . . . :
IMS CMD Security . . : NONE
Description : IMS 1 IN LA
Report Cnt . . . . . :
View IMS Datasets? . . Y (Y/N)

```

Figure 16. View Recon Information panel

The panel displays the current values of the selected RECON ID.

Included in the displayed values is the number of reports associated with this RECON ID.

4. Optional: Enter Y in the **View IMS Datasets** field, and press Enter.

The **View Recon Information - Datasets** panel is shown:

```

Help
-----
SERVER: FPQSPLEX          View Recon Information - Datasets          I Row 1 to 3 of 3
Command ==>              Scroll ==> PAGE

Defined datasets. Press END to exit.

      DDname      Dataset Name
ACBLIB          ACB1
                ACB2
                ACB3

```

Figure 17. View Recon Information - Datasets panel

Updating a RECON environment

You can update a RECON environment by modifying the current values that describe this RECON environment.

About this task

This panel allows the RECON values to be modified. You can change any value by typing over the current value.

When reports are written to the Output repository, they are indexed by an internal identifier that represents the RECON environment associated with the RECON1 data set name. Changing the RECON1 data set name will cause reports for a different RECON environment to be indexed under this RECON entity.

Procedure

To update a RECON environment, complete the following steps:

1. Access the **Administration** menu from the IMS Tools Knowledge Base main menu panel.

For example:

```
Administration  Help
-----
| 1. List Deferred Reports      |
| 2. List Installed Products   |
| 3. List Repositories         |
| 4. List Recon Information     |
| 5. Set retention for sensor data |
-----
```

Figure 18. Administration menu options

2. Select option **4 (List Recon Information)**. Press Enter.

The **Recon Information** panel is displayed.

For example:

```
Help
-----
SERVER: FPQSPLEX                      Recon Information                      Row 1 to 5 of 5
Command ==>                          Scroll ==>

Select a row action or press END to exit.

Command NEW

Row actions: U - Update V - View D - Delete
For Autonomics Director only: S - Select
Command S selects the Recon, then exits this panel.

Recon ID  Recon1 Dataset Name      Description
- MYRECON1  IMS1.RECON1                      IMS 1 IN LA
- MYRECON2  IMS2.RECON1
- MYRECON3  IMS3.RECON1
- MYRECON4  IMS4.RECON1
- MYRECON5  IMS5.RECON1
***** Bottom of data *****
```

Figure 19. Recon Information panel

3. Use the **Update** row action (U) to modify the information for a specific RECON data set. Press Enter.

The **Update Recon Information** panel is displayed.

For example:

```
Help
-----
SERVER: FPQSPLEX          Update Recon Information          IMS Tools KB 1.7.0
Command ==>

Overtyp e fields, then press ENTER or press END to exit.

Recon Id . . . . . : MYRECON1
Recon1 . . . . . : IMS1.RECON1
Recon2 . . . . . : IMS1.RECON2
Recon3 . . . . . : IMS1.RECON3
IMSPLEX . . . . . : PLEX1
TOIXCF . . . . . :
RACF Class . . . . . :
IMS Cmd Security . . . : NONE
Description  IMS 1 IN LA

Update IMS Datasets?  _  (Y/N)
```

Figure 20. Update Recon Information panel

The panel displays the current values of the selected RECON ID.

The following table provides descriptions of the fields.

Only the Recon ID, Recon1, and Description values are used by the Output repository. The remaining fields are used by other IMS Tools products.

Table 27. Update Recon Information panel field descriptions	
Field	Description
Recon ID	An 8-character short name that is associated with the RECON1 data set name.
Recon1	The full name that describes the RECON1 data set. IMS Tools Knowledge Base associates reports with the RECON1 data set name.
Recon2	The name associated with the RECON2 data set.
Recon3	The name associated with the RECON3 data set.
IMSPLEX	The name given to the IMSPLEX if the RECON data sets were defined as being part of an IMSPLEX.
TOIXCF	The XCF group name used to communicate with IMS Tools Online System Interface (TOSI), if TOSI is installed in this environment. For more information about TOSI, see <i>IMS Tools Base IMS Tools Common Services User's Guide and Reference</i> .
RACF Class	The RACF security class to be used by any product that uses TOSI to handle security on IMS commands.
IMS CMD Security	The type of IMS command security to be performed. Values are: IMS Command security to use IMS security (for example CIMS) APPL Command security to use RACF APPL security NONE No command security is performed
Description	A 64-character description of the RECON ID.
Update IMS Datasets?	Specify whether to update IMS data sets in the RECON data set.

4. Type over the value of any field that requires updating. Press Enter.

The message "Recon Updated" is displayed in the upper right corner of the panel.

Optional: To update IMS data sets:

- a. Enter Y in the **Add IMS Datasets** field.

The **Recon Extended Dataset Selection** panel is shown:

```
Help
-----
SERVER: FPQSPLEX          Recon Extended Dataset Selection          Row 1 to 5 of 5
Command ==>                Scroll ==> PAGE

Select library type or press END to exit.

Row action: s - Select

  Library Type
  S ACBLIB
  - DBDLIB
  - FMTLIB
  - IMSCATHLQ
  - PSBLIB
  - RESLIB
***** Bottom of data *****
```

Figure 21. Recon Extended Dataset Selection panel

- b. Select the data set to update, and press Enter.

The **ACBLIB Dataset Concatenation** panel is shown:

```
Help
-----
SERVER: FPQSPLEX          ACBLIB Dataset Concatenation          IM Row 1 to 3 of 3
Command ==>                Scroll ==> PAGE

Define datasets by providing data set name(s) to ACBLIB. Concatenated datasets
should be entered in the sequence they are to be used.

Press ENTER to create definition or END to exit.

Row actions: D - Delete I - Insert.

  Dataset Name
  - ACB1
  - ACB2
  - ACB3
```

Figure 22. ACBLIB Dataset Concatenation panel

- c. Select a row action, and press Enter.
5. Press PF3 to exit this panel and return to the **Recon Information** panel.

What to do next

To use the new RECON information in Autonomics Director, you must perform the Autonomics Director REFRESH RECON process. See the topic "Refreshing the Autonomics Director server resources" in *IMS Tools Base Autonomics Director User's Guide and Reference*.

Deleting a RECON environment

You can delete a RECON environment that is defined to your IMS Tools Knowledge Base information management environment.

About this task

Deleting a RECON ID also deletes the following information that is indexed by the internal identifier that represents the RECON environment to be deleted.

- Reports
- Sensor data
- Monitor lists, groups, and evaluation history
- Database information that was gathered by the database discovery utility and stored in DBDLIB, PSBLIB, and RECON data sets

Procedure

To delete a RECON environment, complete the following steps:

1. Access the **Administration** menu from the IMS Tools Knowledge Base main menu panel.
2. Select option **4 (List Recon Information)**. Press Enter.

The **Recon Information** panel is displayed.

3. Use the **Delete** row action (D) to delete the information for a specific RECON data set. Press Enter.

The **Delete Recon Information** panel is displayed.

Enter Y to continue the task of deleting a RECON environment.

4. Press PF3 to exit this panel and return to the **Recon Information** panel.

What to do next

To use the new RECON information in Autonomics Director, you must perform the Autonomics Director REFRESH RECON process. See the topic "Refreshing the Autonomics Director server resources" in *IMS Tools Base Autonomics Director User's Guide and Reference*.

Part 3. Configuring Policy Services

Policy Services monitors specific database states by evaluating the sensor data that is collected by an IMS Tools product and by providing a response to any conditions that exceed customizable threshold values.

Configuring Policy Services involves completing a series of post-installation tasks and starting Policy Services with an initial set of policies and rules that are required by the IMS Tools product.

Important: Before configuring Policy Services, you must configure IMS Tools Knowledge Base.

Topics:

- [Chapter 13, “Post-installation tasks for Policy Services,” on page 95](#)
- [Chapter 14, “Initial installation of a domain,” on page 97](#)

Chapter 13. Post-installation tasks for Policy Services

The following topics describe the one-time post-installation procedures for the Policy Services component of IMS Tools Base.

Topics:

- [“\(Optional\) Allocating the generation data set journal” on page 95](#)
- [“SAF \(RACF\) security settings” on page 96](#)
- [“SMTP requirements to support email and texting delivery types” on page 96](#)

(Optional) Allocating the generation data set journal

Policy Services creates a journal during the processing of requests from the using IMS Tool (such as IMS Database Reorganization Expert) and during Policy Services ISPF user interface processing.

Journal records are normally written to the SYSOUT stream. Alternatively, you can create a GDG data set for journal records.

To allocate the journal data set, use member BSNGDG in the sample library *hlq.SHKTSAMP*. Follow the commented instructions contained in the member.

The amount of journal data set allocation required depends on the amount of work and the number of journals you want to manage.

When performing an initial Policy Services installation or when applying maintenance from IBM, you are given guidelines as to the amount of journal data set space that is required.

If you also update rule thresholds, policies, and notification lists, a journal sizing per rule threshold, policy, and notification list is provided. Once the journal is full, the journal records are no longer written.

The following table lists the minimal journal requirement for the initial installation of the following IMS Tools:

<i>Table 28. Journal requirements for IMS Database Reorganization Expert</i>	
Actions	Number of cylinders or tracks
Initial installation of all policies and rules	2 cylinders
Creation of a notification lists and directory entries	1 cylinder
Creation of a rule threshold	1 track
Modification to a policy	4 tracks
Creation of a new policy	4 tracks
Replication of previous items for each new locale	3 cylinders

SAF (RACF) security settings

If the IMS Tools Knowledge Base SAF_CLASS parameter is active (SAF_CLASS=FACILITY) in the IMS Tools Knowledge Base configuration member (FPQCONFIG), the following conditions apply for access to the Input repository or the Sensor Data repository.

For access to the Input repository:

- The Policy Services user interface session user ID must have **update** access to the Input repository to perform any functions provided by the Policy Services user interface.
- The IMS Tool sessions user ID must have at least **read** access to the Input repository to perform any functions provided by the Policy Services user interface that are available to the IMS Tool.

For access to the Sensor Data repository:

- The IMS Tools session user ID must have **update** access to the Sensor Data repository to add sensor data to the Sensor Data repository.
- The IMS Tools session user ID that requests policy evaluation must have at least **read** access to the Sensor Data repository.
- Because the Policy Services user interface session does not access the Sensor Data repository, there is no need for the Policy Services user interface session user to have RACF access to the Sensor Data repository.

For additional information, refer to [Chapter 10, “Configuring SAF security,”](#) on page 63.

SMTP requirements to support email and texting delivery types

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.

Policy Services supports two directory entry types:

- WTO
- USER

The USER directory entry supports the following delivery types:

- TSO
- E-MAIL
- TEXTING

To support the email and texting delivery types, you must configure the Communications Server SMTP (CSSMTP). For more information about the CSSMTP, see the topic "Communications Server SMTP application" in *z/OS Communications Server: IP Configuration Reference* (SC27-3651).

You can start the CSSMTP at one of the following two points:

- Before starting the IMS Tools products that use the Policy Services email and texting support
- When the messages are to be sent

Chapter 14. Initial installation of a domain

The process of initially installing Policy Services domain consists of setting up and starting the Policy Services user interface with an initial set of policies and rules that are provided by the IMS Tool product.

Topics:

- [“Policy Services setup flowchart” on page 98](#)
- [“Starting the Policy Services user interface” on page 98](#)
- [“Creating a maintenance environment” on page 99](#)
- [“Installing initial domain policies and rules from IBM maintenance data set” on page 103](#)
- [“Creating directory entries and notification lists” on page 105](#)
- [“\(Optional\) Creating executable policy templates” on page 105](#)
- [“\(Optional\) Customizing and copying rules to your locale” on page 107](#)
- [“Updating policies that are impacted by deleted rules ” on page 108](#)
- [“Listing installed maintenance packages” on page 108](#)
- [“Listing installed policies and rules” on page 110](#)
- [“Creating a policy from a BSNGLOBL policy and copying to a user locale” on page 111](#)
- [“Promoting initial maintenance environment to initial operation environment” on page 112](#)

Policy Services setup flowchart

The following flowchart summarizes the Policy Services setup process up to the point where the Policy Services Main Menu is displayed.

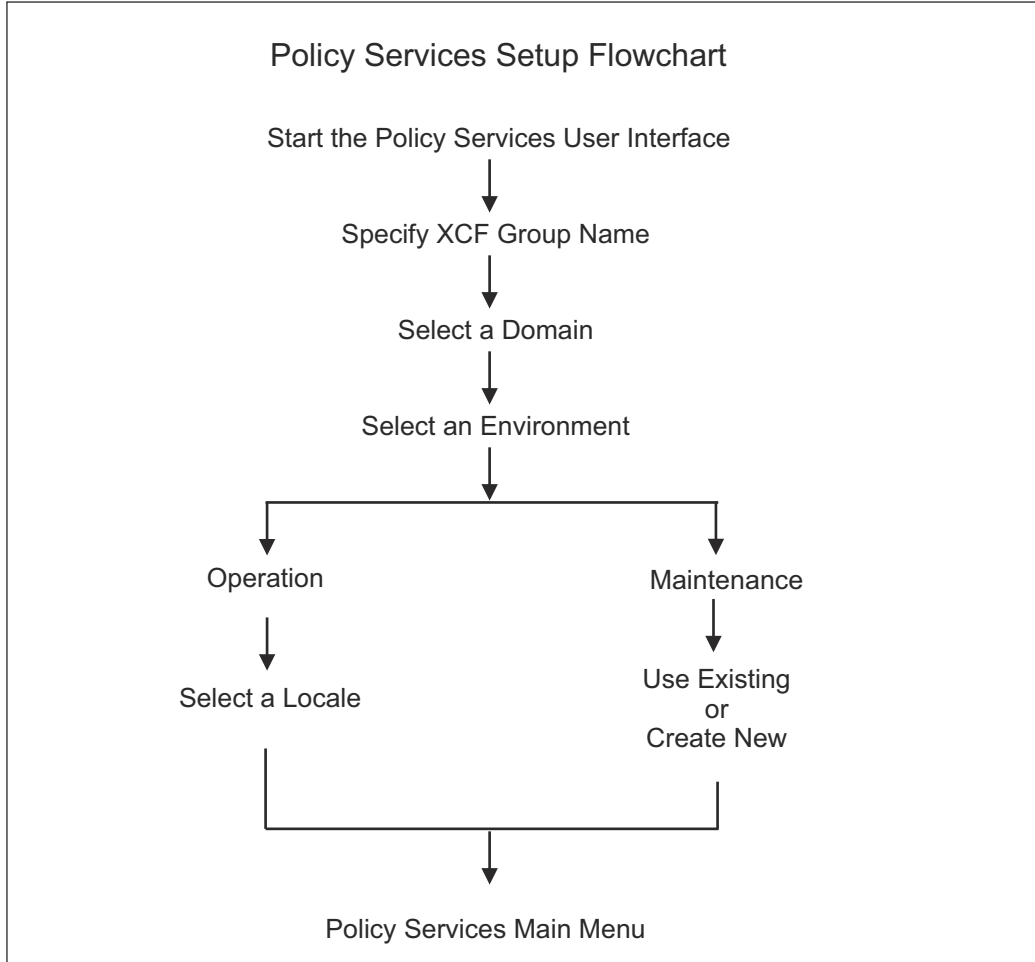


Figure 23. Policy Services setup flowchart

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. From 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 appears. 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 24. Policy Services Setup: Select XCF Group Name panel

Creating a maintenance environment

When you initially set up Policy Services, you must create an empty maintenance environment.

About this task

The following table describes information that you will need to complete this task.

Table 29. Policy Services setup fields

Information	Description
XCF Group name	For Policy Services setup, use the IMS Tools Knowledge Base server XCF group name.
Domain name	A domain is defined as a single IMS Tool product or multiple IMS Tool products that share the same set of rules and policies.
Locale name	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.

Table 29. Policy Services setup fields (continued)

Information	Description
Environment type	There are two types of environments: operation environments and maintenance environments. A operation environment is appropriate for the following purposes: • Creating a test system to validate the changes created in a maintenance environment • Creating a production system for supported IMS Tools to validate policies, rules, and notification lists A maintenance environment is appropriate for the following purposes: • Installing the predefined IBM policies and rules that are shipped with Policy Services • Applying IBM APARs to the predefined IBM policies and rules • Copying policies and rules to be used by different IMSplex systems • Creating notification lists to be used by different IMSplex systems • Creating custom policies for specific databases • Modifying policies, rules, and notification lists

Procedure

1. From the **Policy Services Setup: Select XCF Group Name** panel, enter the IMS Tools Knowledge Base server XCF group name and indicate whether you want to perform RECON or LOCALE maintenance.

```

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 25. Policy Services Setup: Select XCF Group Name panel

2. Press Enter.

The **Policy Services Setup: Select Domain** panel is displayed.

```

Help
-----
Policy Services Setup: Select Domain      Row 1 to 2 of 2

XCF group name : FPQSPLEX      Get exception messages in phase 1 : N

Select one and only one domain, and press Enter.

A: Row Action: S - Select

A   Domain name
-   REORG
-   RECOVERY

```

Figure 26. Policy Services Setup: Select Domain panel

Each domain that is listed represents one or more IMS Tools products that can make use of the same set of policies and rules to perform conditional autonomic actions.

3. Select one and only one domain by typing the row action **S** on the appropriate row and pressing Enter.

The **Policy Services Setup: Select Environment** panel is displayed.

```

Help
-----
Policy Services Setup: Select Environment

Option ==>

XCF group name : FPQSPLEX
Domain name    : REORG

Select an environment, and press Enter.

1   - Maintenance
2   - Operation

```

Figure 27. Policy Services Setup: Select Environment panel

You now must create an empty maintenance environment for the selected domain as part of the initial installation process. You cannot create an operation environment until you create a maintenance environment.

4. Select option **1 (Maintenance)**.

The **Create Maintenance Environment** pop-up panel is displayed.

```

Create Maintenance Environment

Command ==>

No environments exist to work with. You may create an
empty maintenance environment and import all of the
necessary policies and rules.

Please make a choice below.

Do you wish to
continue? . . . . . N (Y/N)

```

Figure 28. Create Maintenance Environment pop-up panel

5. Enter Y to continue the task of creating an initial empty maintenance environment.

The **Create Maintenance Environment** panel is displayed.

```

Help
-----
REORG/MAINTENANCE Create Maintenance Environment
Command ==>

Type a name for the new maintenance environment, then press Enter.
Environment name . . _

Type a description for the new maintenance environment, then press Enter.
Description . . . . .

```

Figure 29. Create Maintenance Environment panel

6. Type an environment name and a description for the new maintenance environment, and press Enter. The description should contain information that is useful for your location. For example:

```
Initial Installation
```

The **Create Maintenance Environment** panel is displayed.

```

Help
-----
REORG/MAINTENANCE Create Maintenance Environment Row 1 to 1 of 1
Command ==>
Environment INSTALL1 successfully created. This environment is empty.

Type a row action, then press Enter or press Enter to continue.
A: Row Action: V - View

A   Env-name  Status      Created      Last Update  Description
   INSTALL1  MAINTENANCE  2021/10/18   2021/10/18   INITIAL INSTALLAT

```

Figure 30. Create Maintenance Environment panel

The maintenance environment name of INSTALL1 (internally known as maintenance environment 00000001) is now your initial empty maintenance environment.

You can view properties of this environment by using the V row action.

Later, you can populate the empty maintenance environment by installing initial predefined IBM policies and rules from the maintenance installation data set (*hlq*.SHKTTMPL). You use the **Policy Services Main Menu: Maintenance** panel to perform this task.

7. Press Enter.

The **Policy Services Main Menu: Maintenance** panel is displayed.

```

Help
-----
Policy Services Main Menu: Maintenance
Option ==>

XCF group name : FPQSPLEX          Environment . : MAINTENANCE
Domain name    . : REORG

Select an option, and press Enter.

1 - Policies management
2 - Rules management
3 - Notification lists, directory entries management
4 - Import management
5 - Export management
6 - Maintenance management
7 - Domain and environment management

```

Figure 31. Policy Services Main Menu: Maintenance panel

At this point, you have created the empty maintenance environment and are ready to install the IBM policies and rules.

Installing initial domain policies and rules from IBM maintenance data set

Populate the empty maintenance environment by installing initial predefined IBM policies and rules from the maintenance installation data set.

About this task

This action uses the Policy Services import operation to install the policies and rules from the maintenance data set to the BSNGLOBL generic locale. The installed policies and rules can then be copied from the BSNGLOBL locale to one or more user locales, and customized as required.

Procedure

1. From the **Policy Services Main Menu: Maintenance** panel, select option **6 (Maintenance management)**, and press Enter.

The **Maintenance Management** panel is displayed.

```
Help
-----
REORG/MAINTENANCE   Maintenance Management (IBM distributions)
Option ===>

Select an option, and press Enter.

1  - Select maintenance packages to install
2  - Customize rule templates
3  - Apply policy template updates
4  - Update policies impacted by deleted rules
5  - List installed maintenance packages
6  - List installed policies and rules
```

Figure 32. Maintenance Management panel

The current domain name and environment type are indicated in the upper left portion of the panel (REORG/MAINTENANCE). This indicator format is present on all Policy Services panels after you have advanced past the main menu.

2. Select option **1 (Select maintenance packages to install)**, and press Enter.

The **Select Data Set with Maintenance Packages** panel is displayed.

```
Help
-----
REORG/MAINTENANCE   Select Data Set with Maintenance Packages
Command ===>

Type the fully qualified data set name, then press Enter.

*Data set name
```

Figure 33. Select Data Set with Maintenance Packages panel

3. Type in the name of the maintenance installation data set where the initial predefined IBM policies and rules are located. For example:

```
hlq.SHKTTMPL
```

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

4. Press Enter.

The **Install IBM Distributed Maintenance Package** panel is displayed.

```

Sort by  Help
-----
REORG/MAINTENANCE      Install IBM Distributed Maintenance Pack Row 1 to 9 of 9

Data set name   : IMST.SHKTTMPL

The table below lists uninstalled maintenance packages only.
Enter command INSTALL and press Enter to continue with installation.
INSTALL may take few minutes to complete.
A: Row Action: V - View maintenance package information

A Package ID  APAR ID  Package Description                      PKG Date
- BSN000010   PI88543  THIS IS THE PACKAGE FOR POLICY           2018/03/31
- BSN000009   BASE160  THIS IS THE PACKAGE CHANGING SEVERAL RULES 2016/10/21
- BSN000007   PI50575  THIS IS A PACKAGE FOR NEW RULES FOR FFDB  2015/11/20
- BSN000006   PI09270  ADDITIONAL RULES FOR DEDB ARE ADDED       2014/01/30
- BSN000005   BASE130  THIS IS THE PACKAGE FOR INDEX RULES AND PO 2011/08/31
- BSN000004   PM90004  THIS IS THE PACKAGE FOR DEDB RULES AND POL 2011/07/07
- BSN000003   PM41959  THIS IS THE FULL REPLACEMENT OF IBM-PROVID 2011/06/21
- BSN000002   PM13447  ERROR MESSAGE FOR POLICY SERVICES RULE IBM 2010/05/06
- BSN000001   PM99999  THIS IS THE INITIAL INSTALL OF THE REORG E 2009/10/14
***** Bottom of data *****

```

Figure 34. Install IBM Distributed Maintenance Package panel

You can view the details of the maintenance package by using the V (View) row action.

5. To continue the installation process, type INSTALL in the command line, and press Enter.

After the installation is complete, the **Installed Maintenance Package Objects** panel is displayed.

```

Sort by  Help
-----
REORG/MAINTENANCE      Installed Maintenance Packages Objects Row 1 to 41 of 79

Data set name   : IMST.SHKTTMPL

Installation is complete. Press End to exit.

PKG ID  PKG Date  Type  Object Name          State  Status  SYS.copy
PM90004  2011/07/07  POLICY  IBM.DBDTYPE.DEDB     NEW    INSTLD  COPIED
PM41959  2011/06/21  POLICY  IBM.DBDTYPE.FFDB     NEW    INSTLD  COPIED
PI88543  2018/03/31  POLICY  IBM.DBDTYPE.FFDBALL  NEW    INSTLD  COPIED
PM41959  2011/06/21  POLICY  IBM.DBDTYPE.HDAM     NEW    INSTLD  COPIED
PM41959  2011/06/21  POLICY  IBM.DBDTYPE.HDDB     NEW    INSTLD  COPIED
PM41959  2011/06/21  POLICY  IBM.DBDTYPE.HIDAM    NEW    INSTLD  COPIED
PM41959  2011/06/21  POLICY  IBM.DBDTYPE.HISAM    NEW    INSTLD  COPIED
BASE130  2011/08/31  POLICY  IBM.DBDTYPE.INDEX    NEW    INSTLD  COPIED
PM41959  2011/06/21  POLICY  IBM.DBDTYPE.PHDAM    NEW    INSTLD  COPIED
PM41959  2011/06/21  POLICY  IBM.DBDTYPE.PHIDAM   NEW    INSTLD  COPIED
BASE130  2011/08/31  POLICY  IBM.DBDTYPE.PHIDAM.A NEW    INSTLD  COPIED
BASE130  2011/08/31  POLICY  IBM.DBDTYPE.PSINDEX  NEW    INSTLD  COPIED
PM41959  2011/06/21  POLICY  IBM.DBDTYPE.SHISAM   NEW    INSTLD  COPIED

```

Figure 35. Installed Maintenance Packages Objects panel

The **State**, **Status**, and **SYS.copy** columns in the **Installed Maintenance Packages Objects** panel are now populated.

For an initial installation of IBM distributed policies and rules, the **State** value is always NEW, the **Status** value is always INSTLD, and the **SYS.copy** value for IBM.*polycname* policies is always COPIED.

The maintenance package is now installed.

6. Press End (PF3).

The **Maintenance Management** panel is displayed.

Creating directory entries and notification lists

You can define directory entries and notification lists to identify the users and WTO destinations that receive exception notification messages when the threshold of a rule in a policy is exceeded.

About this task

Create directory entries first because the directory entries are required to populate notification lists. Directory entries can be added and deleted as needed.

If you need to send the exception message to the same user at two or more TSO destinations, you must define the user for each of these destinations.

You can then create notification lists and add directory entries to these notification lists. Notification lists can be added and deleted as needed.

Procedure

For detailed procedures on creating directory entries and notification lists, see *IMS Tools Base Policy Services User's Guide and Reference*.

(Optional) Creating executable policy templates

You can manually create executable policy templates by using the Apply Policy Template Update option.

About this task

Important: You can skip this task if the task of “Installing initial domain policies and rules from IBM maintenance data set” on page 103 completed successfully. You need to create executable policy templates manually only if an error occurred while installing initial domain policies and rules from IBM maintenance data set.

Manually creating executable policy templates is useful if an error occurs during the maintenance installation process where all predefined IBM policies and rules are imported from the IBM maintenance installation data set to the generic global locale (BSNGLOBL), and all IBM.*polycynname* policies are copied to SYS.*polycynname* policies.

The predefined IBM policies are provided only for use as templates and are named with the prefix IBM. (for example, IBM.DBDBTYPE.FFDB). IBM.*polycynname* policies cannot be modified and are never directly used by IMS Tools products.

Procedure

1. From the Maintenance Management panel, select option **3 (Apply policy template updates)**, and press Enter.

The **Apply Policy Template Updates** panel is displayed.

```

Sort by  Help
-----
REORG/MAINTENANCE      Apply Policy Template Updates      Row 1 to 13 of 13

Type a row action, then press Enter.
A: Row Action: C - Copy to SYS. name      M - View policy in maint env.
              O - View policy in orig.env. R - List of cloned policies
              V - View maintenance info

A Policy name      Installed      Copied
- IBM.DBDTYPE.DEDB      INSTALLED
- IBM.DBDTYPE.FFDB      INSTALLED
- IBM.DBDTYPE.FFDBALL   INSTALLED
- IBM.DBDTYPE.HDAM      INSTALLED
- IBM.DBDTYPE.HDDB      INSTALLED
- IBM.DBDTYPE.HIDAM     INSTALLED
- IBM.DBDTYPE.HISAM     INSTALLED
- IBM.DBDTYPE.INDEX     INSTALLED
- IBM.DBDTYPE.PHDAM     INSTALLED
- IBM.DBDTYPE.PHIDAM    INSTALLED
- IBM.DBDTYPE.PHIDAM.A  INSTALLED
- IBM.DBDTYPE.PSINDEX   INSTALLED
- IBM.DBDTYPE.SHISAM    INSTALLED
***** Bottom of data *****

```

Figure 36. Apply Policy Template Updates panel

2. Type the **C** row action (Copy to SYS name) on each policy row, and press Enter.

A status message is displayed for each individual policy. Press Enter after each displayed message for each of the policies.

The **Apply Policy Template Updates** panel is updated and shows that all IBM policy templates are copied to SYS templates.

```

Sort by  Help
-----
REORG/MAINTENANCE      Apply Policy Template Updates      Row 1 to 13 of 13

Type a row action, then press Enter.
A: Row Action: C - Copy to SYS. name      M - View policy in maint env.
              O - View policy in orig.env. R - List of cloned policies
              V - View maintenance info

A Policy name      Installed      Copied
- IBM.DBDTYPE.DEDB      INSTALLED      COPIED
- IBM.DBDTYPE.FFDB      INSTALLED      COPIED
- IBM.DBDTYPE.FFDBALL   INSTALLED      COPIED
- IBM.DBDTYPE.HDAM      INSTALLED      COPIED
- IBM.DBDTYPE.HDDB      INSTALLED      COPIED
- IBM.DBDTYPE.HIDAM     INSTALLED      COPIED
- IBM.DBDTYPE.HISAM     INSTALLED      COPIED
- IBM.DBDTYPE.INDEX     INSTALLED      COPIED
- IBM.DBDTYPE.PHDAM     INSTALLED      COPIED
- IBM.DBDTYPE.PHIDAM    INSTALLED      COPIED
- IBM.DBDTYPE.PHIDAM.A  INSTALLED      COPIED
- IBM.DBDTYPE.PSINDEX   INSTALLED      COPIED
- IBM.DBDTYPE.SHISAM    INSTALLED      COPIED
***** Bottom of data *****

```

Figure 37. Apply Policy Template Updates panel

3. Press End (PF3).

The **Maintenance Management** panel is displayed.

(Optional) Customizing and copying rules to your locale

You can copy the rule templates to one or more locales and then customize for a specific IMSplex environment. This task is optional during the initial Policy Services setup and can be performed at a later time.

Before you begin

After rules have been imported from the IBM maintenance installation data set to the generic global locale (BSNGLOBL), determine how you want the rules to apply to your environment.

The following case scenarios can help you understand some possible implementation options:

- If you want to use the default rule settings as provided in the IBM maintenance installation data set, do not modify any rule in the BSNGLOBL locale.

Do not copy any rule from the BSNGLOBL locale to other locales in your environment.

Policy evaluation uses the BSNGLOBL rule when a locale-specific rule does not exist.

- If you want to modify one or more rules and have the modifications apply similarly to all locales, you must modify the BSNGLOBL rule templates.

Do not copy any rule to any of the other locales in your environment.

Policy evaluation uses the generic rule when a locale-specific rule does not exist.

You can make one or both of the following modifications to a rule:

- Change the default threshold values that are associated with the default threshold sets (HIGH/MED/LOW).
- Add new threshold sets (for example: IMS1HIGH, IMS1MED, IMS1LOW, IMS2HIGH, IMS2MED, and others) to offer a wider range of threshold choices for each policy that the rule is applied to.
- If you want to modify one or more rules that apply to a specific locale, copy the BSNGLOBL rules to the specific locales and make the modifications to the locale-specific rules.

Policy evaluation uses a locale-specific rule that contains the user modifications, if it exists.

You can make one or both of the following modifications to a rule:

- Change the default threshold values associate with the default threshold sets (HIGH/MED/LOW).
- Add new threshold sets (for example: IMS1HIGH, IMS1MED, IMS1LOW, IMS2HIGH, IMS2MED, and others) to offer a wider range of threshold choices for each policy that the rule is applied to.

Multiple policies can use the same rule. You can customize each policy for a particular purpose by mapping a specific threshold set to an exception severity level. 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.

For example, you might have databases at multiple locations that have different characteristics:

Different size databases

For example, one location might have hundreds of records, whereas another location might have thousands of records, and another location might have tens of thousands of records.

Different activity over the same period of time

For example, the smaller database might have 1-10 additions per day, whereas the medium size database might have 30-55 additions per day, and the larger database might have 100-500 additions per day.

Different amount of free space

For example, the smaller database might have hundreds of available records, whereas the medium size database might have 500-1000 of available records, and the larger database might have thousands of available records.

About this task

The set of rules that belongs to the BSNGLOBL locale are the master (template) set of rules that you can copy and customize to your own locale. You can copy and customize these rules now as part of the initial Policy Services setup, you can copy and customize them at a later time.

You can modify rule threshold values. The Manage Rules panel lists all BSNGLOBL 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:

Procedure

For descriptions of the different ways that rules can be copied and instructions for copying rules, see the topic "Copying rules" in *IMS Tools Base Policy Services User's Guide and Reference*.

For instructions for customizing rules, see the topic "Customizing BSNGLOBL or locale-specific rules" in *IMS Tools Base Policy Services User's Guide and Reference*.

Updating policies that are impacted by deleted rules

When you apply maintenance to your Policy Services environment, some previously existing rules might not be included in the new package.

About this task

This task describes how to display the list of rules that are flagged for deletion in the new installed maintenance package.

Policies that are impacted by these flagged rules must be updated. The rules can then be deleted from the repository.

Procedure

Because these procedures describe an initial installation of the IBM maintenance installation data set, this maintenance option is not required at this time. Only new policies and rules are installed. This task is valid only if you are applying a maintenance package that contains deletion of rules.

There is no need to use option 4 - Update policies impacted by deleted rules of the Maintenance Management panel. If option 4 is selected, the following message is displayed:

```
There are no rule delete requests in current environment
```

Listing installed maintenance packages

You can display a list of the maintenance packages (both domain installation packages and maintenance packages) that are installed on your system.

About this task

When you display the installed maintenance packages, the following information is provided:

- APAR ID
- Package description
- Package installation status
- Package installation date
- Package installation time

Procedure

1. From the Maintenance Management panel, select option **5 (List installed maintenance packages)**, and press Enter.

The **List Installed Maintenance Packages** panel is displayed.

```
Sort by  Help
-----
REORG/MAINTENANCE      List Installed Maintenance Packages      Row 1 to 9 of 9

Type a row action, then press Enter.
A: Row Action: V - View installed objects from maintenance package

A APAR ID  APAR Description                Installed InstDate  InstTime
PM999999  THIS IS THE INITIAL INSTALL OF TH YES    2021/10/18 11:46:48
PM13447   ERROR MESSAGE FOR POLICY SERVICES YES    2021/10/18 11:46:48
PM41959   THIS IS THE FULL REPLACEMENT OF I YES    2021/10/18 11:46:48
PM90004   THIS IS THE PACKAGE FOR DEDB RULE YES    2021/10/18 11:46:48
BASE130   THIS IS THE PACKAGE FOR INDEX RUL YES    2021/10/18 11:46:48
PI09270   ADDITIONAL RULES FOR DEDB ARE ADD YES    2021/10/18 11:46:48
PI50575   THIS IS A PACKAGE FOR NEW RULES F YES    2021/10/18 11:46:48
BASE160   THIS IS THE PACKAGE CHANGING SEVE YES    2021/10/18 11:46:48
PI88543   THIS IS THE PACKAGE FOR POLICY YES       2021/10/18 11:46:48
***** Bottom of data *****
```

Figure 38. List Installed Maintenance Packages panel

2. To view the contents of the maintenance package, type the **V** (View) row action on the package row, and press Enter.

The **List Installed Policies and Rules from Package** panel is displayed.

```
Sort by  Help
-----
REORG/MAINTENANCE      List Installed Policies and Rules from Row 1 to 28 of 28

APAR ID  . . . . . : PM41959
Package Description
THIS IS THE FULL REPLACEMENT OF IBM-PROVIDED POLICIES AND RULES

Type      Object Name                Status      InstDate  InstTime
POLICY    IBM.DBDTYPE.FFDB                INSTALLED   2021/10/18 11:46:48
POLICY    IBM.DBDTYPE.HDAM                INSTALLED   2021/10/18 11:46:48
POLICY    IBM.DBDTYPE.HDDB                INSTALLED   2021/10/18 11:46:48
POLICY    IBM.DBDTYPE.HIDAM              INSTALLED   2021/10/18 11:46:48
POLICY    IBM.DBDTYPE.HISAM              INSTALLED   2021/10/18 11:46:48
POLICY    IBM.DBDTYPE.PHDAM              INSTALLED   2021/10/18 11:46:48
POLICY    IBM.DBDTYPE.PHIDAM             INSTALLED   2021/10/18 11:46:48
POLICY    IBM.DBDTYPE.SHISAM             INSTALLED   2021/10/18 11:46:48
RULE      IBM.AVG_DBREC_LEN.10           INSTALLED   2021/10/18 11:46:45
RULE      IBM.CICA_SPLITS.10             INSTALLED   2021/10/18 11:46:45
RULE      IBM.DBDS_EXTENTS.10           INSTALLED   2021/10/18 11:46:45
```

Figure 39. List Installed Policies and Rules from Package panel

Important: If you are installing Policy Services for the first time, you cannot view PM999999 or PM13447 because a later APAR (PM41959) replaced all objects that were shipped in APAR PM999999. None of the objects in APAR PM999999 were installed. Instead, the following message is issued:

```
There are no objects installed from the selected part PM999999.
```

3. Press End (PF3).

The **List Installed Maintenance Packages** panel is displayed.

4. Press End (PF3).

The **Maintenance Management** panel is displayed.

Listing installed policies and rules

You can list the policies and rules that have been installed and stored in the repository by Policy Services.

About this task

This task lists all policies and rules that have been received at your location. The following information is displayed:

- APAR ID
- Type (policy/rule)
- Object name (policy or rule name)
- Installation status (INSTALLED, NOTINSTL, INPROGR and DELETE)
- Package installation date
- Package installation time

Procedure

1. From the **Maintenance Management** panel, select option **6 (List installed policies and rules)**, and press Enter.

The **List Installed Policies and Rules** panel is displayed.

Sort by Help					
REORG/MAINTENANCE		List Installed Policies and Rules			Row 1 to 44 of 79
Command ==>					
APAR ID	Type	Object Name	Status	InstDate	InstTime
PM41959	POLICY	IBM.DBDTYPE.FFDB	INSTALLED	2021/10/18	11:47:08
PM41959	POLICY	IBM.DBDTYPE.HDAM	INSTALLED	2021/10/18	11:47:08
PM41959	POLICY	IBM.DBDTYPE.HDDB	INSTALLED	2021/10/18	11:47:09
PM41959	POLICY	IBM.DBDTYPE.HIDAM	INSTALLED	2021/10/18	11:47:09
PM41959	POLICY	IBM.DBDTYPE.HISAM	INSTALLED	2021/10/18	11:47:09
PM41959	POLICY	IBM.DBDTYPE.PHDAM	INSTALLED	2021/10/18	11:47:10
PM41959	POLICY	IBM.DBDTYPE.PHIDAM	INSTALLED	2021/10/18	11:47:10
PM41959	POLICY	IBM.DBDTYPE.SHISAM	INSTALLED	2021/10/18	11:47:12
PM41959	RULE	IBM.AVG_DBREC_LEN.10	INSTALLED	2021/10/18	11:46:48
PM41959	RULE	IBM.CICA_SPLITS.10	INSTALLED	2021/10/18	11:46:48
PM41959	RULE	IBM.DBDS_EXTENTS.10	INSTALLED	2021/10/18	11:46:49
PM41959	RULE	IBM.DBDS_GROWTH.10	INSTALLED	2021/10/18	11:46:49
PM41959	RULE	IBM.DBDS_GROWTH.20	INSTALLED	2021/10/18	11:46:50
PM41959	RULE	IBM.DBDS_GROWTH.30	INSTALLED	2021/10/18	11:46:50
PM41959	RULE	IBM.FRAGMENTATION.10	INSTALLED	2021/10/18	11:46:59

Figure 40. List Installed Policies and Rules panel

2. Press End (PF3).

The **Maintenance Management** panel is displayed.

3. Press End (PF3).

The **Policy Services Main Menu** panel is displayed.

Creating a policy from a BSNGLOBL policy and copying to a user locale

You can create a policy from a BSNGLOBL policy template, customize this new policy (SYS.), and copy the policy to your own individual locale.

Before you begin

After you have imported the policies from the IBM maintenance installation data set to the generic global locale (BSNGLOBL), you must decide how you want the policies to apply to your environment.

The following scenarios can help you understand some possible implementation options:

- If you want to use the default policy settings as provided in the IBM maintenance installation data set, do not modify any rule in the BSNGLOBL locale.

Do not copy any policy from the BSNGLOBL locale to other locales in your environment.

- If you want to make modifications to a policy and have the modifications apply similarly to all locales, you must modify the SYS. version of the BSNGLOBL policy template.

Do not copy the policy to any of the other locales in your environment.

- If you want to make modifications to a policy that apply to a specific locale, copy the BSNGLOBL SYS. policy to the specific locale and make the modifications to the locale-specific policy.

About this task

The set of policies belonging to the BSNGLOBL locale are the master (template) set of policies that you can modify and copy to your own locale. You can copy these policies and customize the policies to apply appropriately to your environment. The copy and customize tasks can be performed now as part of the initial Policy Services setup, or the tasks can be performed at a later time.

When you use the Policies Management panel to modify policies, you are always modifying the SYS. versions of the policy templates in the BSNGLOBL locale.

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

Scenario 1: Modify a BSNGLOBL policy now, and then copy the policy to a new locale (or locales)

In this scenario, you modify the SYS. version of the policy in BSNGLOBL. You then copy this modified version to one or more locales. This approach is generally the most logical scenario to follow.

Scenario 2: Copy a BSNGLOBL policy to a new locale (or locales), and then modify the copied policy now

In this scenario, you copy the SYS. version of the policy from BSNGLOBL to one or more locales.

You then modify the copied version of the policy. Be aware, however, that in this approach the policy template that remains in the BSNGLOBL locale is now different from the modified version of the policy in the new locale.

Scenario 3: Copy a BSNGLOBL policy to a new locale (or locales) now, and modify the copied policy later or not at all

In this scenario, you copy the SYS. version of the policy from BSNGLOBL to one or more locales, but you modify the copied version of the policy at a later date, or not at all.

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

In this scenario, you modify the SYS. version of the policy in the BSNGLOBL locale, but you do not copy the policy to a new locale (or locales). The policy template is now modified and ready for copying at a later time.

Scenario 5: Copy the BSNGLOBL policy to a new locale (or locales) later, and modify the copied policy later

In this scenario, you copy the SYS. version of the policy in the BSNGLOBL locale at a later date. Additionally, you modify the copied policy at a later date.

Procedure

For instructions for customizing and copying policies to locales, see "Creating a new policy from executable BSNGLOBL policy and copying to a new locale" in *IMS Tools Base Policy Services User's Guide and Reference*.

Promoting initial maintenance environment to initial operation environment

You can promote the initial maintenance environment (000000001) to an initial operation environment (000000002).

Before you begin

Maintenance updates and import actions can have a broad impact 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. This approach allows you to complete the changes in an isolated environment. When the changed environment is validated, it can be promoted to become the 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 and allows you to regress to any past saved (history) operation environment.

At this point, ensure that you have completed the following tasks in the maintenance environment by using the Policy Services user interface:

- Started the Policy Services user interface
- Created an initial empty maintenance environment
- Installed the initial domain policies and rules from the IBM maintenance data set
- Customized and copied rules to your locales, if required by your installation (or delayed this task until later)
- Created executable policy templates
- Updated policies impacted by deleted rules (the initial installation of a new domain does not require this task)
- Created directory entries and a notification list
- Copied policies to locales, if required by your installation (or delayed this task until later)

If these tasks have been performed to your satisfaction, you are now ready to commit these changes to an operation environment.

Procedure

To promote the initial maintenance environment (000000001) to an initial operation environment (000000002), see "Promoting a maintenance environment to an operation environment" in *IMS Tools Base Policy Services User's Guide and Reference*.

Part 4. Configuring IMS Tools Common Services

IMS Tools Common Services includes the IMS Tools Generic Exits, IMS Tools Online System Interface components, and the Resource Manager Structure utility.

Important: The Generic Partner exit in IMS Tools Generic Exits is required by IMS Tools Online System Interface.

Topics:

- [Chapter 15, “Configuring the exit routines in IMS Tools Generic Exits,” on page 115](#)
- [Chapter 16, “Configuring IMS Tools Online System Interface,” on page 123](#)
- [Chapter 17, “Configuring IMS Tools Common Pauser,” on page 127](#)
- [Chapter 18, “Configuring the Resource Manager Structure utility,” on page 137](#)

Chapter 15. Configuring the exit routines in IMS Tools Generic Exits

IMS Tools Generic Exits is a collection of exit routines that provide the ability to call multiple exit routines from a single exit point in an IMS environment.

IMS Tools Generic Exits includes the following exit routines:

- Generic Logger exit
- Generic Partner exit
- Generic MSC exit
- Generic QSN exit

The IMS Tools Generic Partner Exit interface is required to operate IMS Tools Online System Interface.

Topics:

- [“Enabling the Generic Logger exit with IMS Tools” on page 115](#)
- [“Enabling the Generic Partner exit with IMS Tools” on page 116](#)
- [“Enabling the Generic MSC exit with IMS Tools” on page 116](#)
- [“Enabling the Generic QSN exit for use with IMS Tools” on page 117](#)
- [“Sample PROCLIB members” on page 118](#)
- [“IMS Tools exit names for IMS Tools Generic Exits” on page 121](#)

Enabling the Generic Logger exit with IMS Tools

If you are using IBM IMS Tools products that use the IMS logger exit routine for processing, you must install and configure Generic Logger exit to point to one or more logger exits in your system.

About this task

For an IMS Tools product to initialize and run when the Generic Logger exit is installed, the product must provide an IMS logger exit routine that can be included in the Generic Logger exit definitions.

This IMS logger exit must be IMS release-independent to prevent the need to change the exit name when the IMS release changes. The name of this logger exit is determined by each IMS Tools product.

Important: If you install several vendor products into a single load library, do not name this exit DFSFLGX0. This practice provides single load library support for vendor tools.

To ensure that IMS Tools products can initialize and run when the Generic Logger exit is installed, you must complete the following steps:

Procedure

1. Add *smphlq.SGLXLOAD* as the first entry in the IMS Control Region //STEPLIB concatenation.
If you cannot add *smphlq.SGLXLOAD* as the first entry in the concatenation because another exit must be first, add *smphlq.SGLXLOAD* as the second entry in the concatenation.
2. Optional: Define global processing options for the Generic Logger exit by using a PROCLIB member or a load module in GLXOPT0.
3. Define logger exit routines for IMS Tools products and your own logger exit routine for the Generic Logger exit by using PROCLIB member GLXEXIT0 or GLXxxxx0.
4. Ensure that all of the load libraries in which these logger exit routines reside are APF-authorized.

5. Start the IMS control region or run a log recovery utility job (CLS mode) and verify that the Generic Logger exit and any defined logger exit routines initialize successfully.

Enabling the Generic Partner exit with IMS Tools

If you are using any IMS Tools products that use the Generic Partner exit for processing, you must install and configure Generic Partner exit to point to one or more partner exit in your system.

About this task

For an IMS Tools product to initialize and run when the Generic Partner exit is installed, the product must provide a partner exit routine that can be included in the Generic Partner exit definitions.

This partner exit must be IMS release independent to prevent you from having to change the exit name when the IMS release changes. The name of this exit is determined by each IMS Tool product.

Important: If you install several vendor products into a single load library, do not name this exit DFSPPE0. This practice provides single load library support for vendor tools.

To ensure that IMS Tools products can initialize and run when the Generic Partner exit is installed, you must complete the following steps:

Procedure

1. Add *smphlq.SGLXLOAD* as the first entry in the IMS Control Region //STEPLIB concatenation.
If you cannot add *smphlq.SGLXLOAD* as the first entry in the concatenation because another exit must be first, add *smphlq.SGLXLOAD* as the second entry in the concatenation.
2. Optional: Define global processing options for the Generic Partner exit by using a PROCLIB member or a load module in GPROPT0.
3. Define partner exit routines for IMS Tools products and your own Partner exit routine for the Generic Partner exit by using PROCLIB member GPREXIT0 or GPRxxxx0.
4. Ensure that all of the load libraries in which these partner exit routines reside are APF-authorized.
5. Start the IMS control region and verify that the Generic Partner exit and any defined partner exit routines initialize successfully.

Enabling the Generic MSC exit with IMS Tools

If you are using IBM IMS Tools products that use the MSC exit routine for processing, you must install and configure the Generic MSC exit to point to one or more MSC exits in your system.

About this task

For an IMS Tools product to initialize and run when the Generic MSC exit is installed, the product must provide an MSC exit routine that can be included in the Generic MSC exit definitions.

This MSC exit must be IMS release-independent to prevent the need to change the exit name when the IMS release changes. The name of this MSC exit is determined by each IMS Tools product.

Important: If you install several vendor products into a single load library, do not name this exit DFSMSCE0. This practice provides single load library support for vendor tools.

To ensure that IMS Tools products can initialize and run when the Generic MSC exit is installed, you must complete the following steps:

Procedure

1. Add *smphlq.SGLXLOAD* as the first entry in the IMS Control Region //STEPLIB concatenation.
If you cannot add *smphlq.SGLXLOAD* as the first entry in the concatenation because another exit must be first, add *smphlq.SGLXLOAD* as the second entry in the concatenation.

2. Optional: Define global processing options for the Generic MSC exit by using a PROCLIB member or a load module in GEXOPT0.
3. Define MSC exit routines for IMS Tools products and your own MSC exit routine for the Generic MSC exit by using PROCLIB member GEXEXIT0 or GEXxxxx0.

Ensure that IMS Sysplex Manager's MSC exit GJEMSCE0 is the last entry in the PROCLIB.

4. Ensure that all of the load libraries in which these MSC exit routines reside are APF-authorized.
5. Start the IMS control region and verify that the Generic MSC exit and any defined MSC exit routines initialize successfully.

Enabling the Generic QSN exit for use with IMS Tools

If you are using IBM IMS Tools products that use the QSN exit routine for processing, you must install and configure the Generic QSN exit to point to one or more QSN exits in your system.

About this task

For an IMS Tools product to initialize and run when the Generic QSN exit is installed, the product must provide a QSN exit routine that can be included in the Generic QSN exit definitions.

This QSN exit must be IMS release-independent to prevent the need to change the exit name when the IMS release changes. The name of this QSN exit is determined by each IMS Tools product.

Important: If you install several vendor products into a single load library, do not name this exit DFSQSSP0. This practice provides single load library support for vendor tools.

To ensure that IMS Tools products can initialize and run when the Generic QSN exit is installed, you must complete the following steps:

Procedure

1. Add *smphlq.SGLXLOAD* as the first entry in the IMS Control Region //STEPLIB concatenation.

If you cannot add *smphlq.SGLXLOAD* as the first entry in the concatenation because another exit must be first, add *smphlq.SGLXLOAD* as the second entry in the concatenation.

2. Optional: Define global processing options for the Generic QSN exit by using a PROCLIB member or a load module in GEXQOPT0.
3. Define QSN exit routines for IMS Tools products and your own QSN exit routine for the Generic QSN exit by using PROCLIB member GEXQEXIT or GEXQxxxx.

Ensure that IMS Sysplex Manager's QSN exit GJEQSSP0 is the last entry in the PROCLIB.

4. Ensure that all of the load libraries in which these QSN exit routines reside are APF-authorized.
5. Start the IMS control region and verify that the Generic QSN exit and any defined QSN exit routines initialize successfully.

Sample PROCLIB members

The components of IMS Tools Generic Exits include a sample library (*smphlq.SGLXSAMP*) from which you can copy and customize sample members to configure each component.

Sample library member description

Descriptions for each member help you understand which member to configure so that you can include a specific generic exit in your environment.

Generic Logger exit member description

GLXEXIT#

If you use the load module method, configure this member to include exit definitions for IMS Logger exits.

GLXEXIT0

If you use the PROCLIB member method, configure this member to include exit definitions for IMS Logger exits.

GLXOPT#

If you use the load module method, configure this member to include global processing options for the Generic Logger exit.

GLXOPT0

If you use the PROCLIB member method, configure this member to include global processing options for the Generic Logger exit.

Generic Partner exit member description

GPREXIT0

Configure this member to include exit definitions for IMS Partner exits.

GPROPT0

Configure this member to include global processing options for the Generic Partner exit.

Generic MSC exit member description

GEXEXIT0

Configure this member to include exit definitions for IMS MSC exits.

GEXOPT0

Configure this member to include global processing options for the Generic MSC exit.

Generic QSN exit member description

GEXQEXIT

Configure this member to include exit definitions for IMS QSN exits.

GEXQOPT0

Configure this member to include global processing options for the Generic QSN exit.

PROCLIB member examples

Sample members help you configure members so that you can include specific generic exits.

Generic Logger exit sample members

GLXEXIT# (load module method)

The following sample shows a Generic Logger exit global definition member for a cloned IMS environment. The sample includes IMS Sysplex Manager and a customized logger exit routine.

```
GLXIEXIT FUNC=BEGIN
EXIT1 GLXIEXIT FUNC=DEFINE,TYPE=LOGR,EXITNAME=GJEIINT0,
LOADLIB=IMSSM.LOADLIB
EXIT2 GLXIEXIT FUNC=DEFINE,TYPE=LOGR,EXITNAME=DFSFLGX0,
LOADLIB=USER.LOADLIB
GLXIEXIT FUNC=END
```

GLXEXIT0 (PROCLIB member method)

The following sample shows a Generic Logger exit global definition member for an IMS control region. The sample includes IMS Sysplex Manager and a customized logger exit routine.

```
EXITDEF(TYPE(LOGR) EXITNAME(GJEIINT0) LOADLIB(IMSSM.LOADLIB))
EXITDEF(TYPE(LOGR) EXITNAME(DFSFLGX0) LOADLIB(user.LOADLIB))
```

GLXimsa0

The following sample shows a Generic Logger exit IMS-specific exit definition load module for an IMS control region with an IMSID of IMSA. The sample includes IMS Sysplex Manager, a vendor supplied logger exit routine, and a customized logger exit routine.

```
GLXIEXIT FUNC=BEGIN, IMSID=IMSA
EXIT1 GLXIEXIT FUNC=DEFINE,TYPE=LOGR,EXITNAME=GJEIINT0,LOADLIB=IMSSM.LOADLIB
EXIT2 GLXIEXIT FUNC=DEFINE,TYPE=LOGR,EXITNAME=DFSFLGX0,LOADLIB=VENDOR.LOADLIB
EXIT3 GLXIEXIT FUNC=DEFINE,TYPE=LOGR,EXITNAME=DFSFLGX0,LOADLIB=USER.LOADLIB
GLXIEXIT FUNC=END
```

GLXOPT# (load module method)

The following sample shows the format of the global parameter for the load module method.

```
GLXIGLBL INITFAIL=WARNING,
EXITINIT=TERMEXIT,
EXITPROC=TERMEXIT
```

GLXOPT0 (PROCLIB member method)

The following sample shows the format of the global parameter for the PROCLIB member method.

```
GLOBAL(INITFAIL(WARNING) EXITINIT(TERMEXIT) EXITPROC(TERMEXIT))
```

Generic Partner exit sample members

GPREFIX0

The following sample shows a Generic Partner exit global definition member for an IMS control region. The sample includes IMS Queue Control Facility, IMS Tools Online Interface, and a customer Partner exit routine.

```
EXITDEF(TYPE(PARTNER) EXITNAME(IQCPPUE0) LOADLIB(qcf.LOADLIB))
EXITDEF(TYPE(PARTNER) EXITNAME(FOIPPUE1) LOADLIB(toi.LOADLIB))
EXITDEF(TYPE(PARTNER) EXITNAME(DFSPUE0) LOADLIB(user.LOADLIB))
```

GPRimsa0

The following sample shows a Generic Partner exit IMS-specific definition member for an IMS control region with an IMSID of IMSA. The sample includes IMS Queue Control Facility, IMS Tools Online Interface, and a customer Partner exit routine.

```
EXITDEF(TYPE(PARTNER) EXITNAME(IQCPPUE0) LOADLIB(qcf.LOADLIB))
EXITDEF(TYPE(PARTNER) EXITNAME(FOIPPUE1) LOADLIB(toi.LOADLIB))
EXITDEF(TYPE(PARTNER) EXITNAME(DFSPUE0) LOADLIB(user.LOADLIB))
```

GPROPTO

The following sample shows the format of the global parameter.

```
GLOBAL(INITFAIL(WARNING) EXITINIT(TERMEXIT) EXITPROC(TERMEXIT))
```

Generic MSC exit sample members

GEXEXITO

The following sample shows a Generic MSC exit global definition member for an IMS control region. The sample includes a customized MSC exit routine and an IMS Sysplex Manager exit.

```
EXITDEF(TYPE(MSCE) EXITNAME(DFSMSCE0) LOADLIB(user.LOADLIB))
EXITDEF(TYPE(MSCE) EXITNAME(GJEMSCE0) LOADLIB(IMSSM.LOADLIB))
```

GEXimsa0

The following sample shows a Generic MSC exit IMS-specific definition member for an IMS control region with an IMSID of IMSA. The sample includes a customized MSC exit routine and an IMS Sysplex Manager exit.

```
EXITDEF(TYPE(MSCE) EXITNAME(DFSMSCE0) LOADLIB(user.LOADLIB))
EXITDEF(TYPE(MSCE) EXITNAME(GJEMSCE0) LOADLIB(IMSSM.LOADLIB))
```

GEXOPTO

The following sample shows the format of the global parameter.

```
GLOBAL(INITFAIL(WARNING) EXITINIT(TERMEXIT) EXITPROC(TERMEXIT))
```

Generic QSN exit sample members

GEXQEXIT

The following sample shows a Generic QSN exit global definition member for an IMS control region. The sample includes a customized QSN exit routine and an IMS Sysplex Manager exit.

```
EXITDEF(TYPE(QSNE) EXITNAME(DFSQSSP0) LOADLIB(user.LOADLIB))
EXITDEF(TYPE(QSNE) EXITNAME(GJEQSSP0) LOADLIB(IMSSM.LOADLIB))
```

GEXQimsa

The following sample shows a Generic QSN exit IMS-specific definition member for an IMS control region with an IMSID of IMSA. The sample includes a customized QSN exit routine and an IMS Sysplex Manager exit.

```
EXITDEF(TYPE(QSNE) EXITNAME(DFSQSSP0) LOADLIB(user.LOADLIB))
EXITDEF(TYPE(QSNE) EXITNAME(GJEQSSP0) LOADLIB(IMSSM.LOADLIB))
```

GEXQOPTO

The following sample shows the format of the global parameter.

```
GLOBAL(INITFAIL(WARNING) EXITINIT(TERMEXIT) EXITPROC(TERMEXIT))
```

IMS Tools exit names for IMS Tools Generic Exits

When you configure an IMS Tool that requires a generic exit, you must include the IMS Tool exit name in the generic exit PROCLIB member.

Configure only the exits for the products that you are installing.

The exit names and locations for each IMS Tools product are provided in the following list. Information for each exit can also be found in each product's user's guide:

Logger exit

IMS Tools product name	Exit name	Location
IMS Cloning Tool	GCLFLGX0	<i>smphlq</i> .SGCLLOAD library
IMS High Performance Fast Path Utilities	HFPFLGX0	This exit is used by Online Structure Change utility of IMS High Performance Fast Path Utilities and is located in the <i>smphlq</i> .SHFPLMD0 library for the IMS Fast Path Solution Pack.
IMS Online Reorganization Facility	HRFFLGX0	<i>smphlq</i> .SHRFLOAD library
IMS Recovery Expert	BSYFLGX0	<i>smphlq</i> .SBSYLOAD library for the IMS Recovery Solution Pack
IMS Sysplex Manager	GJEFLGX0	<i>smphlq</i> .SGJELOAD library
IMS Tools Common Pauser	FOIVFLG0	<i>smphlq</i> .SFOILOAD library

Partner exit

IMS Tools product name	Exit name	Location
IMS Administration Tool	ATYPPUE0	<i>smphlq</i> .SATYLOAD library
IMS Database Recovery Facility: Extended Functions	IROPPUE	<i>smphlq</i> .SFRXLOAD library for the IMS Recovery Solution Pack
IMS Extended Terminal Option Support	IZTPPUEZ	<i>smphlq</i> .SIZTLINK library
IMS Network Compression Facility	CFNPPUE0	<i>smphlq</i> .SCFNLINK library
IMS Online Reorganization Facility	HRFOPPUE	<i>smphlq</i> .SHRFLOAD library
IMS Queue Control Facility	IQCPPUE0	<i>smphlq</i> .SIQCLINK library
IMS Recovery Expert	BSYPPUE0	<i>smphlq</i> .SBSYLOAD library for the IMS Recovery Solution Pack
IMS Tools Online System Interface	FOIPPUE0	<i>smphlq</i> .SFOILOAD library

MSC exit

IMS Tools product name	Exit name	Location
IMS Sysplex Manager	GJEMSCE0	<i>smphlq</i> .SGJELOAD library

QSN exit

IMS Tools product name	Exit name	Location
IMS Sysplex Manager	GJEQSSP0	This exit is located in the <i>smphlq</i> .SGJELOAD library.

Chapter 16. Configuring IMS Tools Online System Interface

IMS Tools Online System Interface (product prefix FOI) is a general purpose command interface that allows IMS Tools products to interface with all supported IMS versions. IBM IMS Tools products use IMS Tools Online System Interface to issue action commands and IMS commands.

IMS Tools Online System Interface is started during IMS initialization.

IMS Tools Online System Interface reorganization and recovery solutions allow other clients to start and stop full-function database resources and issue IMS commands that need to interact with online the DB/DC IMS or CICS DBCTL systems that own the target databases.

IMS Tools Online System Interface is designed to operate on any hardware and software configuration that supports the required versions of IMS. For detailed specifications, refer to the appropriate Program Directory for the IMS Tool you are using.

Topics:

- [“IMS Tools Online System Interface implementation” on page 123](#)
- [“Setting up the PROCLIB member” on page 124](#)

IMS Tools Online System Interface implementation

This section provides important information on the implementation of the IMS Tools Online System Interface.

General implementation

The IMS Tools Online System Interface library must run out of an APF-authorized library.

The IMS Tools Online System Interface library must be included in the appropriate authorization table so that the libraries in the JOBLIB or STEPLIB concatenation do not lose their APF authorization.

Also, the IMS Tools Online System Interface library (*smqhlq.SFOILOAD*) must be concatenated to the IMS control region //STEPLIB.

For information about APF authorization, see the *z/OS MVS Initialization and Tuning Reference*.

Integration implementation

IMS Tools Online System Interface requires the IMS Partner user exit (DFSPUE0). However, IMS does not support more than one DFSPUE0. To allow sharing of the IMS Partner user exit, you are required to install the IMS Tools Generic Partner exit (GPR).

GPR allows you to define multiple IMS Partner product user exits. GPR calls these exits in succession any time that IMS invokes the DFSPUE0 user exit point.

The GPR libraries must appear in your JOBLIB or STEPLIB concatenation before any other library that contains a module named DFSPUE0.

To set up the IMS Tools Generic Partner exit for the IMS Tools Online System Interface, complete the following steps:

1. For the IMS Tools Online System Interface, add a GPR EXITDEF statement to the GPR PROCLIB member.

For example:

```
EXITDEF (TYPE (PARTNER) EXITNAME (TOSI-exit-name) LOADLIB (TOSI-load-library)
```

Replace *TOSI-exit-name* with the IMS Tools Online System Interface partner product exit. FOIPPUE1 is the member that is shipped with the product.

Replace *TOSI-load-library* with the data set name of your IMS Tools Online System Interface load library.

2. If you have several DFSPUE0 modules for several products, ensure that DFSPUE0 for GPR is in the first library of the load library concatenation.

Remember: If you copy all product load libraries into a single library, ensure that the DFSPUE0 for GPR is not overlaid.

Setting up the PROCLIB member

The IMS Tools Online System Interface PROCLIB member defines the required and optional parameter values to initialize and run the IMS Tools Online System Interface environment.

The IMS Tools Online System Interface PROCLIB member must be a member of a PDS which you define with the IMS PROCLIB data definition statement concatenation. The IMS Tools Online System Interface member name must have three parts: *ppp*, *iiii*, and *c*. Define it according to the following specifications:

ppp

The three byte IMS Tools Online System Interface product prefix, *FOI*.

iiii

The 1-to-4 byte IMSID associated with the target IMS control region.

c

A one byte character identifier, *P*.

An example of an IMS Tools Online System Interface PROCLIB member name for the IMSA subsystem is FOIIMSAP.

IMS reads the PROCLIB member at startup and issues the following message:

```
DFS0578I - READ SUCCESSFUL FOR DDNAME PROCLIB MEMBER = FOIIMSAP
```

The following sections describe the PROCLIB member keyword parameters, keyword parameter syntax, and an example IMS Tools Online System Interface PROCLIB member.

PROCLIB member keyword parameters

The IMS Tools Online System Interface PROCLIB member contains keyword parameters that you must set.

The following list shows the IMS Tools Online System Interface PROCLIB member keyword parameters and their meanings:

XCFGROUP=

Specifies the XCF group name that IMS Tools Online System Interface joins to interface with client programs. XCFGROUP is a required parameter that has no default value.

Specify the XCFGROUP parameter as a 1- to 5-character alphanumeric string. IMS Tools Online System Interface prefixes the string with TOI to create the XCF group name.

Important: The XCF group name must be unique to IMS Tools Online System Interface for the sysplex. IMS Tools Online System Interface cannot share an XCF group because XCF messages cannot be handled predictably between the Tools Online System Interface and any software component that is within the same XCF group.

During initialization in the control region, IMS Tools Online System Interface attempts to locate member FOI*imsid*P; where *imsid* is the IMS subsystem ID. For example:

FOIIMS1P for IMS1
FOISYS3P for SYS3

This member specifies the XCF group as: XCFGROUP=xxxxx. The value specified is prefixed with TOI to form the XCF group name; therefore, it cannot exceed five characters. For example: XCFGROUP=IMS31 would form the group name TOIIMS31.

When IMS Tools Online System Interface joins the group at startup, it issues the following message:

```
FOI100I TOOLS ONLINE INTERFACE ENABLED, XCF GROUP=TOIIMS31      SYS3
```

To customize the IMS control region for using IMS Tools Online System Interface, you must define a unique group name for each data sharing group or set of RECON data sets within a sysplex on which IMS Tools Online System Interface will be used. All of the IMS subsystems that are in the same data sharing group must also be in the same group as IMS Tools Online System Interface.

If both IMS systems share the same RECON data sets, the XCFGROUP name would be identical in both FOIxxxxP members.

If IMS Tools Online System Interface locates the member, IMS Tools Online System Interface initializes and joins the group, TOIxxxxx. After IMS Tools Online System Interface joins the group, other tools can communicate with this IMS if they join the same group.

If IMS Tools Online System Interface does not locate the member, IMS Tools Online System Interface does not initialize in the control region. IMS Tools Online System Interface issues a warning message, and other tools cannot communicate with IMS even if they join the group because no program is available in IMS to service their requests.

INTTIME=

Specifies the Wait Time value to be used for synchronous requests. Specify the wait time in seconds to a maximum value of 3600 seconds. Code the INTTIME parameter as a 1- to 4-character numeric string. If you do not specify INTTIME, a default value of one second is used.

INTNUM=

Specifies the number of Wait Time intervals. Specify the wait time interval as a 1- to 2-character numeric string with maximum value of 60 intervals. If you do not specify INTNUM, a default value of one interval is used.

RESTART=

Specifies whether the IMS Tools Online System Interface environment re-initializes following an abnormal termination. You can code RESTART=YES to permit restart processing or RESTART=NO to prohibit permit restart processing. If you do not specify RESTART a default action of YES is used.

DUMP=

Specifies whether an IMS Tools Online System Interface environment failure produces a dump during ESTAE processing. You can code DUMP=YES to produce a dump or DUMP=NO to specify not to produce a dump. If you do not specify DUMP, a default action of YES is used.

If you specify DUMP=NO, IMS Tools Online System Interface ESTAE processing does not produce a dump, but sends the FOI102I messages to the system console. These messages provide diagnostic information and include the following:

- PSW and System or User abend code.
- MODID and entry point address (if applicable and available).
- DATA of abending code.
- Registers of abending program.

RACFCHK=

Specifies whether the IMS Tools Online System Interface performs system authorization facility (SAF) authorization for IMS type-1 commands.

NO

Type-1 commands run without any authorization. No is the default.

YES

Command security is enforced.

Important: The RACFCHK keyword is applicable only to type-1 commands that are sent directly to IMS. Commands that are routed through the Operations Manager (OM) component are always subject to the OM command security policy, regardless of the RACFCHK specification.

PROCLIB member keyword parameter syntax

You can specify PROCLIB member keyword parameters in free format. They can be preceded by one or more blanks and terminated by blanks or a comma.

You can code single keywords or multiple keywords on individual statements. However, keywords cannot be split on multiple statements, they must be completely contained on a single statement. You must specify keywords within positions 1 through 71 of a statement.

Statements with an asterisk (*) in position one are treated as comment statements and are not processed. Statements with a slash followed by an asterisk (/*) in any positions are treated as trailing comments and the remainder of the statement is not processed.

The following example shows an IMS Tools Online System Interface PROCLIB member:

```
* IMS Tools Online System Interface PROCLIB Member FOIIMSAP
XCFGROUP=REORG      /* IMS XCF group for IMS Tools Online System Interface
      INTTIME=10 INTNUM=3
RESTART=NO      DUMP=YES
```

Sample PROCLIB member

The sample member provides an example that you can copy and customize to configure the IMS Tools Online System Interface.

IMS Tools Online System Interface member description

FOI*iiii*P

Configure this member to specify the required keyword parameters for IMS Tools Online System Interface. The variable *iiii* represents your IMSID.

IMS Tools Online System Interface example member

FOIIMS1P

The following sample shows an IMS Tools Online System Interface PROCLIB member with IMS1 as the IMSID.

```
XCFGROUP=QCF01      /* IMS XCF GROUP FOR IMS TOOLS ONLINE SYSTEM INTERFACE
INTTIME=10 INTNUM=3
RESTART=NO      DUMP=YES
```

Chapter 17. Configuring IMS Tools Common Pauser

IMS Tools Common Pauser is a common module that is used by IMS Tools products to enable the BMP pause feature, which suspends BMPs that access the database to which you want to make changes.

Before starting to use the BMP pause feature of IMS Tools Common Pauser through IMS Tools products, you must configure IMS Tools Common Pauser.

Before you begin: Before configuring IMS Tools Common Pauser, make sure that you do not use the BMP pause features of other IMS Tools products in your environment. This is because the BMP pause feature of IMS Tools Common Pauser cannot coexist with the BMP pause features of other IMS Tools products. If you enable IMS Tools Common Pauser in an environment in which another IMS Tools product that has its own BMP pause feature is already installed, the BMP pause feature of the existing product or the product itself will become unavailable. In particular, IMS Program Restart Facility for z/OS will not be able to be started from the JCL that runs PGM=DFSRR00.

The following IMS Tools products and components have their own BMP pause features:

- IMS Program Restart Facility for z/OS
- IMS Online Reorganization Facility
- IMS Database Recovery Facility

To configure IMS Tools Common Pauser, complete the tasks in the following topics in this order:

Topics:

1. [“Setting up an IMS PROCLIB member” on page 127](#)
2. [“Creating the base configuration module” on page 128](#)
3. [“Verifying the installation” on page 130](#)
4. [“Enabling IMS Tools Common Pauser” on page 130](#)
5. [“\(Optional\) Enabling the CICS and ODBA applications pause feature” on page 132](#)
6. [“\(Optional\) Customizing the base environment” on page 134](#)

Setting up an IMS PROCLIB member

To use IMS Tools Common Pauser, you must configure an IMS PROCLIB member.

Configuring the logger exit routine by using IMS Tools Generic Exits

In the IMS control region, the IMS Tools Common Pauser logger exit routine creates and maintains a table called the *PAUSE table*, which contains a list of DBDs that is used by IMS Tools Common Pauser to determine which BMPs need to be suspended or restarted.

About this task

To configure the IMS Tools Common Pauser logger exit routine by using IMS Tools Generic Exits of IMS Tools Base, you must install and configure the IMS Tools Generic Logger exit interface, which allows multiple exit routines to be called during IMS logger execution.

In this task, you will configure the Generic Logger exit to define the IMS Tools Common Pauser logger exit routine.

The executable load module libraries of IMS Tools Generic Exits and IMS Tools Common Pauser must be APF-authorized.

Procedure

1. To define the IMS Tools Common Pauser logger exit routine (FOIVFLG0) for the Generic Logger exit, create a unique GLXssid0 PROCLIB member for each IMS system in which you plan to use IMS Tools Common Pauser. *ssid* is the 4-character IMS subsystem identifier.

Add the following lines to each GLXssid0 member:

```
EXITDEF (TYPE (LOGR) EXITNAME (FOIVFLG0)
LOADLIB (your_SFOILOAD))
```

where *your_SFOILOAD* is the data set name of the SFOILOAD library.

Note:

For detailed instructions on how to add GLXssid0 members, see *IMS Tools Base IMS Tools Common Services User's Guide and Reference*.

2. In the STEPLIB concatenation of the IMS control region JCL for each IMS subsystem, add the executable load module libraries for IMS Tools Generic Exits and IMS Tools Common Pauser.
3. Start the IMS control region. The following messages are issued if the logger exit routine is activated successfully:

```
FOI01000I  LOGGER EXIT INITIALIZING
FOI01503I  JOINED XCF GROUP xxxxxxxx AS MEMBER yyyy
FOI01000I  LOGGER EXIT INITIALIZED
```

Confirming the XCF group name for IMS Tools Online System Interface

Because IMS Tools Common Pauser uses IMS Tools Online System Interface, you must confirm the settings of IMS Tools Online System Interface.

About this task

The XCF group name that you specify in the TOIXCF parameter of the base configuration module must be the same as the XCFGROUP= name that is specified in the FOIssidP members, which you created while configuring IMS Tools Online System Interface.

For more information about setting information for the IMS Tools Online System Interface, see [Chapter 16, "Configuring IMS Tools Online System Interface,"](#) on page 123.

Creating the base configuration module

To configure IMS Tools Common Pauser, create the base configuration module.

About this task

To run IMS Tools Common Pauser, you must create the base configuration module, which defines base configuration parameters.

Sample members in this step are provided in the SFOISAMP library.

Procedure

1. Edit sample member FOIVCNFG.

The following figure shows the FOIVCNFG job. This job creates the base configuration module.

```
/*=====
/*      Create the base configuration module
/*=====
//C      EXEC   PGM=ASMA90,
//          PARM='LIST,RENT'
//SYSPRINT DD   SYSOUT=*
//SYSLIB   DD   DSN=SYS1.MACLIB,DISP=SHR
```

```

//          DD DSN=your_itcp_sfoimacs,DISP=SHR
//SYSUT1    DD SPACE=(CYL,(2,2)),UNIT=SYSALLDA
//SYSLIN    DD DSN=&&OBJ,SPACE=(CYL,(1,1)),
//          UNIT=SYSALLDA,DISP=(MOD,PASS),
//          DCB=(BLKSIZE=3040,LRECL=80,RECFM=FB)
//SYSIN     DD *
FOISET      TOIGROUP=toixcf,
            XCFGROUP=itcpxcf
/*
//L         EXEC PGM=HEWL,PARM='XREF,LIST',COND=(4,LE,C)
//SYSPRINT  DD SYSOUT=*
//SYSLIB    DD DISP=SHR,DSN=your_itcp_sfoiload
//SYSLMOD   DD DISP=SHR,DSN=your_itcp_sfoiopt
//SYSUT1    DD SPACE=(CYL,(5,2)),
//          UNIT=SYSALLDA
//SYSLIN    DD DSN=&&OBJ,DISP=(OLD,DELETE)
//          DD *
          SETOPT PARM(REUS=RENT)
          NAME FOIUSOPT(R)
//

```

2. In the JCL, define the names of the XCF groups to be used.

The following parameters specify these resources:

Parameter	Description
TOIGROUP	Required. Specifies the XCF group name for the IMS Tools Online System Interface. The group name must begin with TOI, and the rest of the name must be the same as the XCFGROUP name that is specified in the FOIssidP members, which you created while configuring IMS Tools Online System Interface. All the IMS subsystems and jobs that use IMS Tools Common Pauser must use the same TOIGROUP name.
XCFGROUP	Required. Specifies the XCF group name to use for communication between IMS control regions and IMS Tools Common Pauser batch jobs. You can specify up to 8 characters of the group name. This name must be different from the TOIGROUP parameter value and unique within the sysplex. All the IMS subsystems and jobs that use IMS Tools Common Pauser must use the same XCFGROUP name.

Note: The base configuration parameters that are defined in the base configuration module can be changed later. For more information, see [“\(Optional\) Customizing the base environment” on page 134](#).

3. Run the FOIVCNFG job to create the base configuration module FOIUSOPT.
4. Add the base configuration module to the STEPLIB DD concatenation of IMS control region JCL, and then recycle all the affected control regions. You do not need to restart the systems.

You receive the following initialization messages from the two components: IMS Tools Common Pauser and IMS Tools Online System Interface:

```

FOI01000I Logger exit initializing
FOI01503I Joined XCF group xcfgroup as member ssid
FOI01000I Logger exit initialized
...
FOI100I TOOLS ONLINE INTERFACE ENABLED; XCF GROUP=toigroup, CMD SECURITY=NO ssid

```

Verifying the installation

On every IMS subsystem in which IMS Tools Common Pauser is to be used, run the installation verification program (IVP) to verify that IMS Tools Common Pauser functions properly with your configuration.

Before you begin

Because this procedure uses database FP1 and PSB AFP1, which are configured in the JCL generated by IMS Tools Setup, use the IMS Tools Setup function for post-SMP/E-installation customization.

Except for the setup JCL of IMS Tools Setup, sample JCL for the IVP is included in the SFOISAMP data set.

Procedure

1. Set up the DBD and the PSB by using IMS Tools Setup.
2. Run the IVP jobs.

Sample JCL to run IMS Tools Common Pauser IVP jobs is included in the SFOISAMP library.

- a) Run the IVP BMP job.

Sample JCL to run the IVP BMP job is included in member FOIVIVP1 of the SFOISAMP library.

- b) Run the pause request job.

Sample JCL to run the pause request job is included in member FOIVIVP0 of the SFOISAMP library.

Note: If there is no reply to the message from FOIVIVP1 within 30 seconds, the pause request job FOIVIVP0 times out with a timeout message. If a timeout occurs, reply to the message from FOIVIVP1, finish the job, and then start over from the beginning.

Timeout message (example):

```
FOI01495E FOIVPAUS STOBMP FAILED. RC=0010,RSN=0135
```

- c) Reply to the message from FOIVIVP1.

The BMP job pauses with a U3303 pseudo abend after completing the third checkpoint.

- d) Reply to message FOI01491A.

The pause request job completes with return code 0, and the BMP job restarts from a checkpoint with ID CHKP3.

- e) Reply to the message from FOIVIVP1.

The BMP job completes with return code 0.

Enabling IMS Tools Common Pauser

Before IMS Tools Common Pauser can operate with IMS jobs, you must install a USERMOD into your IMS target zone.

Note: The IVP jobs bypassed this requirement by using EXEC PGM=FOIVPRRC instead of PGM=DFSRRRC00.

To enable IMS Tools Common Pauser, you must complete the following tasks:

- Add the IMS Tools Common Pauser modules to the STEPLIB DD concatenation of every IMS job. For details, see [“Copying load modules to your common program library” on page 131](#).
- Replace the DFSRRRC00 region controller of IMS with the region controller of IMS Tools Common Pauser. For details, see [“Applying a USERMOD to the IMS region controller” on page 132](#).

Copying load modules to your common program library

After IMS Tools Common Pauser is enabled, any job that runs PGM=DFSRR00 must have the IMS Tools Common Pauser load modules available in the STEPLIB of the job. If IMS Tools Common Pauser modules are not in the STEPLIB of the job, IMS Tools Common Pauser ends abnormally with an S806 abend code with reason code 04. This is because the IMS region controller (DFSRR00), which you update by applying a USERMOD, cannot find IMS Tools Common Pauser modules.

About this task

If you have a common program library that is used in every IMS job, you can copy the IMS Tools Common Pauser modules to that library by using SAMPLIB member FOIVACT2. SAMPLIB member FOIVACT2 is the IEBCOPY JCL for copying only those IMS Tools Common Pauser modules that are needed to run IMS jobs.

If you do not have such a common program library, you can copy the IMS Tools Common Pauser modules to the IMS RESLIB by using SAMPLIB member FOIVACT2.

To run each IMS job, the following IMS Tools Base modules and libraries are required in the STEPLIB:

Table 30. IMS Tools Base modules and libraries that are required to use IMS Tools Common Pauser or to prevent an S806 abend

IMS job	Modules and libraries that are required
IMS control region	- IMS Tools Online System Interface and IMS Tools Common Pauser load library (SFOILOAD) - IMS Tools Generic Exits load library (SGLXLOAD) - Base configuration module for IMS Tools Common Pauser
BMP job	IMS Tools Common Pauser modules that are copied by SAMPLIB member FOIVACT2
OEM or IMS utility job that calls the IMS region controller (DFSRR00) For a list of the utilities, see the description of message FOI01003I in <i>IMS Tools Base IMS Tools Common Services User's Guide and Reference</i> .	IMS Tools Common Pauser modules that are copied by SAMPLIB member FOIVACT2
IMS job that runs PGM=DFSRR00 (other than IMS control region and BMP jobs)	IMS Tools Common Pauser modules that are copied by SAMPLIB member FOIVACT2
IMS Tools product job that uses IMS Tools Common Pauser	- IMS Tools Online System Interface and IMS Tools Common Pauser load library (SFOILOAD) - Base configuration module for IMS Tools Common Pauser

Important: If any maintenance is applied to IMS Tools Common Pauser, you must copy modules to your common program library or the IMS RESLIB again.

Procedure

To copy load modules to your common program library or the IMS RESLIB:

1. Edit sample member FOIVACT2, which is in the SFOISAMP library, by following the instructions in the JCL.
2. Run the FOIVACT2 job.

Some of the IMS Tools Common Pauser modules are copied.

3. Run the IMS job and confirm that an S806 abend with reason code 04 does not occur.

Applying a USERMOD to the IMS region controller

To enable IMS Tools Common Pauser, you must replace the DFSRRC00 region controller of IMS with the region controller of IMS Tools Common Pauser by installing a USERMOD into your IMS target zone.

Before you begin

Important:

- In this configuration, the DFSRRC00 region controller of IMS is replaced with the region controller of IMS Tools Common Pauser. Before you start this task, consider the effects on other applications.
- After IMS Tools Common Pauser is enabled, any jobs that run PGM=DFSRRC00 must have the IMS Tools Common Pauser load modules available in the STEPLIB of each job. Otherwise, these jobs will end abnormally with an S806 abend code with reason code 04. For details, see [“Copying load modules to your common program library” on page 131](#).

About this task

Important:

- Apply the sample USERMOD only to the appropriate IMS version-specific target zones, not the target zone for IMS Tools Common Pauser.
- If you apply any maintenance to DFSRRC00, you must reapply the USERMOD after the maintenance is applied.
- Do not accept any USERMODs into your IMS distribution zone. If you do, you will not be able to restore them in case IMS or IMS Tools Common Pauser maintenance is required for module DFSRRC00.

Procedure

To apply the USERMOD, do the following:

1. Edit sample member FOIVACT1 to update your IMS SMP/E Global CSI data set name and the FMID of your IMS version.
2. Run sample job FOIVACT1 to apply the USERMOD to DFSRRC00.

This JCL changes DFSRRC00 to link to FOIVPUP0 instead of DFSRRA00 to allow IMS Tools Common Pauser initialization.

(Optional) Enabling the CICS and ODBA applications pause feature

If you plan to use IMS Tools Common Pauser for databases that are used by CICS or ODBA applications, you must enable the CICS and ODBA applications pause feature. This task is optional.

Based on your environment, take one of the following methods to enable the CICS and ODBA applications pause feature:

- [“Enabling CICS and ODBA applications pauses without modifying the IMS SDFSRESL data set” on page 133](#)
- [“Enabling CICS and ODBA applications pauses by modifying the IMS SDFSRESL data set” on page 133](#)

Enabling CICS and ODBA applications pauses without modifying the IMS SDFSRESL data set

If you do not want to modify the IMS SDFSRESL data set, generate the required module in a different load module library that is defined in the STEPLIB of IMS control region JCL. This task is optional.

About this task

In this configuration, the DFSDBCTG module that is customized by IMS Tools Common Pauser is added to a load module library that precedes the IMS SDFSRESL in the STEPLIB DD concatenation of IMS control region JCL.

Procedure

1. Edit the sample member FOIVCAP1, which is in the SFOISAMP library, by following the instructions in the JCL.
2. Run the FOIVCAP1 job.

The DFSDBCTG module that is customized by IMS Tools Common Pauser is created.

3. Add the DFSDBCTG module to a library that precedes the IMS SDFSRESL in the STEPLIB DD concatenation of IMS control region JCL, and then recycle all the affected control regions. You do not need to restart the systems.

Enabling CICS and ODBA applications pauses by modifying the IMS SDFSRESL data set

If you can allow modifications to the IMS SDFSRESL data set, add the required module to the IMS SDFSRESL data set. This task is optional.

Before you begin

Use SMP/E to apply and accept IMS maintenance, and ensure that IMS is at the latest maintenance level.

Important: In this configuration, DFSDBCTG, the DBCTL composite load module of IMS, is replaced with the one customized by IMS Tools Common Pauser. Before you start this task, consider the effects on other applications.

About this task

In this configuration, the DFSDBCTG module that is customized by IMS Tools Common Pauser is added to the IMS SDFSRESL data set. In this task, you create a USERMOD by using IMS Tools Common Pauser and apply that USERMOD to IMS.

Important: If you use this method to enable the CICS and ODBA applications pause feature, be aware of the following considerations:

- Never accept the USERMOD created by IMS Tools Common Pauser.
- After the USERMOD is applied, you must follow these steps when you apply IMS maintenance:
 1. Remove the USERMOD by using the SMP/E RESTORE command.
 2. Apply IMS maintenance.
 3. Rerun from step [“3” on page 134](#) to create a new USERMOD and apply that USERMOD.

Procedure

1. If you have ever added the required module for CICS and ODBA applications pauses to the IMS SDFSRESL data set, follow the instructions in the sample member FOIVCAP3 to remove the old USERMOD from IMS.

2. Edit the sample member FOIVCAP2 by following the instructions in the JCL.
3. Run the FOIVCAP2 job.

The job creates a USERMOD for the DBSDBCTG module, and then performs SMP/E RECEIVE and APPLY for the generated USERMOD. The DFSDBCTG module that is customized by IMS Tools Common Pauser is added to the IMS SDFSRESL data set.

4. Recycle all the affected control regions. You do not need to restart the systems.

(Optional) Customizing the base environment

To change base configuration parameters, use the SAMPLIB member FOIVCNFG. The FOIVCNFG job creates the base configuration module FOIUSOPT. This task is optional.

Topics:

- [“Changing base configuration parameters” on page 134](#)
- [“Base configuration parameters” on page 134](#)

Changing base configuration parameters

To change base configuration parameters, which are defined in the FOIUSOPT module, re-create the module. This task is optional.

Procedure

1. Edit the SAMPLIB member FOIVCNFG.
2. Add or modify any configuration parameters that you want to specify.
For the parameters that you can specify, see [“Base configuration parameters” on page 134](#).
3. Save the SAMPLIB member FOIVCNFG.
4. Submit the FOIVCNFG job to re-create the FOIUSOPT module.
5. If you modified XCFGROUP parameters, recycle all affected control regions so that the new base configuration parameters take effect.

Base configuration parameters

The IMS Tools Common Pauser base configuration module FOIUSOPT contains the parameters that you defined in the SYSIN DD statement of the SAMPLIB member FOIVCNFG.

Specify the base configuration parameters to suit your environment.

DEBUG=**N** | NO | Y | YES

Specifies additional debugging within the IMS control region. DEBUG=Y indicates that IMS Tools Common Pauser can write additional messages and traces to aid in debugging or diagnosing IMS Tools Common Pauser activity in the IMS control region.

Default: N

TOIGROUP=**TOIxxx**

Specifies the XCF group name for the IMS Tools Online System Interface. Specify any valid XCF group name that begins with TOI and ends with the characters that match the XCFGROUP= parameter value in the FOIimsidP member. Specify a 1- to 8-character group name suffix to use for XCF communication between the IMS Tools Online System Interface component in IMS control regions and IMS Tools Common Pauser batch utilities. This name must match the constructed name that is defined in the FOIimsidP IMS PROCLIB member. The TOIGROUP must begin with the characters TOI. The IMS Tools Online System Interface always adds TOI to the beginning of the XCFGROUP name that is specified in the FOIimsidP member.

Default: TOIGROUP=TOIXCF in the FOIUSOPT module and XCFGROUP=XCF in the FOIimsidP would result in TOIXCF.

XCFGROUP=nnn

Specifies a valid 1- to 8-character XCF group name. This group name is used for XCF communication between IMS control regions and the job that sent a pause request by using IMS Tools Common Pauser.

- This XCF group name must be different from the TOSI XCFGROUP name (TOIGROUP= value) that is used for IMS Tools Online System Interface.
- The name must be unique within the sysplex.
- The name must be the same in a single IMSplex.

Default: ITCPXCF

Chapter 18. Configuring the Resource Manager Structure utility

The Resource Manager Structure utility is a batch utility that queries or deletes resources in the Resource Manager (RM) structure used by the IMS systems that are running in an IMSplex.

Authorizing Resource Manager Structure utility program libraries

Before using the Resource Manager Structure utility, you must make certain changes to your MVS system to allow the Resource Manager Structure utility to operate with the required level of authority.

Add the Resource Manager Structure utility libraries to your MVS APF list so that the libraries in the JOBLIB or STEPLIB concatenation do not lose their APF authorization.

For information about APF authorization, see *z/OS MVS Initialization and Tuning Reference*.

Part 5. Configuring Autonomics Director

Autonomics Director supports both automatic and on-demand scheduling of database sensor data collections and evaluations, database reorganizations, and Fast Path DEDB area extensions.

Note: Before configuring Autonomics Director, you must configure IMS Tools Knowledge Base, Policy Services, and IMS Tools Common Services. You must also prepare the necessary skeleton JCL for Autonomics Director.

Topics:

- [Chapter 19, “Configuring the server environment,” on page 141](#)
- [Chapter 20, “Installing and updating the subsystem interface,” on page 149](#)
- [Chapter 21, “Creating skeleton JCL,” on page 153](#)

Chapter 19. Configuring the server environment

Before using Autonomics Director, you must configure the Autonomics Director server environment.

An Autonomics Director environment can have one master server, and multiple active and failover servers on separate MVS systems. Each server in an Autonomics Director environment is a member of the same XCF group.

For example, server AD1 is in MVS1, server AD2 is in MVS2, and server AD3 is in MVS3, but all three servers are members of the same XCF group.

Topics:

- [“Configuring an Autonomics Director server” on page 141](#)
- [“Autonomics Director server parameters” on page 143](#)
- [“Configuring Autonomics Director SAF security” on page 146](#)
- [“BPE PROCLIB member” on page 146](#)

Configuring an Autonomics Director server

You can configure and implement multiple Autonomics Director servers for an Autonomics Director environment.

Before you begin

The Autonomics Director repository for the environment you want to work with must be defined and added to IMS Tools KB before you start the Autonomics Director server. For instructions for defining the Autonomics Director repository, see [“Defining \(allocating\) repository data sets” on page 47](#).

APF-authorize program libraries by adding the Autonomics Director and IMS Tools Generic Exits program libraries to the z/OS APF list for each z/OS system that Autonomics Director runs on. You can use the **SETPROG APF** command to add the libraries to the updated APF list.

About this task

You can run the Autonomics Director server address space either as a job or as a started task.

Procedure

1. Add the following Program Properties Table (PPT) definition to the SCHEDxx member for each z/OS system that the Autonomics Director servers run on, and issue the z/OS **SET SCH=** command to activate the updated PPT.

```
PPT PGMNAME(IAVCI000)          /* PROGRAM NAME = IAVCI000
      CANCEL                    /* PROGRAM CAN BE CANCELED
      KEY(7)                    /* PROTECT KEY ASSIGNED IS 7
      NOSWAP                    /* PROGRAM IS NON-SWAPPABLE
      NOPRIV                    /* PROGRAM IS NOT PRIVILEGED
      DSI                       /* REQUIRES DATA SET INTEGRITY
      PASS                      /* CANNOT BYPASS PASSWORD PROTECTION
      SYST                      /* PROGRAM IS A SYSTEM TASK
      AFF(NONE)                 /* NO CPU AFFINITY
      NOPREF                    /* NO PREFERRED STORAGE FRAMES
```

2. Create a PROCLIB data set or use an existing PROCLIB data set to store Autonomics Director PROCLIB members.

This data set must be FB and have an LRECL of 80.

3. Copy the following sample control file members from *smphlq*.SHKTSAMP into your PROCLIB data set:
 - IAVPBPE

- IAVPCOM
- IAVPMVS
- IAVADSRV

Include the PROCLIB data set in the //PROCLIB data set concatenation.

4. Customize the IAVPMVS and IAVPCOM sample members in your PROCLIB data set, which contain the Autonomics Director server parameters.

IAVPCOM contains the common parameters and IAVPMVS contains the server specific parameters.

For parameter descriptions and their default values, see [“Autonomics Director server parameters” on page 143](#).

5. Optional: To override the default settings for certain Autonomics Director BPE functions, you can set up one or more BPE PROCLIB members.

The IAVPBPE member in *smphlq*.SHKTSAMP contains a sample BPE PROCLIB member.

To specify different settings for BPE resources in each address space, create a separate BPE PROCLIB member for each address space in the PROCLIB data set.

Alternatively, to share BPE settings for all server address spaces, create a single BPE PROCLIB member.

For more information about the BPE PROCLIB member and the BPE keyword parameters, see [“BPE PROCLIB member” on page 146](#).

6. Customize the IAVADSRV sample member in your PROCLIB data set, which contains the Autonomics Director server sample start procedure JCL.

- Specify the BPE PROCLIB member by coding `BPECFG=member_name` on the EXEC PARM statement in the address space startup JCL, as shown in the following example.

Also, specify the name of the member containing the server specific parameters that you customized in [step 4](#).

```
EXEC PGM=IAVCI000, PARM=('TYPE=AD', 'IAVCFG=IAVPMVS', 'BPECFG=IAVPBPE')
```

- If the Autonomics Director server must access multiple RECON data sets at different IMS levels, specify the oldest version of the IMS RESLIB data in the STEPLIB concatenation of the Autonomics Director server.

For example, if the server must access RECON data sets at IMS 14 and IMS 15, specify the IMS 14 RESLIB in the Autonomics Director server STEPLIB concatenation.

- If the Autonomics Director server accesses RECON data sets in one or more IMSplex environments, do the following:

- In the STEPLIB concatenation of the Autonomics Director start procedure JCL, specify the IMS DBRC SCI (Structured Call Interface) registration exit routine (DSPSCIX0). If you have multiple IMSplex environments, create a DSPSCIX0 exit that defines all IMSplex names.

Because an Autonomics Director server supports multiple IMSplex environments of multiple IMS release levels, it ignores IMSPLEX and DBRCGRP parameter values in the EXEC parameter of the Autonomics Director start procedure JCL.

- In the z/OS system on which the Autonomics Director server runs, the SCI address space for the IMSplex to which the IMS belongs must be running. However, IMS needs not be running on the z/OS system on which the Autonomics Director server runs.

- The //PROCLIB DD statement in the IAVADSRV sample member must point to the PROCLIB data set that you allocated in [step 2](#) and to the library where the customized IAVPMVS, IAVPCOM, and IAVPBPE members reside.
- Additionally, always check with IMS release planning guides for any co-existence recommendations.

7. Start the Autonomics Director server address space as a batch job or a started task.

- To start the Autonomics Director server as a batch job, add JOB statements in the JCL for the Autonomics Director server, and then submit the job.
- To start the Autonomics Director server as a started task, issue the **START** command with the procedure name.

```
START procedure_name
```

The following job log messages indicate that the Autonomics Director server has started successfully:

```
IAV0004I - AD SYSTEM INITIALIZATION COMPLETE
IAV0015I - SERVER ADSRV IS NOW THE MASTER SERVER FOR GROUP IAVADM00
IAV0700I - SERVER START COMPLETED
```

8. To stop the Autonomics Director server, issue one of the following operator commands. You can use these commands regardless of whether the server is running as a batch job or as a started task.

```
STOP AD_server_name
MODIFY AD_server_name,STOP SERVER
```

Autonomics Director server parameters

As part of the Autonomics Director server configuration, you must customize the Autonomics Director server PROCLIB member by setting parameters that are appropriate for your installation.

The Autonomics Director server has two separate sets of parameters: global and local. Global parameters are shared by all Autonomics Director servers that operate in the same Autonomics Director server group. Local parameters are used by a specific Autonomics Director server.

- [“Global parameters” on page 143](#)
- [“Local parameters” on page 145](#)

Global parameters

The following parameters are global parameters:

XCFGROUP

(Required) Specify a 5-character suffix XCF group name for the Autonomics Director group. This specified name is automatically prefixed with IAV to make the XCF group name unique and to allow the client interface to locate all groups.

This name must end with a numeric value from 00 to 99.

The first three characters of the specified XCFGROUP value must match the XCFGRPID value used when starting the client.

The recommended default value of the XCFGRPID is ADM. ADM is the default value used by the client.

This parameter has no default value.

ITKBGROUP

(Required) Specify the 8-character IMS Tools KB XCF group name for the IMS Tools KB server.

This parameter has no default value.

SWEEPINT=*minutes*

(Optional) Specify the sweep interval value, in minutes. Valid values are 1 - 1440. The sweep interval is a time interval that defines how frequently Autonomics Director creates requests for work to be completed (for example, sensor data collection and policy evaluation).

The default value is 15.

CYCLETIM=*minutes*

(Optional) Specify the cycle interval value, in minutes. Valid values are 1 - 1440. The cycle interval is a time interval that defines when requests for work are processed by Autonomics Director.

For example, requests for evaluation and sensor data collection are initiated only on each cycle interval. Additionally, group-managed reorganization checks the status of outstanding submitted jobs

on each cycle level. Choosing value that is too large for the cycle interval can cause delays in initiating or completing Autonomics Director scheduled work.

The default value is 1.

Recommendation: If the CYCLETIM value is greater than the SWEEPINT value, the server adjusts the CYCLETIM to match the sweep time. SWEEPINT and CYCLETIM are important parameters for correct functioning of Autonomics Director. Therefore, the default values should be used.

RACFAPPL

(Required) Specify the 8-character SAF or RACF resource group name. Specify NONE for no SAF or RACF support. SAF and RACF support protects the use of Autonomics Director operational commands from the Autonomics Director user interface. Commands that are entered from the MVS system console are not protected with SAF or RACF.

This parameter has no default value.

JCLLIB

(Optional) Specify the default data set name that contains the sensor and reorganization job streams to be submitted to the internal reader by Autonomics Director. Do not enclose the data set name in quotation marks. The data set name is passed to the Autonomics Director client as the default data set name for sensor and reorganization job streams.

The name must be 1 - 44 characters.

This parameter has no default value.

POLCACHE

(Optional) Specify the number of policies to maintain in the policy cache.

The number must be 0 - 99.

The default value is 8.

SENSAGE

(Optional) Specify the 5-character numerical default sensor age value (in minutes) that is passed to the Autonomics Director client. This value is not validated.

The number must be 00000 - 99999 minutes.

This parameter has no default value.

EVALINT

(Optional) Specify the 5-character default evaluation interval value (in minutes) that is passed to the Autonomics Director client. This value is not validated.

The number must be 00000 - 99999 minutes.

This parameter has no default value.

WLMRINT

(Optional) Specify the Work Load Manager (WLM) routing interval that Autonomics Director uses to invoke MVS WLM to determine the best destination for sensor data collection job initiation. The value, in minutes, must be 0 - 5. Specifying 0 deactivates the WLM routing service and a round-robin algorithm is used.

The default is 0. For more information about Autonomics Director routing, see the topic "Autonomics Director server" in *IMS Tools Base Autonomics Director User's Guide and Reference*.

REORGINT

(Optional) Specify the 5-character default reorganization interval value (in minutes) that is passed to the Autonomics Director client to use as the default. The number must be 00000 - 99999 minutes.

ADREPOS

Specify the Autonomics Director repository name in the IMS Tools Knowledge Base Repository for this Autonomics Director environment. Do not enclose the name in quotation marks.

The name must be 1 - 44 characters.

This parameter has a default value of IAV_AUTODIR for compatibility with earlier releases of Autonomics Director.

RECOVERY

(Optional) Specify whether you want to enable or disable the Recovery Sensor and evaluation automation. You can set this parameter to ENABLE or DISABLE. The default value is ENABLE. If you set DISABLE, Recovery Sensor and evaluation will not be performed automatically.

The following sample, IAVPCOM, contains global Autonomics Director server PROCLIB members, which you can use to create your own.

```
XCFGROUP=adm00,      /* Server XCF group name suffix ( 5 CHAR) */
ITKBGROUP=svrname,   /* ITKB server XCF group name */
WLMRINT=0,           /* WLM routing interval value in minutes */
RACFAPPL=adracf,     /* SAF/RACF resource group or NONE */
JCLLIB=yourhlq.JCLLIB /* Sensor JCL lib */
```

Local parameters

The following parameters are the local parameters:

XCFMEMB

(Required) Specify the XCF member name for the Autonomics Director server.

The member name must be unique within the XCF group of Autonomics Director servers.

The name can be 1 - 16 characters and can consist of the characters A through Z, 0 through 9, and the national characters @, #, and \$.

This parameter has no default value.

MODE

(Optional) Specify the Autonomics Director server mode. You can set this parameter to ACTIVE or FAILOVER. The default value is ACTIVE. For more information about Autonomics Director server modes, see the topic "Autonomics Director modes" in *IMS Tools Base Autonomics Director User's Guide and Reference*.

RACFAGE=minutes

(Optional) Specify the aging interval for deletion of cached RACF Accessor Environment Element (ACEE) control blocks.

This value represents the number of elapsed minutes that an inactive RACF ACEE remains in Autonomics Director server virtual storage. The RACF ACEEs are temporarily created to associate the properly authorized user ID with the sensor data collection job and the IMS Autonomics Director operation commands. Caching of ACEEs avoids the unnecessary task of rebuilding ACEEs across these Autonomics Director activities. The number must be 1 - 1440. The default value is 10.

IAVPARMS

(Required) Specify the 8-character global PROCLIB member name. The member name must conform to MVS data set member name conventions.

Important: The global parameter member that is specified with this parameter must exist in the PROCLIB. If multiple Autonomics Director servers are used, you must specify the same global parameter member for all Autonomics Director servers.

This parameter has no default value.

The following sample, IAVPMVS, contains local Autonomics Director server PROCLIB members, which you can use to create your own.

```
XCFMEMB=adsvr01,      /* Server XCF member name (Max 16 CHAR) */
MODE=ACTIVE,          /* ACTIVE|FAILOVER - Server type */
RACFAGE=10,           /* RACF ACEE aging interval in minutes */
IAVPARMS=IAVPCOM      /* Common IAV PROCLIB member name */
```

Configuring Autonomics Director SAF security

Autonomics Director server supports SAF and RACF protection of the use of Autonomics Director client commands from the user interface.

Commands that are entered from the MVS system console are not protected with SAF or RACF. Command access restriction is optional.

The SAF enablement parameter is located in Autonomics Director Server parameter member RACFAPPL.

- Specify NONE for no SAF or RACF support.
- Specify the 8-character SAF or RACF resource group name.
- This parameter has no default value.

Refer to member IAVADRAC in the sample library *hlq.SHKTSAMP*. Substitute the *hlq* variable with the installation data set high-level qualifier. Follow the commented instructions included in that member.

- READ access to the specified APPL class allows **QUERY** commands issued by the user.
- UPDATE access to the specified APPL class allows all commands issued by the user.

BPE PROCLIB member

Autonomics Director is managed through the services of Base Primitive Environment (BPE). As part of the configuration of the Autonomics Director server, you can optionally create the BPE PROCLIB member.

You can change the default settings for certain Autonomics Director BPE functions, such as the following settings:

- The language that is used for BPE and Autonomics Director component messages (currently, only U.S. English is supported)
- The trace level settings for BPE and Autonomics Director component internal trace tables

These settings are stored in the Autonomics Director BPE configuration parameter PROCLIB member.

For each Autonomics Director server that you run, you can create a member of the PROCLIB data set to store the BPE keyword parameters. If you create a single BPE PROCLIB member, it is shared among all of your Autonomics Director server address spaces. If you create a single BPE PROCLIB member, all specifications that are related to BPE-owned resources, such as BPE trace tables, are the same for all of the address spaces. If you create multiple BPE PROCLIB members (one for each address space type), you can specify different settings for BPE resources in each address space.

BPE PROCLIB parameters

As part of the configuration of the Autonomics Director, you can optionally customize the BPE PROCLIB member by specifying the BPE parameters.

When you customize your BPE PROCLIB member, you must adhere to the following rules:

- The rightmost eight columns of each line are ignored and can be used for sequence numbers or any other notation you need. For example, if your LRECL is 80, columns 73 - 80 are ignored.
- You can add blanks between words for readability (but you cannot add them within words).
- You can code multiple statements on one line.
- Use commas or spaces to delimit keywords.
- Use an asterisk (*) or a pound sign (#) in column one of a line to identify the line as a comment.
- Comments can also be included between pairs of /* and */ characters.
- Code values in uppercase. Comments can be in mixed case.

Autonomics Director supplies a sample configuration data set member for Autonomics Director BPE system service functions.

BPE parameter descriptions

LANG

Specifies the required language. Currently, only ENU (U.S. English) is supported.

TRCLEV

Defines trace table information. The following parameters are valid:

component

Specifies the Autonomics Director component name that owns the trace table. For BPE traces, the component must be BPE.

level

Specifies the level of tracing. The following entries are valid:

- NONE
- ERROR
- LOW
- MEDIUM
- HIGH

PAGES=number-of-pages

(Optional) Specifies the number of 4 KB pages to be allocated to this trace table.

tablename

Specifies the name of the trace table. Enter an asterisk (*) to set the default for all. The following trace table names are valid:

- AWE (for AWE server trace)
- CBS (for Control Block Services trace)
- CMD (for Command Services trace)
- DISP (for Dispatcher trace)
- LATC (for Latch trace)
- SSRV (for System Services trace)
- STGC (for Storage trace)

Sample BPE PROCLIB member

You can use the IAVPBPE sample member, located in the *smphlq*.SHKTSAMP data set, as a starting point when creating your own BPE PROCLIB member.

Chapter 20. Installing and updating the subsystem interface

The Autonomics Director subsystem interface facilitates XCF communications between the TSO address space and the Autonomics Director server address space. Job streams involved in group-managed reorganization and tools that collect sensor data such as stand-alone DB Sensor, IMS High Performance Pointer Checker, and IMS HP Image Copy use the subsystem interface to notify the Autonomics Director server when new sensor data is collected.

Before you can start the subsystem interface, you must install the Autonomics Director subsystem interface module in z/OS LPA/MLPA, and you must define the subsystem.

The Autonomics Director subsystem interface must be installed on each z/OS system in the sysplex that the Autonomics Director TSO user interface dialog is accessed from and sensor data collection tools or group-managed reorganization jobs are run.

You can install and update the Autonomics Director subsystem interface dynamically or statically.

Dynamic installation

Install the subsystem by issuing z/OS commands **SETPROG** and **SETSSI**. With a dynamic installation, you are not required to IPL the system to activate the subsystem interface. However, because the subsystem interface persists for the current IPL only, you must reinstall the subsystem interface after an IPL.

Static installation

Install the subsystem by adding module IAVSS110 to the z/OS Link Pack Area and adding the subsystem interface definition to SYS1.PARMLIB subsystem definition member IEFSSNxx. With a static installation, you are required to immediately IPL the system to activate the subsystem interface. The subsystem interface persists across all IPLs.

Tip: Install the interface dynamically so that you can use Autonomics Director without an IPL. Then install the interface statically so that the subsystem interface is activated after each IPL.

The following checklist summarizes the steps for configuring the Autonomics Director interface:

Table 31. Autonomics Director subsystem interface configuration checklist

Step	Task description
1.	Copy Autonomics Director subsystem module IAVSS110 to the LPA. To help with this task, sample member IAVADLPA is provided in sample library file (SHKTSAMP).
2.	Add the definition for the Autonomics Director subsystem interface definition to SYS1.PARMLIB subsystem definition member IEFSSNxx. You can also activate the subsystem interface by using the z/OS SETSSI command. To help with this task, a sample SETSSI command is provided by the member IAVADSSI in the sample library file (SHKTSAMP).
3.	From ISPF option 6, run the Autonomics Director product CLIST to access the Autonomics Director panels.

The following topics contain information about how to install and update the Autonomics Director user interface:

- [“Installing the Autonomics Director subsystem interface dynamically” on page 150](#)
- [“Installing the Autonomics Director subsystem interface statically” on page 150](#)
- [“Updating the Autonomics Director subsystem interface dynamically” on page 151](#)
- [“Updating the Autonomics Director subsystem interface statically” on page 151](#)

Installing the Autonomics Director subsystem interface dynamically

You can install the Autonomics Director subsystem interface dynamically. With a dynamic installation, you are not required to IPL the system to activate the subsystem interface. However, because the subsystem interface persists for the current IPL only, you must reinstall the subsystem interface after an IPL.

Procedure

1. Issue the **SETPROG** command from the z/OS console to add the Autonomics Director subsystem module IAVSS110 to LPA:

```
SETPROG LPA,ADD,MODNAME=IAVSS110,DSNAME=smqhlq.SHKTLOAD
```

where *smqhlq*.SHKTLOAD is the name of your Autonomics Director load library.

2. Issue the **SETSSI** command from the z/OS console to activate the Autonomics Director subsystem module IAVSS110:

```
SETSSI ADD,SUB=subname,INITRTN=IAVSS110
```

where *subname* is a valid and unique 4-character subsystem name that you choose. The subsystem name does not need to be the same across z/OS systems in a sysplex.

Results

After you issue the **SETSSI** command, the following message is displayed:

```
IAV7000I IMS AD VERSION 170 SSI INITIALIZATION COMPLETE
```

If you install the Autonomics Director subsystem interface dynamically, you must issue these commands after each IPL.

For more information about the **SETPROG** and **SETSSI** commands, see *z/OS MVS System Commands*.

Installing the Autonomics Director subsystem interface statically

You can install the Autonomics Director subsystem interface statically. If you install the subsystem interface statically, you are required to immediately IPL the system to activate the subsystem interface. Then the subsystem interface persists across all IPLs.

Procedure

1. Add module IAVSS110 to the z/OS Link Pack Area (LPA). Either pageable (PLPA) or modifiable LPA can be used.
2. Add the definition for the Autonomics Director subsystem interface definition to SYS1.PARMLIB subsystem definition member IEFSSNxx.

You must use the keyword parameter form of the IEFSSNxx PARMLIB member for the Autonomics Director subsystem interface. The Autonomics Director subsystem interface uses dynamic SSI services that are not supported in the positional form of IEFSSNxx. The form of the definition control statement is:

```
SUBSYS SUBNAME(subname) INITRTN(IAVSS110)
```

where *subname* is a valid and unique 4-character subsystem name that you choose. The subname does not need to be the same across z/OS systems in a sysplex.

For more information about the SUBSYS control statement, see *z/OS MVS Initialization and Tuning Reference*.

3. IPL the z/OS system.

After the IPL completes processing, the following message is displayed:

```
IAV7000I IMS AD VERSION 170 SSI INITIALIZATION COMPLETE
```

Updating the Autonomics Director subsystem interface dynamically

You can update the Autonomics Director subsystem interface dynamically.

Procedure

1. Issue the **SETPROG** command from the z/OS console:

```
SETPROG LPA,ADD,MODNAME=IAVSS110,DSNAME=smqhlq.SHKTLOAD
```

where *smqhlq*.SHKTLOAD is the name of your Autonomics Director load library.

2. Issue the **SETSSI** command from the z/OS console:

```
setssi add,sub=subname,initrtn=IAVSS110
```

where *subname* is a valid and unique 4-character subsystem name that you choose. The subname does not need to be the same across MVS systems in a sysplex.

What to do next

After you issue the **SETSSI** command, the following messages are displayed:

```
IAV7004I IMS AD SSI PREVIOUSLY ESTABLISHED IS DISABLED  
IAV7000I IMS AD VERSION 160 SSI INITIALIZATION COMPLETE
```

For more information about the **SETPROG** and **SETSSI** commands, see *z/OS MVS System Commands*.

Updating the Autonomics Director subsystem interface statically

You can update the Autonomics Director subsystem interface statically.

Procedure

1. Replace the LPA resident IAVSS110 copy with the updated module.
2. Restart (IPL) the operating system.

Chapter 21. Creating skeleton JCL

Before configuring IMS Tools Base Autonomics Director, you must prepare skeleton JCL for Autonomics Director to submit to various IMS Tools utilities and components. Autonomics Director submits the skeleton JCL to initiate automatic and on-demand sensor data collections, group-managed reorganizations, and DEDB area extensions.

For more information about submitting the skeleton JCL, see the topics "Managing the monitor list" and "Scheduling and automating" in *IMS Tools Base Autonomics Director User's Guide and Reference*.

The following table displays the components and products that are associated with each task that Autonomics Director can initiate:

Table 32. Components associated with Autonomics Director tasks

Task	Component or utility
Sensor data collection	Skeleton JCL can be prepared for the following components: • Stand-alone Full-Function DB Sensor for IMS Database Solution Pack • Stand-alone Full-Function DB Sensor for IMS Database Utility Solution • Stand-alone Fast Path DB Sensor for IMS Fast Path Solution Pack • Stand-alone Recovery Sensor for IMS Recovery Solution Pack
Group-managed reorganization	Skeleton JCL can be prepared for either of the following products: • IMS Database Reorganization Expert • IMS Online Reorganization Facility
Fast Path DEDB area extensions	IMS Fast Path Solution Pack (Online Space Management utility)

Topics:

- [“Creating skeleton JCL for Data Sensors” on page 153](#)
- [“Customizing skeleton JCL for full-function \(and HALBD\) DB Sensor” on page 155](#)
- [“Customizing skeleton JCL for Fast Path DB Sensor” on page 156](#)
- [“Customizing skeleton JCL for full-function Recovery Sensor” on page 157](#)
- [“Customizing skeleton JCL for Fast Path Recovery Sensor” on page 158](#)
- [“Customizing skeleton JCL for HALDB Recovery Sensor” on page 158](#)
- [“Creating skeleton JCL for group-managed reorganization” on page 159](#)
- [“Creating skeleton JCL for Fast Path Online Space Management utility” on page 163](#)

Creating skeleton JCL for Data Sensors

All Data Sensors are provided as stand-alone components that must be configured and run as a separate job. Some Data Sensors are integrated with IMS Tools products and are run and controlled at the product level.

Data Sensor overview

Data Sensor components collect statistics from an IMS database environment and store them as sensor data in an IMS Tools Knowledge Base repository.

Sensor data is the information collected by a Data Sensor component when, at an instance in time, it scans one or more IMS database environments and measures the specified conditions (or states) occurring in those environments.

The stored data can be used by Autonomics Director, Policy Services, and IMS Administration Foundation or Management Console for database analysis, tuning purposes, and evaluations required by the autonomics process.

IMS Tools provides three Data Sensor components:

- Full-Function Database (DB) Sensor (stand-alone and integrated)
- Fast Path Database (DB) Sensor (stand-alone and integrated)
- Recovery Sensor (stand-alone only)

The Fast Path and Full-Function Database Sensor components function in an IMS Tools space management and reorganization (REORG) domain and capture statistics about the characteristics and organization of data in each database. Information is also collected from the system catalog, VSAM catalog, and Volume Table of Contents (VTOC).

The Recovery Sensor component functions in an IMS Tools recovery (RECOVERY) domain and captures information from the content of DBRC RECON data sets. Data is gathered about individual databases, HALDB partitions, Fast Path areas, and change accumulation groups.

About skeleton JCL for Data Sensors

Stand-alone Data Sensor jobs can be run automatically by using the scheduling functions of Autonomics Director, or the sensor jobs can be scheduled manually using the Autonomics Director ISPF interface.

Data Sensor jobs are created by using sample skeleton JCL members from the product distribution sample library and creating (and customizing) a copy member for use in your environment. These skeleton JCL members have symbolic variables. During the job submission, Autonomics Director looks for these symbolic variables and replaces them with the correct values.

Table 33. Data Sensor skeleton JCL symbolic variables

Symbolic variable	Value
\$DBNAME\$	The name of the database that sensor data is being collected for.
\$PANAME\$	The name of the HALDB (PHDAM or PHIDAM) partition that sensor data is being collected for.
\$ARNAME\$	The name of the DEDB area that sensor data is being collected for.

Procedure

IMS Tools product distributions that contain the appropriate skeleton JCL for Data Sensors.

General procedure to create sensor job skeletons for your environment in your JCL library:

Full-Function DB Sensor (REORG) for full-function and HALDB databases

- Copy the distributed full-function DB sensor (REORG) sample skeleton JCL member BBESJCL2 from *hlq.SHPSSAMP* distribution library and give it a meaningful name (maximum seven characters) in your JCL library.

Example: Name the copied member FFSEN in your JCL library.

- Customize the FFSEN member for your environment.

Fast Path DB Sensor (REORG) for Fast Path databases

- Copy the distributed Fast Path DB sensor (REORG) sample skeleton JCL member HFPOJCL2 from *hlq.SHPSSAMP* distribution library and give it a meaningful name (maximum seven characters) in your JCL library.

Example: Name the copied member FPSEN in your JCL library.

- Customize the FPSEN member for your environment.

Recovery Sensor (RECOVERY) for full-function databases

- Copy the distributed Recovery sensor (RECOVERY) sample skeleton JCL member IROSFY from *hlq.HAHM210.SFRXSAMP* distribution library and give it a meaningful name (maximum seven characters) in your JCL library.

Example: Name the copied member FFSNY in your JCL library.

- Customize the FFSNY member for your environment.

Recovery Sensor (RECOVERY) for Fast Path databases

- Copy the distributed Recovery sensor (RECOVERY) sample skeleton JCL member IROSFY from *hlq.HAHM210.SFRXSAMP* distribution library and give it a meaningful name (maximum seven characters) in your JCL library.

Example: Name the copied member FFSNY in your JCL library.

- Customize the FFSNY member for your environment.

Recovery Sensor (RECOVERY) for HALDB databases

- Copy the distributed Recovery sensor (RECOVERY) sample skeleton JCL member IROSHLY from *hlq.HAHM210.SFRXSAMP* distribution library and give it a meaningful name (maximum seven characters) in your JCL library.

Example: Name the copied member HALSNY in your JCL library.

- Customize the HALSNY member for your environment.

Once you create the Data Sensor members for each database type in your JCL library, you can add databases to the monitor list and specify the correct Data Sensor skeleton to use.

Customizing skeleton JCL for full-function (and HALBD) DB Sensor

You must prepare skeleton JCL to submit stand-alone FF DB Sensor jobs for both HALDB and non-HALDB full-function type databases by using Autonomics Director.

About this task

Before following this procedure, ensure that you have created your own skeleton JCL that was copied from sample skeleton member BBESJCL2 in the preceding task: [“Creating skeleton JCL for Data Sensors” on page 153](#).

Important: If you code a job name label in your skeleton JCL, all stand-alone Data Sensor jobs that are generated from the skeleton will use the same job name and those sensor jobs will be serialized. If you want to avoid this, you can use the symbol \$DBNAME\$ for a non-HALDB database and \$PANAME\$ for a HALDB partition. You can also use the \$USNAME\$ symbol, which identifies the owner of the DB resource or group resource.

Procedure

1. Use your custom-named skeleton member copied from member BBESJCL2 to your data sets and customize the parameters to conform to your standards and environment. The sample member contains descriptive customization information.

The JCL can be created as skeletal JCL by using symbolic variables. When the JCL is submitted, Autonomics Director substitutes each symbolic variable with a value.

Table 34. Symbolic variables for sample member BBESJCL2

Symbolic variable	Value
\$DBNAME\$	The name of the database that sensor data is being collected for.
\$PANAME\$	The name of the HALDB (PHDAM or PHIDAM) partition that sensor data is being collected for.

- Optional: If you want to process a non-HALDB or process all partitions in a HALDB, create a second version of the skeleton JCL and delete the partition parameter (PART=\$PANAME\$) from the new version.

Examples

In the following example of a control statement, Autonomics Director requests sensor data for the PHDAM1A partition of the PHDAM1 database. The symbolic variables are replaced by database PHDAM1 and partition PHDAM1A.

```
//BBESIN DD *
GLOBAL
DBRC=Y,HPIO=Y,
TOSIXCFGRP=TOISYS01,ITKBSVR=FPQSRV01,
ADXCFCGRP=ADSRV01
DATABASE DBD=PHDAM1,PART=PHDAM1A
/*
```

In the following example of a control statement, Autonomics Director requests sensor data for all partitions of the HDAM1 database. The symbolic variable is replaced by HDAM1.

```
//BBESIN DD *
GLOBAL
DBRC=Y,HPIO=Y,
TOSIXCFGRP=TOISYS01,ITKBSVR=FPQSRV01,
ADXCFCGRP=ADSRV01
DATABASE DBD=HDAM1
/*
```

Customizing skeleton JCL for Fast Path DB Sensor

You must prepare skeleton JCL to submit stand-alone Fast Path DB Sensor jobs for Fast Path type databases by using Autonomics Director.

About this task

Before following this procedure, ensure that you have created your own skeleton JCL that was copied from sample skeleton member HFPOJCL2 in the preceding task: [“Creating skeleton JCL for Data Sensors” on page 153](#).

Important: If you code a job name label in your skeleton JCL, all stand-alone DB Sensor jobs that are generated from the skeleton will use the same job name and those sensor jobs will be serialized. If you want to avoid this, you can use the symbol \$DBNAME\$ for a database and \$ARNAME\$ for a DEDB area. You can also use the \$USNAME\$ symbol for the owner of the DB resource or group resource.

Procedure

Use your custom-named skeleton member copied from member HFPOJCL2 to your data sets and customize the parameters to conform to your standards and environment. The sample member contains descriptive customization information.

The JCL can be created as skeletal JCL by using symbolic variables. When the JCL is submitted, Autonomics Director substitutes each symbolic variable with a value.

Table 35. Symbolic variables for sample member HFPOJCL2

Symbolic variable	Value
\$DBNAME\$	The name of the database that sensor data is being collected for.
\$ARNAME\$	The name of the DEDB area that sensor data is being collected for.

Example

In the following example of a control statement, Autonomics Director requests sensor data for the AREaname1 area of the DEDB1 database. The symbolic variables are replaced by database AREaname1 and partition DEDB1.

```
//HFPSYSIN DD *
GLOBAL
  DBRC=YES,
  ADXCFGRP=ADSERV01,
  ITKBSRVR=FPQSRV01,
  DATABASE
  DBD=DEDB1,
  IAREA=AREaname1
/*
```

Customizing skeleton JCL for full-function Recovery Sensor

You must prepare skeleton JCL to submit stand-alone Recovery Sensor jobs for full function type databases by using Autonomics Director.

About this task

Before following this procedure, ensure that you have created your own skeleton JCL that was copied from sample skeleton member IROSFFY in the preceding task: [“Creating skeleton JCL for Data Sensors” on page 153](#).

Important: If you code a job name label in your skeleton JCL, all stand-alone Data Sensor jobs that are generated from the skeleton will use the same job name and those sensor jobs will be serialized. If you want to avoid this, you can use the symbol \$DBNAME\$ for a non-HALDB database and \$PANAME\$ for a HALDB partition. You can also use the \$USNAME\$ symbol, which identifies the owner of the DB resource or group resource.

Procedure

1. Use your custom-named skeleton member (copied from sample skeleton member IROSFFY in the *hlq.HAHM210.SFRXSAMP* library) to your data sets and customize the parameters to conform to your standards and environment. The sample member contains descriptive customization information.
2. Change the following SET parameters:

Table 36. SET parameters

Parameter	Description
SET XCF= <i>srvrad</i>	Change <i>srvrad</i> to your Autonomics Director server XCF group name.
SET RCN1= <i>your.RECON1</i>	Change this value to your RECON1 data set name.

There is no need to change other SET parameters.

3. The JCL can be created as skeletal JCL by using symbolic variables. When the JCL is submitted, Autonomics Director substitutes each symbolic variable with a value.

Table 37. Symbolic variables for sample member IROSFFY

Symbolic variable	Value
\$DBNAME\$	The name of the database that sensor data is being collected for.

Customizing skeleton JCL for Fast Path Recovery Sensor

You must prepare skeleton JCL to submit stand-alone Recovery Sensor jobs for Fast Path DEDB by using Autonomics Director.

About this task

Before following this procedure, ensure that you have created your own skeleton JCL that was copied from sample skeleton member IROSFY in the preceding task: [“Creating skeleton JCL for Data Sensors” on page 153.](#)

Important: If you code a job name label in your skeleton JCL, all stand-alone Data Sensor jobs that are generated from the skeleton will use the same job name and those sensor jobs will be serialized. If you want to avoid this, you can use the symbol \$DBNAME\$ for a DEDB and \$ARNAME\$ for a DEDB area. You can also use the \$USNAME\$ symbol, which identifies the owner of the DB resource or group resource.

Procedure

1. Use your custom-named skeleton member (copied from sample skeleton member IROSFY in the *hlq.HAHM210.SFRXSAMP* library) to your data sets and customize the parameters to conform to your standards and environment. The sample member contains descriptive customization information.
2. Change the following SET parameters:

Table 38. SET parameters

Parameter	Description
SET XCF= <i>srvrad</i>	Change <i>srvrad</i> to your Autonomics Director server XCF group name.
SET RCN1= <i>your.RECON1</i>	Change this value to your RECON1 data set name.

There is no need to change other SET parameters.

3. The JCL can be created as skeletal JCL by using symbolic variables. When the JCL is submitted, Autonomics Director substitutes each symbolic variable with a value.

Table 39. Symbolic variables for sample member IROSFY

Symbolic variable	Value
\$DBNAME\$	The name of the database that sensor data is being collected for.
\$ARNAME\$	The name of the DEDB area that sensor data is being collected for.

Customizing skeleton JCL for HALDB Recovery Sensor

You must prepare skeleton JCL to submit stand-alone Recovery Sensor jobs for HALDB type databases by using Autonomics Director.

About this task

Before following this procedure, ensure that you have created your own skeleton JCL that was copied from sample skeleton member IROSHALY in the preceding task: [“Creating skeleton JCL for Data Sensors” on page 153.](#)

Important: If you code a job name label in your skeleton JCL, all stand-alone Data Sensor jobs that are generated from the skeleton will use the same job name and those sensor jobs will be serialized. If you want to avoid this, you can use the symbol \$DBNAME\$ for a non-HALDB database and \$PANAME\$ for a HALDB partition. You can also use the \$USNAME\$ symbol, which identifies the owner of the DB resource or group resource.

Procedure

1. Use your custom-named skeleton member (copied from sample skeleton member IROSHALY in the *hlq.HAHM210.SFRXSAMP* library) to your data sets and customize the parameters to conform to your standards and environment. The sample member contains descriptive customization information.
2. Change the following SET parameters:

Table 40. SET parameters

Parameter	Description
SET XCF= <i>srvrad</i>	Change <i>srvrad</i> to your Autonomics Director server XCF group name.
SET RCN1= <i>your.RECON1</i>	Change this value to your RECON1 data set name.

There is no need to change other SET parameters.

3. The JCL can be created as skeletal JCL by using symbolic variables. When the JCL is submitted, Autonomics Director substitutes each symbolic variable with a value.

Table 41. Symbolic variables for sample member IROSHALY

Symbolic variable	Value
\$DBNAME\$	The name of the database that sensor data is being collected for.
\$PANAME\$	The name of the HALDB (PHDAM or PHIDAM) partition that sensor data is being collected for.

Creating skeleton JCL for group-managed reorganization

To implement group-managed reorganization, you must specify the location of the JCL to be used during the reorganization process.

The following products provide a reorganization utility:

- IMS Database Reorganization Expert
- IMS Online Reorganization Facility

Topics:

- [“Creating Skeleton JCL for an IMS Database Reorganization Expert reorganization job” on page 159](#)
- [“Creating skeleton JCL for an IMS Online Reorganization Facility reorganization job” on page 162](#)

Creating Skeleton JCL for an IMS Database Reorganization Expert reorganization job

The JCL requirements for a group-managed reorganization that is managed by IMS Database Reorganization Expert depend on how many databases are in a user group, and whether any of the databases have external logical relationships with other databases in the group.

The following JCL jobs may be required for a group-managed reorganization job:

- Pre-group-managed reorganization job
- Reorganization job
- Scan job

- Post-reorganization job
- Post-group-managed reorganization job

Important: If you put only those databases that have no external logical relationships, partitions, and areas in a user group, you do not need to specify the pre-group-managed reorganization, scan, post-reorganization, or post-group-managed reorganization jobs.

A simple case is a group that contains one or more databases without any external logical relationships. The only JCL required for this group is a reorganization job for each database in the group. The JCL for each job is contained to the individual database and is initiated by group-managed reorganization in parallel with other reorganization jobs in the group.

The JCL can be created as skeletal JCL by using symbolic variables. When submitted, group-managed reorganization makes the substitutions in the skeletal JCL.

Table 42. Symbolic variables for sensor data collection and reorganization job streams

Symbolic variable	Value
\$DBNAME\$	The name of the database that data is being collected for.
\$PANAME\$	The HALDB partition or DEDB area name that data is being collected for.
\$ARNAME\$	The alias for \$PANAME\$.
\$GRNAME\$	The database group name that is associated with the request. This variable can also be used for reorganization job streams.
\$USNAME\$	The user ID of the owner of the DB resource or group resource for scheduled requests, or the user ID for on-demand requests. This variable can also be used for reorganization job streams.

Creating JCL for groups with external logical relationships

When external logical relationships exist between databases in a group, additional JCL is required to support the resolution of those relationships after all reorganizations are complete. The pre-group-managed reorganization, reorganization and scan, post-reorganization, and post-group-managed reorganization jobs are used to support logical relationships.

When a group reorganization is scheduled, only databases that require reorganization will be reorganized.

Autonomics Director notifies the IMS Pre-reorganization Utility which databases will be reorganized. The IMS Pre-reorganization Utility provides SYSPUNCH output that contains a list of databases with external logical relationships that require a database scan. You must configure the database scan JCL for all of the databases that the Pre-reorganization Utility is able to select.

During the reorganization and scan jobs, Autonomics Director initiates scan JCL for any database with scan JCL defined. Only the databases listed by the Pre-reorganization Utility are scanned.

Pre-group-managed reorganization job

The pre-group-managed reorganization job is scheduled first. This job is optional for groups that do not have external logical relationships.

Considerations for the pre-group-managed reorganization job:

- A step in this job must run the IMS Pre-reorganization Utility DFSURPRO to produce the required DFSURCDS control data set that is used by subsequent utilities in the group-managed reorganization job flow.

The DFSURCDS data set created by DFSURPRO is used in subsequent downstream jobs scheduled by group-managed reorganization, and must be available to those jobs.

- A SYSPUNCH DD statement must be included in the DFSURPRO step.

The data set referenced by SYSPUNCH is used in subsequent downstream jobs, and therefore must be available to them.

- The SYSIN for DFSURPRO must be coded as follows:

```
//SYSIN DD *
```

No input control statements can be coded after it.

Group-managed reorganization generates the control statements and inserts them into the job as it is being submitted.

Group-managed reorganization creates a `DBR=dbname` statement for each database that must be reorganized.

- The pre-group-managed reorganization job must also run the IAVXNTFY utility. IAVXNTFY notifies Autonomics Director if the pre-reorganization job completes successfully or unsuccessfully.

Autonomics Director uses this notification to determine whether it needs to continue or terminate group-managed reorganization.

A pre-group-managed organization job can also contain other steps as needed. You can include steps to scratch and reallocate work files to be used by subsequent jobs in the process.

The final IAVXNTFY step must indicate whether the pre-group-managed reorganization job completes successfully.

Also, you can exclude the DFSURPRO execution to use the pre-group-managed reorganization job for databases without logical relationships.

Reorganization and scan jobs

The reorganization and scan jobs are scheduled after the pre-group-managed reorganization job. Providing a job for each database, partition, or area maximizes parallelism and provides more granular control over the process.

If a full-function IMS database is logically related to another external full-function IMS database, the JCL for reorganization jobs and for SCAN jobs must be provided. Not providing the SCAN JCL member can cause pointer errors. Under the following conditions, Autonomics Director runs the SCAN JCL on a database in a user group:

- The database does not need to be reorganized.
- One or more databases in the user group have external logical relationships.

Considerations for the reorganization and scan jobs:

- IMS Database Reorganization Expert is the only supported tool and must be used for both reorganization and database scan.
- The database scan is required only for databases that are involved in IMS external logical relationships but are not being reorganized.
- A database that is logically related to itself is treated like a database that has no logical relationships.
- The IPR database scan (HPSCMAIN FUNC=SN) step must be preceded by a step that runs the Autonomics Director Pre-scan Utility (IAVXSCAN). The IAVXSCAN utility verifies that the database in the following step is consistent with IMS Pre-reorganization Utility output.

When IAVXSCAN determines a database scan is required, it terminates with a condition code of 0. When IAVXSCAN determines that a database scan is not required, it terminates with a condition code of 8.

The subsequent database scan step must include a conditional check, for example: COND, GT, 4 or the appropriate IF, THEN, ELSE statements, to bypass the scan step. When IAVXSCAN returns a condition code of 8, it sends an internal system notification that the scan job successfully completed to the Autonomics Director server.

- The IPR (IMS Parallel Reorganization) reorganization job includes a single step to reorganize a single database.

If you code multiple reorganization steps, which is not recommended, only the final reorganization step can send the Autonomics Director job end notification.

The notification informs the Autonomics Director server that the job completed. Otherwise, when the Autonomics Director server receives the notification, it schedules subsequent jobs that can interfere with the running IPR reorganization job.

Post-reorganization jobs

Post-reorganization jobs are scheduled after reorganization and scan jobs. Post-reorganization jobs are used to run the IMS Prefix Resolution and IMS Prefix Update utilities. Based on your requirements, you can choose to have one or more jobs participate in post-reorganization.

Post-reorganization jobs enable you to run jobs in any combination of parallelism or serialization. The sequence and technique are specified when you define the jobs to group-managed reorganization. For example, in a series of five jobs, you can choose to run the first two in parallel, the third serially, and the remaining two in parallel. This technique enables the most flexibility and parallelism in configuring post reorganization jobs.

Post-group-managed reorganization jobs

Post-group-managed reorganization jobs are scheduled last. Post-group-managed reorganization jobs provide an opportunity to conclude the reorganization process. Functions such as work file deletion, DBRC authorization changes, and a utility execution that issue IMS **/START DB** commands can be initiated.

There are two separate post-group-managed reorganization jobs. The first job runs when the group-managed reorganization process runs successfully. The second job runs when the group-managed reorganization process fails. Autonomics Director selects which job to run based on set criteria:

Success indicated

Autonomics Director receives a job end notification of SUCCESS.

Failure indicated

Autonomics Director receives a job end notification of FAILED.

Autonomics Director does not receive valid job end notification even though the job has ended.

Creating skeleton JCL for an IMS Online Reorganization Facility reorganization job

You must prepare skeleton JCL to submit the IMS Online Reorganization Facility reorganization job by using Autonomics Director.

For more information about creating JCL for IMS Online Reorganization Facility, see the *IMS Online Reorganization Facility User's Guide*.

Important: The ADXCFGRP keyword must be specified in the JCL so that IMS Online Reorganization Facility can notify Autonomics Director of the results of the reorganization.

IMS Online Reorganization Facility skeleton JCL for a HALDB database

```
//ORF      EXEC PGM=HRFREORG,REGION=80M
//STEPLIB DD DISP=SHR,DSN=DBSP.SHRFLOAD
//         DD DISP=SHR,DSN=DBSP.SHPSLMD0
//         DD DISP=SHR,DSN=IMST.SFOILOAD
//         DD DISP=SHR,DSN=IMST.SHKTLOAD
//         DD DISP=SHR,DSN=IMS.SDFSRESL
//IMS      DD DISP=SHR,DSN=IMS.DBDLIB
//IMSDALIB DD DISP=SHR,DSN=IMS.MDALIB
//HRFSYSIN DD *
REORG      DBD($DBNAME$) PARTITION($PANAME$) -
           ADXCFGRP(ADSERVER) ITKBSERVER(ITKBSVR) -
           LOG1DSN(YOUR.LOGHLQ.&DBD.&DATE1.&TIME2) -
           ICDYN(Y) IC1DSN(YOUR.ICHLQ.&DDNAME.&DATE1.&TIME2)
/*
```

From the skeleton JCL, Autonomics Director creates the control statement by replacing the symbolic variables with their associated values.

Table 43. Symbolic variables for the reorganization job that is used with HALDB databases

Symbolic variable	Value
\$DBNAME\$	The name of the master DBD.
\$PANAME\$	The name of the partition. This variable is required for HALDB databases.

IMS Online Reorganization Facility skeleton JCL for a non-HALDB full-function database

```
//ORF      EXEC PGM=HRFREORG,REGION=80M
//STEPLIB DD DISP=SHR,DSN=DBSP.SHRFLOAD
//          DD DISP=SHR,DSN=DBSP.SHPSLMD0
//          DD DISP=SHR,DSN=IMST.SFOILOAD
//          DD DISP=SHR,DSN=IMST.SHKTLOAD
//          DD DISP=SHR,DSN=IMS.SDFSRESL
//IMS      DD DISP=SHR,DSN=IMS.DBDLIB
//IMSDALIB DD DISP=SHR,DSN=IMS.MDALIB
//HRFSYSIN DD *
REORG      DBD($DBNAME$) -
           ADXCFGRP(ADSERVER) ITKBSRVR(ITKBSRVR) -
           LOG1DSN(YOUR.LOGHLQ.&DBD.&DATE1.&TIME2) -
           ICDYN(Y) IC1DSN(YOUR.ICHLQ.&DDNAME.&DATE1.&TIME2)
/*
```

From the skeleton JCL, Autonomics Director completes the control statement during JCL job submission by replacing the \$DBNAME\$ symbolic variable with the name of the DBD.

Creating skeleton JCL for Fast Path Online Space Management utility

To enable Autonomics Director to invoke the Online Space Management utility of the IMS Fast Path Solution Pack, you must prepare skeleton JCL for Autonomics Director to submit utility jobs. The Online Space Management utility of the Fast Path Solution Pack can run reorganizations, SDEP extensions, and IOVF extensions on Fast Path DEDB areas.

```
//OSM      EXEC PGM=HFPMAIN0
//STEPLIB DD DISP=SHR,DSN=HPFP.SHFPLMD0
//          DD DISP=SHR,DSN=IMST.SHKTLOAD
//          DD DISP=SHR,DSN=IMS.SDFSRESL
//IMSDALIB DD DISP=SHR,DSN=IMS.MDALIB
//HFPSYSIN DD *
GLOBAL
  ADXCFGRP=ADSERVER,
  ITKBSRVR=ITKBSRVR,
  IMSID=$IMSSYS$,
  ICOUT=YES,
  ICNOTIFY=YES
MANAGE
  ACTION=$ACTION$,
  REORGATIOVFEXT=YES,
  DBD=$DBNAME$,
  IAREA=$ARNAME$
SETREORGPARM
  MAXBUFFS=25,
  MAXFAILS=10,
  REORGLIM=25%
SETEXTENDPARM
  ACBLIB=IMS.ACBLIB,
  DATACLAS=DCLOAE1,
  MGMTCLAS=MCLOAE1,
  STORCLAS=SCLOAE1,
  DDNAME=OAESHADW,
  DSNAME='IMSDB.$ARNAME$.ADS.S',
  IOVF_UOW=30%,
```

```

SDEP_CI=300
/*
//ICEIN DD *
GLOBAL DBRC=Y
CIC DBD=$DBNAME$, AREA=$ARNAME$, ICOUT=(*,*)
/*
//SYSPRINT DD SYSOUT=*
//SYSOUT DD SYSOUT=*
//ICEPRINT DD SYSOUT=*
//ICERPRT DD SYSOUT=*
//

```

The JCL can be created as skeletal JCL by using symbolic variables. When submitted, Autonomics Director creates the control statement by substituting each symbolic variable with a value.

Table 44. Symbolic variables for area extension job streams

Symbolic variable	Value
\$DBNAME\$	The DBD name of a DEDB database.
\$ARNAME\$	The area name of the DEDB that is specified by the symbol \$DBNAME\$.
\$IMSSYS\$	The IMS affinity. The IMS affinity is the IMS ID of an IMS online system that is used to complete scheduled tasks, including reorganizations and area extensions of Fast Path DEDB areas. In order for Autonomics Director to access the specified IMS online system, the TOSI XCF group name that is associated with the IMS system must be specified in the RECON definition. For more information about TOIXCF, the field for the TOSI XCF group name, see “Adding a new RECON environment” on page 83.
\$ACTION\$	One of the following actions, depending on which action is recommended by the last policy evaluation: REORG Reorganize each DEDB area. EXTENDIOVF Extend the IOVF portion of each DEDB area. EXTENDSDEP Extend the SDEP portion of each DEDB area. (REORG,EXTENDIOVF) Reorganize each DEDB area and extend the IOVF portion of each DEDB area. (REORG,EXTENDSDEP) Reorganize each DEDB area and extend the SDEP portion of each DEDB area. (REORG,EXTENDIOVF,EXTENDSDEP) Reorganize each DEDB area and extend the SDEP and IOVF portion of each DEDB area. (EXTENDIOVF,EXTENDSDEP) Extend the SDEP and IOVF portion of each DEDB area.

In the following example control statement that is submitted by Autonomics Director, the symbolic variables \$DBNAME\$, \$ARNAME\$, \$IMSSYS\$, and \$ACTION\$ are replaced by DEDB1, AREANM1, IMS1, and EXTENDIOVF:

```

//HFPSYSIN DD *
GLOBAL
  ADXCFGRP=ADSERVER,
  ITKBSVR=ITKBSVR,
  IMSID=IMS1,
  ICOUT=YES,
  ICNOTIFY=YES
MANAGE

```

```

ACTION=EXTENDIOVF,
REORGATIOVFEXT=YES,
DBD=DEDB1,
IAREA=AREANM1
SETREORGPARM
  MAXBUFFS=25,
  MAXFAILS=10,
  REORGLIM=25%
SETEXTENDPARM
  ACBLIB=IMS.ACBLIB,
  DATACLAS=DCLOAE1,
  MGMTCLAS=MCLOAE1,
  STORCLAS=SCLOAE1,
  DDNAME=OAESHADW,
  DSNAME='IMSDB.AREANM1.ADS.S',
  IOVF_UOW=30%,
  SDEP_CI=300
/*
//ICEIN      DD *
GLOBAL      DBRC=Y
CIC          DBD=DEDB1,AREA=AREANM1,ICOUT=(*,*)
/*

```

Part 6. Configuring Distributed Access Infrastructure

Distributed Access Infrastructure enables distributed clients access to IMS Tools through TCP/IP socket communication.

Topics:

- [Chapter 22, “Configuring Distributed Access Infrastructure,” on page 169](#)

Chapter 22. Configuring Distributed Access Infrastructure

Distributed Access Infrastructure enables distributed clients access to IMS Tools through TCP/IP socket communication. You must configure the startup parameters and execution JCL to customize and run Distributed Access Infrastructure.

Distributed Access Infrastructure is required if you plan to install Management Console for IMS and Db2 for z/OS or IMS Administration Foundation for z/OS, both of which are no-charge IMS Tools products that provide graphical web interfaces.

Topics:

- [“Summary of configuration changes” on page 169](#)
- [“Customizing sample configuration members” on page 170](#)
- [“Server configuration parameters” on page 170](#)
- [“Customizing the execution JCL” on page 173](#)
- [“Adding program attributes to the PPT” on page 173](#)
- [“Configuring SAF security” on page 174](#)
- [“Starting Distributed Access Infrastructure ” on page 174](#)
- [“Verifying that Distributed Access Infrastructure is running” on page 175](#)
- [“Verifying the installation and configuration” on page 176](#)
- [“Stopping Distributed Access Infrastructure” on page 176](#)

Summary of configuration changes

This topic discusses the changes that are introduced to Distributed Access Infrastructure configuration in IMS Tools Base 1.7.

Changes common to members AIINTCPS and AIITTAS

XcfGroupName parameter

In IMS Tools Base 1.6, a TCP server was able to connect to a single Tools Access Server (TAS) only. Also, a TCP server and its associated TAS had to be running on the same z/OS system.

In IMS Tools Base 1.7, a TCP server can connect to multiple TASs that run on different z/OS systems in a sysplex. As a result, the IMS Tools Base 1.6 restriction of including the SMF ID of the system in the XCF group name has been removed. Specify the XCF group name used by Distributed Access Infrastructure in the XcfGroupName parameter. This XCF group name must start with "AII" and be followed by a 1- to 5-character alphanumeric string. The default value is AIIGROUP.

Changes specific to member AIINTCPS

TcpIdleTimeout parameter

The TcpIdleTimeout parameter is no longer supported in IMS Tools Base 1.7. If this parameter is used in the TCP server configuration, it will be ignored.

Customizing sample configuration members

You must customize sample configuration members that come with Distributed Access Infrastructure in *smphlq.SAIISAMP* before you can use it.

Procedure

1. Create a PROCLIB data set or use an existing PROCLIB data set to store the TCP server and TAS startup and configuration parameter members.

This data set will contain the configuration members that are used by the Distributed Access Infrastructure servers at startup and must be allocated to the `//PROCLIB DD` in the TCP server and TAS JCL.

The data set must be FB and have an LRECL of 80.

2. Copy the BPE parameter members `AIINBPE` and `AIITBPE` from *smphlq.SAIISAMP* into the PROCLIB data set.

You do not need to customize the `BPECFG` member, `AIIBPE`. The member that is specified by the `BPECFG` parameter must exist and can contain one blank line and comments.

3. Copy the sample configuration parameter members `AIINTCPS` and `AIITTAS` from *smphlq.SAIISAMP* into the PROCLIB data set.

4. Customize the configuration parameter members in the PROCLIB data set that are specified by the `AIICFG JCL PARM` keyword.

When customizing the server configuration parameters, you can specify parameters such as the TCP listening port number or the TCP server name. For additional information, see [“Server configuration parameters”](#) on page 170.

5. Add a server module to LPA by issuing the following operator command:

```
SETPROG LPA,ADD,DSNAME=hlq.SAIILINK,MODNAME=AIISS110
```

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

Note: Ensure that you wait for the command to complete processing.

6. Add the subsystem for the server by issuing the following operator command. For the `SUBNAME` keyword value, specify a valid and unique 4-character subsystem name. In this example, the subsystem name is added as `AIIO`.

```
SETSSI ADD,SUBNAME=AIIO,INITRTN=AIISS110
```

Server configuration parameters

To ensure successful operation of the Distributed Access Infrastructure server, you must set appropriate values for TCP server and TAS configuration parameters.

TCP server configuration parameters

The following parameters are used by the TCP server. You can specify these parameter values in uppercase, lowercase, or mixed-case characters.

Log

(Optional) Specify whether to enable event logging, which allows you to log all events, including system status and security events. Valid values are `on` and `off`.

Default: `on`

Password

(Optional) Specify whether to support mixed-case passwords when validating the user ID and password. Valid values are `NoMixedCase` and `MixedCase`.

Default: NoMixedCase

NoMixedCase

The password is folded to uppercase before it is passed to the security system.

Prior to IMS Tools Base 1.6, the password was unconditionally folded to uppercase. For compatibility with these earlier versions, the default value is NoMixedCase.

MixedCase

The password is passed to the security system as is, without any modification.

SecurityAppl

(Optional) Specify the application name if you want to use an APPL class resource-based security scheme. If this value is NONE, APPL class checking is not performed.

The specified application name must be defined in the APPL CLASS profile of the security system, and the authenticated user ID must have READ access to the APPL CLASS profile of the application.

Default: NONE

SecurityGroup

(Optional) Specify the security group name if you want the TCP server to limit access by user ID membership in the specified security group. If this value is NONE, the security system group name is not used when user IDs are authenticated.

The specified security group name must be defined to the security system, and the authenticated user ID must be connected to this group.

Default: NONE

TcpListeningPort

(Optional) Specify the listening port that clients use to establish connections with the TCP server. The port cannot be used by any other application. Contact the TCP system administrator if you are unsure of which port number to specify.

Range: 5001 to 65534

Default: 5123

TcpMaxConnections

(Optional) Specify the maximum number of parallel connections that are allowed by the TCP server.

Range: 1 to 255

Default: 30

TcpRequestTimeout

(Optional) Specify the time, in seconds, before the TCP server discards a request. If there is no response from data suppliers in the specified time period, an error response is sent to the client.

Range: 10 to 3600 seconds (ten seconds to one hour)

Default: 60 seconds (one minute)

TcpServerName

(Optional) Specify the user name of the TCP server. The name must be 24 characters or less.

Default: 'z/OS DAI TCP Server'

XcfGroupName

(Optional) Specify the XCF group name that the TCP server uses to communicate among Distributed Access Infrastructure components. This XCF group name must start with "AII" and be followed by a 1- to 5-character alphanumeric string.

Ensure that the XcfGroupName parameter in the TAS configuration file is set to the same value; otherwise, the servers cannot communicate with each other.

The TCP server can be connected to multiple TASs, but in this case you must use IMS Administration Foundation as the Distributed Access Infrastructure client. If you do not plan to use IMS Administration Foundation, the TCP server must be configured to connect to a single TAS.

Default: AIIGROUP

TAS configuration parameters

The following parameters are used by the Tools Access Server (TAS). You can specify these parameter values in uppercase, lowercase, or mixed-case characters.

ApplKbGroup

(Optional) Specify the ITKB server's XCF group name. This parameter is not used directly by Distributed Access Infrastructure; it is used by applications running in the Subordinate Tools Access Server (SOT) address space.

Default: NONE

Log

(Optional) Specify whether to enable event logging, which allows you to log all events, including system status and security events. Valid values are on and off.

Default: on

SecurityAppl

(Optional) Specify the application name if you want to use an APPL class resource-based security scheme. If this value is NONE, APPL class checking is not performed.

The specified application name must be defined in the APPL CLASS profile of the security system, and the authenticated user ID must have READ access to the APPL CLASS profile of the application.

Default: NONE

SotPrefix

(Optional) Specify the job name prefix for SOT started tasks in 1 - 4 characters. An SOT started task runs with an 8-character job name in the format of "*ppppnnnn*", where *pppp* is the job name prefix. If the specified prefix is less than 4 characters, it is padded with pound signs (#).

Default: SOT

For example, if the default job name prefix is used, SOT started tasks will run as jobs SOT#0001, SOT#0002, and so on.

SotProc

(Optional) Specify the name of the SOT started task procedure. This JCL procedure must reside in the system PROCLIB.

Default: AIISOT

SotMax

(Optional) Specify the maximum number of SOT address spaces that can execute concurrently. The number of SOT address spaces that are started and stopped will be in the range from SotMin to SotMax depending on the workload. If SotMax is less than SotMin, SotMax is adjusted to the SotMin value.

Range: 1 to 32767

Default: 100

SotMin

(Optional) Specify the minimum number of SOT address spaces that execute concurrently. At least this number of SOTs are started during Tools Access Server (TAS) initialization.

Range: 1 to 32767

Default: 5

SotRequestTimeOut

(Optional) Specify the maximum time, in seconds, that applications running in the SOT address space wait for a request from a client before timing out a get message request. If there is no request from any client in the specified time period, an error response is sent to the client.

Range: 120 to 3600 (two minutes to one hour)

Default: 900 (15 minutes)

TasServerName

(Optional) Specify the user name of the TAS. The name must be 24 characters or less.

Default: 'z/OS DAI TAS Server'

XcfGroupName

(Optional) Specify the XCF group name that the TAS uses to communicate among Distributed Access Infrastructure components. This XCF group name must start with "AII" and be followed by a 1- to 5-character alphanumeric string.

Ensure that the XcfGroupName parameter in the TCP server configuration file is set to the same value; otherwise, the servers cannot communicate with each other.

Default: AIIGROUP

Customizing the execution JCL

Before starting TCP and TAS servers, you must customize, for each of those servers, the sample execution JCL that comes with Distributed Access Infrastructure in *smphlq.SAIISAMP*.

Procedure

1. Copy the AIITCP TCP server and the AIITAS TAS execution JCL from *smphlq.SAIISAMP* into the PROCLIB data set.
2. Copy the AIISOT JCL procedure from *smphlq.SAIISAMP* into a system PROCLIB.

The SOTs run as started tasks. AIISOT must be placed into a library in the **START** command's search.

3. Use the AIICFG keyword on the EXEC PARM field to specify the configuration parameter member names, as shown in the following example:

```
//STEP1 EXEC PGM=AIIC0000,  
// PARM=('TYPE=TCP', /* TCP SERVER */  
// 'AIICFG=AIINTCPS', /* TCP SERVER PARAMETERS */  
// 'BPECFG=AIIBPE') /* BPE PARAMETERS */
```

The following table describes the default member names:

Table 45. The default member names when TYPE is set to TCP or TAS for the TCP server or the TAS

Default member names	Description
AIINTCPS	Contains TCP server configuration parameters
AIITTAS	Contains TAS configuration parameters

Adding program attributes to the PPT

The program definitions for this task can be found in sample member AIIPPT.

Procedure

1. Edit the SCHEDxx member of the SYS1.PARMLIB data set on the system or systems where the Distributed Access Infrastructure servers run.

a) Add the following program property table (PPT) definition to the SCHEDxx member:

```

/*          DAI          */
PPT PGMNAME(AIIC0000) /* DAI          */
      CANCEL          /* PROGRAM CAN BE CANCELLED          (DEFAULT) */
      KEY(7)          /* PROTECT KEY ASSIGNED IS 7          */
      NOSWAP          /* PROGRAM IS NOT-SWAPPABLE          */
      NOPRIV          /* PROGRAM NOT PRIVILEGED          (DEFAULT) */
      SYST            /* PROGRAM IS A SYSTEM TASK          */
      DSI             /* DOES REQUIRE DATA SET INTEGRITY (DEFAULT) */
      PASS            /* PASSWORD PROTECTION ACTIVE          (DEFAULT) */
      AFF(NONE)       /* NO CPU AFFINITY          (DEFAULT) */
      NOPREF          /* NO PREFERRED STORAGE FRAMES (NODEFAULT) */

PPT PGMNAME(AIIS0000) /* DAI/SOT (ADDED FOR V1.3)          */
      CANCEL          /* PROGRAM CAN BE CANCELLED          (DEFAULT) */
      KEY(8)          /* PROTECT KEY ASSIGNED IS 8          */
      SWAP            /* PROGRAM IS SWAPPABLE          (DEFAULT) */
      NOPRIV          /* PROGRAM IS NOT PRIVILEGED          (DEFAULT) */
      SYST            /* PROGRAM IS A SYSTEM TASK          */
      DSI             /* DOES REQUIRE DATA SET INTEGRITY (DEFAULT) */
      PASS            /* PASSWORD PROTECTION ACTIVE          (DEFAULT) */
      AFF(NONE)       /* NO CPU AFFINITY          (DEFAULT) */
      NOPREF          /* NO PREFERRED STORAGE FRAMES (NODEFAULT) */

```

2. Use the z/OS **SET SCH=** command to activate the updated PPT.

Configuring SAF security

Many of the TCP/IP services that run under the TCP server use z/OS UNIX services. Use of z/OS UNIX services requires a z/OS UNIX security context called an *OMVS segment* to be defined for the user ID that requests those services. A RACF user without an OMVS segment will fail to access the TCP server. Therefore, the user ID that runs the TCP server must have an OMVS segment defined in its RACF profile.

Procedure

1. To check whether an OMVS segment is defined in the RACF profile of a user ID, use the following command:

```
LU userid OMVS
```

2. To add an OMVS segment to the user ID's RACF profile, use the following command:

```
ADDUSER userid OMVS(UID(nnn))
```

where *nnn* is the z/OS UNIX user ID assigned to the RACF user ID.

Starting Distributed Access Infrastructure

To start the Distributed Access Infrastructure, run the TCP server and the Tools Access Server (TAS).

Before you begin

Before starting the TCP server and the TAS, ensure that you have configured the startup parameters and modified the execution JCL for each server.

Requirement: Ensure that the **XcfGroupName** parameter in the TCP server and TAS configuration files is set to or defaulted to the same value. If the parameter is not set to the same value, the servers cannot communicate with each other.

About this task

The Distributed Access Infrastructure servers can run as started tasks, started jobs, or batch jobs. You can choose the method that best fits your installation operations.

After you start the Distributed Access Infrastructure servers, Distributed Access Infrastructure runs continuously in the background, but consumes few resources.

Procedure

Start the TCP server and the TAS.

Option	Description
You want to start the servers as batch jobs.	Add the proper JOB statements in the execution JCL for the TCP server and the TAS, and then submit the job.
You want to start the servers as started jobs or started tasks.	Run a z/OS START command: <code>S server_name</code>

TAS uses the Address Space Create service (ASCRE) to start the SOT address spaces. Based on the number of client requests, TAS can start additional SOT address spaces. As work in SOTs quiesces, TAS terminates unused SOT address spaces. When TAS is stopped, all active SOTs are shut down.

A z/OS operator must not issue a START for the SOT procedure. The SOTs do not respond to a **STOP** command, but you can cancel an SOT if a problem is detected. If you cancel an SOT while it is actively exchanging messages with a client, the client's session might hang.

What to do next

After you start Distributed Access Infrastructure, verify the startup by viewing the AIILOG.

Verifying that Distributed Access Infrastructure is running

You can verify the Distributed Access Infrastructure startup by viewing messages in AIILOG. These messages show startup information, configuration parameters, and initialization status.

Procedure

1. View the AIILOG for the TCP server and TAS.
2. Verify that the TCP server, TAS, and each SOT include an XCF JOIN message, as shown in the following example:

```
2021/12/14 11:49:21.53 TAS#####EC05003E 00 STARTUP XCF JOIN Group=AIISYS10 Member=TAS#####EC05003E RC=00000000
```

After the XCF JOIN message is displayed in the AIILOG of a server, the server is ready to send and receive messages among z/OS Distributed Access Infrastructure components.

If the return code of the JOIN is non zero, a reason code is also displayed in the log message. If the server is the first member to join the XCF group, the return and reason codes have a value of 4.

3. Verify that the TCP server log indicates that the TCP/IP communications have started and that the server is ready to send and receive messages with TCP/IP clients, as shown in the following example:

```
2021/12/14 11:50:32.44 NTWKTCPSC753002A 00 STARTUP TCP communication starting, Port: 5124, Max connections: 10
```

4. Verify that the TCP server and TAS also issue the following WTO message, which is displayed in the server job log:

```
AII0005I Server task initialization has completed
```

This WTO message indicates that the internal processes of the server are initialized and are ready to process Distributed Access Infrastructure messages.

The WTO message is issued before XCF and TCP/IP communication are established.

Results

Verification is complete. If you received any error messages, resolve the errors then restart the startup process.

Verifying the installation and configuration

The installation and verification program (IVP) verifies successful installation and configuration of Distributed Access Infrastructure by sending and receiving a message to and from the TCP server and Tools Access Server.

Before you begin

- Successfully start Distributed Access Infrastructure.
- Obtain the following information, which you will need to complete the IVP:
 - The TCP/IP dotted address or domain name of the z/OS system that the TCP server is running on. If you are starting this IVP on the same z/OS system that the TCP server is running on, you can use `localhost` as domain name.
 - The TCP server listening port number.
 - A TSO ID and password that is valid on the z/OS system that the TCP server is running on.

Procedure

1. Open an ISPF application dialog.
2. Issue the following TSO EXEC command in option 6 of the ISPF panel:

```
ex 'smpehlq(aiiivp)'
```

Note: *smpehlq* is the high-level qualifier for the IMS Tools Base SMP/E data sets.

The IVP starts. Messages that describe the IVP process and its prerequisites are displayed.

3. Follow the instructions that are presented by the IVP.

The IVP issues a message that indicates whether the IVP completed successfully.

If the IVP was unsuccessful, view the error message in the log file that you created with the IVP.

Stopping Distributed Access Infrastructure

You can stop Distributed Access Infrastructure to administer maintenance, to change server parameters, or to stop TCP/IP client access to IMS Tools.

Before you begin

When you stop Distributed Access Infrastructure, all TCP/IP client connections are terminated. You might want to check for connected users by viewing the AIILOG and notify them that the system is being stopped.

About this task

Stop the TCP server first to prevent any new connections, and then stop the Tools Access Server (TAS).

Procedure

1. Stop the TCP server by issuing a z/OS **STOP** command, as shown in the following example:

```
P TCP_server_name
```

The TCP server accepts the **STOP** command and completes the following processes:

- Shuts down all open TCP connections
- Exits the Distributed Access Infrastructure XCF group
- Terminates all BPE tasks
- Terminates the z/OS job

2. Stop the TAS by issuing a **STOP** command, as shown in the following example:

```
P TAS_server_name
```

The TAS accepts the **STOP** command and completes the following processes:

- TAS terminates all active SOTs.
- Exits the TAS XCF Group.

SOT address spaces are started and stopped by TAS and do not respond to a **STOP** command. You can cancel an SOT if a problem is detected. If you cancel an SOT while it is actively exchanging messages with a client, the client's session might hang.

Results

After you have issued the **STOP** commands, Distributed Access Infrastructure is successfully shut down.

Part 7. Configuring IMS Hardware Data Compression Extended

IMS Hardware Data Compression Extended provides functions for compressing database data.

IMS Hardware Data Compression Extended uses the z/OS hardware data compression (HDC) available on IBM processors.

Topics:

- [Chapter 23, “Configuring IMS Hardware Data Compression Extended,” on page 181](#)

Chapter 23. Configuring IMS Hardware Data Compression Extended

IMS HD Compression Extended is an IMS Tools Base component that provides functions for compressing database data. IMS HD Compression Extended uses the z/OS hardware data compression (HDC) available on IBM processors.

After IMS HD Compression Extended has been successfully installed, it must be configured for your environment.

Topics:

- [“Installing the generic dictionary for the Detail Analyze function” on page 181](#)
- [“Installing the generic dictionary into an IMS exit” on page 181](#)
- [“Linking the HSDCE load modules to an APF-authorized library” on page 182](#)
- [“Verifying the installation and configuration” on page 182](#)

Installing the generic dictionary for the Detail Analyze function

Run the generic dictionary installation job after a successful SMP/E installation.

About this task

To make sure that the Detail Analyze function runs successfully, you must run the job that installs the analyze version of the generic dictionary.

Procedure

1. Edit the HCOGEND member in the SHCOSAMP library.
2. Read the notes in the commented section of the installation job.
3. Add a job card.
4. Modify the parameters in boldface to uppercase values that conform to your site's naming requirements, before submitting the job.
5. Run the job.
You get a condition code of 0 if the job runs correctly.

What to do next

You can use the output from the HCOGEND job as input to the Detail Analyze function.

Installing the generic dictionary into an IMS exit

You must edit and run the HCOLNKD JCL job to install the generic dictionary into an IMS exit.

About this task

If you want to use the IBM supplied generic dictionary, you must run the following job to link the dictionary to an IMS exit.

Procedure

1. Edit the HCOLNKD member in the SHCOSAMP library.
2. Read the notes in the commented section of the job.

3. Modify the job card.
4. Modify the parameters as indicated for your site's naming requirements, before submitting the job.
5. Run the job.
You get a condition code of 0 if the job runs correctly.

Linking the HSDCE load modules to an APF-authorized library

You must link edit the HSDCE load modules (HCOZLDE0, HCOZLDH0, and HCOZLDU0) so that they comply with the requirements for residence in an APF-authorized library.

About this task

You can use the HCORLNK member to link edit the HSDCE load modules to the APF-authorized library.

Procedure

1. Edit the HCORLNK member in the SHCOSAMP library.
2. Read the notes in the commented section of the job.
3. Add a job card.
4. Modify the parameters to values that conform to your site's naming requirements, before submitting the job.
5. Run the job.
You get a condition code of 0 if the job runs correctly.

Verifying the installation and configuration

You can verify that IMS HD Compression Extended has been installed and configured correctly either by using the ISPF panels or by running a JCL batch job.

About this task

You can use the following procedure to verify that IMS HD Compression Extended has been installed and configured correctly by using ISPF panels.

Procedure

1. Log on to TSO and specify a minimum REGION of (6144).
2. Select ISPF option 6, and issue the following command on the TSO command line.

```
ex 'hcohlq.shcocexe(HCOCIVP)' 'hcohlq'
```

Where *hcohlq* is the high-level qualifier where IMS HD Compression Extended is installed. An IMS HD Compression Extended panel is displayed.

3. Press Enter.
The license panel is displayed. This panel provides access to the product.
4. Press Enter.
The Compression Projection report panel is displayed, indicating that the product is installed.

```

COMMAND ==>
***** TOP OF DATA *****
          IMS HD COMPRESSION EXTENDED (5655-V93)
          COMPRESSION PROJECTION

          DICTONARY FUNCTION:  Examine
          DICTONARY NAME:     HCOGDIC1 (IBM Generic)

-----
          DATE LENGTH FROM START BYTE
-----
          BEFORE COMPRESS      AFTER COMPRESS      SA
          MIN      AVG      MAX      MIN      AVG      MAX      AVG
-----
          8        38       51        8       30       38       8
-----

The projected savings do not include IMS or access method usage
(PCT SAVINGS = AVG SAVINGS X 100 / AVG BEFORE)
*Better results will be achieved by building a custom dictionary.

```

5. Enter the **END** command.

The **Hardcopy Utility** panel is displayed. This panel generates the JCL necessary to save report results to print and keep a data set or print and delete a data set.

```

----- HARDCOPY UTILITY -----
OPTION ==> PD

      PK - Print and keep data set
      PD - Print and delete data set

DATA SET NAME ==> 'HCOHLQ.IVP.PRNT'
VOLUME SERIAL  ==>          (If not cataloged)
DATA SET PASSWORD ==>      (If password protected data set)

PRINT MODE      ==> BATCH      (BATCH or LOCAL)

SYSOUT CLASS    ==> A
LOCAL PRINTER ID ==>

JOB STATEMENT INFORMATION: (If not to local printer, verify before
==> //USERA      JOB (ACCOUNT),'NAME'
==> //*
==> //*
==> //*

```

6. Press Enter.

The JCL is generated and you can now submit or cancel the job to verify installation and configuration.

```

----- HARDCOPY UTILITY -----JCL GENERATED
OPTION  ==> PD

PK - Print and keep data set
PD - Print and delete data set
CANCEL - Exit without submitting job

Enter END command to submit job.

DATA SET NAME ==> 'HCOHLQ.IVP.PRNT'
VOLUME SERIAL  ==> (If not cataloged)
DATA SET PASSWORD ==> (If password protected PDS)

PRINT MODE      ==> BATCH      (BATCH or LOCAL)

SYSOUT CLASS    ==> A
LOCAL PRINTER ID ==>

JOB STATEMENT INFORMATION:
//USERA      JOB (ACCOUNT),'NAME'
//*
//*
//*

```

7. Enter the **END** command to submit the batch job.

```

----- HARDCOPY UTILITY -----JCL GENERATED
OPTION  ==> PD

PK - Print and keep data set
PD - Print and delete data set
CANCEL - Exit without submitting job

Enter END command to submit job.

DATA SET NAME ==> 'HCOHLQ.IVP.PRNT'
VOLUME SERIAL  ==> (If not cataloged)
DATA SET PASSWORD ==> (If password protected PDS)

PRINT MODE      ==> BATCH      (BATCH or LOCAL)

SYSOUT CLASS    ==> A
LOCAL PRINTER ID ==>

JOB STATEMENT INFORMATION:
//USERA      JOB (ACCOUNT),'NAME'
JOB USERA(JOB14457) SUBMITTED
***

```

8. Press Enter to define job card data for the submitted job.

```

COMMAND ==>

ENTER JOB CARD DATA

==> //JOBNAME JOB (ACCOUNT),NAME
==> //*
==> //*
==> //*

Press ENTER to continue, or END to exit.

```

9. Press Enter and review or edit the IVP dictionary link-edit job.

```

COMMAND ==>
***** TOP OF DATA *****
000001 //JOBNAME JOB (ACCOUNT),NAME
000002 //*
000003 //*
000004 //*
000005 //*
000006 //*-----
000007 //* LINK DICTIONARY INTO LOAD LIBRARY
000008 //*-----
000009 //LINK1 EXEC PGM=IEWL,
000010 // PARM='SIZE=(180K,28K),RENT,REFR,NCAL,LET,XREF,LI
000011 //SYSLIN DD DISP=SHR,
000012 // UNIT=UNIT,VOL=SER=VOLSER,
000013 // DSN=MECHAN.HCO.IVP.HCOGDIC1.OBJECT
000014 //SYSLMOD DD DISP=SHR,
000015 // DSN=MECHAN.HCO.IVP.LOAD(HCOGDIC1)
000016 //SYSUT1 DD UNIT=SYSDA,DISP=(,DELETE),SPACE=(CYL,(10,1),
000017 //SYSPRINT DD SYSOUT=*
000018 //*
000019 //*-----
000020 //* LINK DICTIONARY WITH HCOZLDX0 GENERIC DICTIONARY DRIVE
000021 //*-----

```

10. Press Enter.

The **Submit a Batch Job** panel is displayed. This panel submits or saves jobs.

```

COMMAND ==>

SUBMIT A BATCH JOB

SUBMIT JOB ? ==> Y ENTER "N" IF THE PREVIOUSLY
                    EDITED JOB MUST NOT BE SUBMITTED,
                    OR "K" (KEEP) TO SAVE GENERATED JCL
                    IN ANOTHER FILE.

Press END to exit.

```

11. Enter the **END** command to exit.

After the job has completed, check the JCL return code. If you encounter an error, recheck your installation.

What to do next

If you need to create a database and dictionary to test the installation and configuration, you can use the HCOIVPBA job. The IVP batch job (HCOIVPBA) is in the SMP/E SHCOSAMP data set.

Instructions for customizing this job are included in the comments at the beginning of the job. IMS HD Compression Extended requires a cohesive, operational IMS system to be fully functional. If such a system is not available to the product installer and initial tester, you can run the HCOIVPBA job to create an IMS full-function database. Creating this database lets you create a dictionary and a compression routine to validate product installation and configuration.

To verify the installation and configuration using HCOIVPBA:

1. Edit HCOIBPBA following the instructions in the comments at the beginning of the job.
2. Run the HCOIBPBA job.
3. Review the results to validate installation and configuration.

Part 8. Reference

Topics in this section provide reference information that relates to and supports configuration of IMS Tools Base.

Topics:

- [Chapter 24, “Contents of the sample library file \(SHKTSAMP\),” on page 189](#)
- [Chapter 25, “Data set names for IMS Tools Setup,” on page 193](#)
- [Chapter 26, “How to read syntax diagrams,” on page 203](#)

Chapter 24. Contents of the sample library file (SHKTSAMP)

The IMS Tools Base sample library file (SHKTSAMP) contains a set of members with sample JCL that can perform many of the product configuration, registration, and administration tasks.

In this topic:

- “IMS Tools Knowledge Base sample members” on page 189
- “Policy Services sample member” on page 191
- “Autonomics Director sample members” on page 191
- “Database discovery utility sample member” on page 192
- “IMS Tools Setup sample members” on page 192

IMS Tools Knowledge Base sample members

Table 46. IMS Tools Knowledge Base sample members

Member name	Contains sample JCL for this purpose
AIITKB	Sample JCL for registering Distributed Access Interface product libraries to IMS Tools Knowledge Base.
BSNITKB	Sample JCL for registering Policy Services product libraries to IMS Tools Knowledge Base.
FPQBPCFG	BPE configuration. Copy this member as is to the data set referenced by the PROCLIB DD in the server JCL.
FPQCONFG	IMS Tools Knowledge Base server configuration. Copy this member to the data set referenced by the PROCLIB DD in the server JCL and modify the member as explained in the comments or users guide.
FPQITKB	Sample JCL for registering the Repository Server to IMS Tools Knowledge Base.
FPQSRFSH	Refresh the subsystem interface using the refresh utility FPQCRFSH. Replace the LPA resident FPQCXCF2 copy with the updated module.
FPQSSIR1	Replace the LPA resident FPQCSSI2 copy with the updated module, and reinstall the FPQ subsystem interface.
FPQSSIR2	Replace the LPA resident FPQCXCF2 and FPQCSSI2 copies with the updated modules, and reinstall the FPQ subsystem interface.
HKTADMIN	Run the product administration utility HKTAPRA0.
HKTADRAC	Run the sample RACF setup for access control to repositories and members.
HKTADSCH	Add the program property table (PPT) definitions for FPQINIO\$ to the SCHEDnn member.
HKTADREP	Add repositories to the server. This member is used only during initial server setup.
HKTBAKUP	Back up the repositories using the IDCAMS REPRO utility.

Table 46. IMS Tools Knowledge Base sample members (continued)

Member name	Contains sample JCL for this purpose
HKTDATA1	Data that is used as the sample report for the installation verification procedure (IVP).
HKTDFREP	Define the repository VSAM clusters. This member is used during initial server setup. You can modify this member to create additional report repositories and to adjust the repository sizes.
HKTITKB	Sample JCL for registering IMS Tools Knowledge Base product libraries to IMS Tools Knowledge Base.
HKTIVP	Installation verification procedure (IVP) for the report services.
HKTJEXPT	Export reports from the output repository.
HKTJIE01	Back up a set of repositories to a data set by using the Import and Export Utility.
HKTJIE02	Restore a set of repositories to a data set by using the Import and Export Utility.
HKTJIE03	Export or import an entire repository by using the Import and Export Utility.
HKTJIE04	Export or import RECON information to or from the HKT_INPUT repository by using the Import and Export Utility.
HKTJIE05	Export or import discovery data from a RECON ID to or from the HKT_INPUT repository by using the Import and Export Utility.
HKTJIE06	Export or import general Autonomics Director data to or from the IAV_AUTODIR repository by using the Import and Export Utility.
HKTJIE07	Export or import detailed Autonomics Director data to or from the IAV_AUTODIR repository by using the Import and Export Utility. Tip: This member is intended for experts only.
HKTJIE08	Export or import product registration information to or from the HKT_REGISTRY repository by using the Import and Export Utility.
HKTJIE09	Export or import sensor information to or from the BSN_SENSOR repository by using the Import and Export Utility.
HKTJIE10	List the descriptions of all of the available keywords in the Import and Export Utility.
HKTJIE11	Export or import reports to or from the HKT_Onnnnnnn repository by using the Import and Export Utility.
HKTJIMPT	Import reports into the output repository.
HKTJRINT	Write initialization records to the repositories. This member is used only during server setup.
HKTMGREP	Allocate and migrate the repository of IMS Tools Knowledge Base 1.1 or 1.2 to IMS Tools Knowledge Base of IMS Tools Base 1.6. This sample is a secondary option, rather than using the sample HKTDFREP.
HKTMG171	Allocate and migrate the repository of IMS Tools Knowledge Base 1.6 to IMS Tools Knowledge Base of IMS Tools Base 1.7.

Table 46. IMS Tools Knowledge Base sample members (continued)

Member name	Contains sample JCL for this purpose
HKTMG172	Define Catalog repository VSAM clusters for adding repositories migrated by sample member HKTMG171.
HKTMG173	Add repositories migrated by sample member HKTMG171 to the server.
HKTREORG	Reorganize the repository data sets by using the IDCAMS REPRO utility.
HKTSRVRJ	Run the server as a JOB.
HKTSRVRP	Run the server as a started task.
HKTSTSTP	Start or stop the repository.
IAVITKB	Sample JCL for registering Autonomics Director product libraries to IMS Tools Knowledge Base.

Policy Services sample member

Table 47. Policy Services sample member

Member name	Contains sample JCL for this purpose
BSNGDG	Allocate the journal data set.

Autonomics Director sample members

Table 48. Autonomics Director sample members

Member name	Contains sample JCL for this purpose
IAVADLPA	Add or delete the IAVSS110 module to the LPA MVS command.
IAVADRAC	RACF commands to modify the RACF authorizations.
IAVADSCH	Use for the Program Properties Table (PPT) definition for the MVS SCHEDxx member.
IAVADSRV	Start the Autonomics Director server.
IAVADSSI	SETSSI MVS command that is used for installing the Autonomics Director ISPF interface.
IAVBMLAO	Sample JCL for adding or updating monitor list entries by using the Monitor List Registration utility.
IAVPBPE	Create a BPE PROCLIB member.
IAVPCOM	Global Autonomics Director server PROCLIB member.
IAVPMVS	Server-specific Autonomics Director server PROCLIB member.
IAVRPADD	Register or add the Autonomics Director repository to Autonomics Director. The IAVRPADD member is only necessary if the Autonomics Director repository was not setup during IMS Tools Knowledge Base configuration.
IAVRPALC	Allocate the Autonomics Director repository VSAM clusters. The IAVRPALC member is only necessary if the Autonomics Director repository was not setup during IMS Tools Knowledge Base configuration.

Database discovery utility sample member

Table 49. Database discovery utility sample member

Member name	Contains sample JCL for this purpose
HKTDISCO	This sample provides JCL to run the database discovery utility. The job gathers database information from DBDLIB, PSBLIB, and the RECON data sets, and stores this information in the IMS Tools Knowledge Base INPUT repository.

IMS Tools Setup sample members

Table 50. IMS Tools Setup sample members

Member name	Contains sample JCL for this purpose
HKTQDI2I	An input for DFSDDLTO for an IVP database DI21PART that is created by IMS Tools Setup.
HKTQDI2U	An input for DFSDDLTO for an IVP database DI21PART that is created by IMS Tools Setup.
HKTQFF1I	An input for DFSDDLTO for an IVP database FF1 that is created by IMS Tools Setup.
HKTQFF1U	An input for DFSDDLTO for an IVP database FF1 that is created by IMS Tools Setup.

Chapter 25. Data set names for IMS Tools Setup

While using the IMS Tools Setup function to install IMS Tools products or to migrate your products from an earlier release to a later release, you need to specify the names of the libraries, or data sets, that are required for each IMS Tools product. Use the worksheets in this topic to make a summary of the data set names that will be used in your environment.

Fill in the following tables with the data set names that you will be using.

In this topic:

- [“Data set names of IMS Tools Base” on page 193](#)
- [“Data set names of IMS Cloning Tool” on page 194](#)
- [“Data set names of IMS Program Restart Facility” on page 195](#)
- [“Data set names of IMS Database Solution Pack” on page 195](#)
- [“Data set names of IMS Database Utility Solution” on page 197](#)
- [“Data set names of IMS Fast Path Solution Pack” on page 199](#)
- [“Data set names of IMS Recovery Solution Pack” on page 200](#)
- [“Data set names of IMS libraries” on page 200](#)
- [“Data set names of other libraries” on page 201](#)

Data set names of IMS Tools Base

The following table summarizes the libraries that you need to specify for IMS Tools Base.

Table 51. Data set names of IMS Tools Base

Name	Description	Your data set name
SHKTCEXE	Executable CLIST and REXX members for Autonomics Director, IMS Tools Knowledge Base, Policy Services, and IMS Tools Setup	
SHKTCLIB	CLISTs for Autonomics Director, IMS Tools Knowledge Base, and Policy Services	
SHKTLOAD	Executable load module library for Autonomics Director, IMS Tools Knowledge Base, and Policy Services	
SHKTMENU	ISPF messages for Autonomics Director, IMS Tools Knowledge Base, and Policy Services	
SHKTPENU	ISPF panels for Autonomics Director, IMS Tools Knowledge Base, and Policy Services	
SHKTSAMP	PROC/JCL samples for Autonomics Director, IMS Tools Knowledge Base, and Policy Services	
SHKTTENU	ISPF tables for Autonomics Director, IMS Tools Knowledge Base, and Policy Services	
SHKTTMPL	Maintenance installation data for Policy Services	
SAIIBASE	SMP/E jobs - Create SMP CSI and install IMS Tools Base pack	
SAIIEXEC	Executable REXX members for IMS Tools Distributed Access Infrastructure	

Table 51. Data set names of IMS Tools Base (continued)

Name	Description	Your data set name
SAIIGENU	Binary data library for future use	
SAIILINK	Executable load module library for IMS Tools Distributed Access Infrastructure	
SAIISAMP	PROC/JCL samples for IMS Tools Distributed Access Infrastructure	
SFOILOAD	Executable load module library for IMS Tools Online System Interface	
SGLXLOAD	Executable load module library for IMS Tools Generic Exits	
SGLXMACS	Macros for IMS Tools Generic Exits	
SGLXSAMP	PROC/JCL samples for IMS Tools Generic Exits	
SHCOCEXE	Executable REXX members for IMS Hardware Data Compression Extended	
SHCODATA	Generic dictionary for IMS Hardware Data Compression Extended	
SHCOLMOD	Executable load module library for IMS Hardware Data Compression Extended	
SHCOMENU	ISPF messages for IMS Hardware Data Compression Extended	
SHCOPENU	ISPF panels for IMS Hardware Data Compression Extended	
SHCOSAMP	JCL samples for IMS Hardware Data Compression Extended	
SHCOSENU	ISPF skeletons for IMS Hardware Data Compression Extended	

Data set names of IMS Cloning Tool

The following table summarizes the libraries that you need to specify for IMS Cloning Tool.

Table 52. Data set names of IMS Cloning Tool

Name	Description	Your data set name
SGCLEXP	This data set contains side deck modules with external functions and variables defined in the DLL	
SGCLJCL	Sample members for IMS Cloning Tool	
SGCLLOAD	Executable load module library for IMS Cloning Tool	
SGCLMENU	ISPF messages for IMS Cloning Tool	
SGCLPARM	Parameter library for IMS Cloning Tool	
SGCLPENU	ISPF panels for IMS Cloning Tool	
SGCLSLIB	ISPF skeletons for IMS Cloning Tool	

Table 52. Data set names of IMS Cloning Tool (continued)

Name	Description	Your data set name
SGCLTENU	ISPF tables for IMS Cloning Tool	

Data set names of IMS Program Restart Facility

The following table summarizes the libraries that you need to specify for IMS Program Restart Facility.

Table 53. Data set names of IMS Program Restart Facility

Name	Description	Your data set name
SIRTBASE	SMP/E JCL members for installation	
SIRTDATA	USERMOD members and sample user exit for IMS Program Restart Facility	
SIRTEXEC	Executable REXX member for IMS Restart Program Facility	
SIRTLOAD	Executable load module library for IMS Program Restart Facility	
SIRTMENU	ISPF messages for IMS Program Restart Facility	
SIRTPENU	ISPF panels for IMS Program Restart Facility	
SIRTSAMP	Sample JCL members for IMS Program Restart Facility	

Data set names of IMS Database Solution Pack

IMS Database Solution Pack provides the libraries that are summarized in the following tables.

The SHPSxxxx libraries include the data sets for the following IMS Database Solution Pack tools and resources:

- IMS Database Reorganization Expert
- IMS HP Image Copy
- IMS HP Load
- IMS HP Pointer Checker
- IMS HP Prefix Resolution
- IMS HP Unload
- IMS Library Integrity Utilities
- Database Sensor
- IMS Database Solution Pack macro library
- IMS Database Solution Pack sample JCL library

Table 54. Data set names of IMS Database Solution Pack resources (SHPSxxxx library)

Name	Description	Your data set name
SHPSLMD0	Executable load module library	
SHPSBASE	SMP/E JCL members for installation	
SHPSJCL0	Sample JCL members	

Table 54. Data set names of IMS Database Solution Pack resources (SHPSxxxx library) (continued)

Name	Description	Your data set name
SHPSSAMP	Sample cataloged procedures, JCL skeletons, sample JCL members	
SHPSMAC0	Distributed product macros	
SHPSCLIB	Executable CLIST members	
SHPSMLIB	ISPF messages	
SHPSPLIB	ISPF panels	

The SIIUxxxx libraries include the data sets for IMS Index Builder.

Table 55. Data set names of IMS Index Builder (SIIUxxxx library)

Name	Description	Your data set name
SIIUBASE	SMP/E JCL members for installation	
SIIULMOD	Executable load module library for IMS Index Builder	
SIIUCNTL	Sample JCL members for IMS Index Builder	
SIIUPROC	Sample cataloged procedures for IMS Index Builder	

The SHRFxxxx libraries include the data sets for IMS Online Reorganization Facility.

Table 56. Data set names of IMS Online Reorganization Facility (SHRFxxxx library)

Name	Description	Your data set name
SHRFBASE	SMP/E JCL members for installation	
SHRFLOAD	Executable load module library for IMS Online Reorganization Facility	
SHRFMACS	Distributed product macro for IMS Online Reorganization Facility	
SHRFSAMP	Sample JCL members for IMS Online Reorganization Facility	

The SIHCxxxx libraries include the data sets for IMS HALDB Toolkit.

Table 57. Data set names of IMS HALDB Toolkit (SIHCxxxx library)

Name	Description	Your data set name
SIHCBASE	SMP/E JCL members for installation	
SIHCLOAD	Executable load module library for IMS HALDB Toolkit	
SIHCSKEL	Executable CLIST member for IMS HALDB Toolkit	
SIHCMESG	ISPF messages for IMS HALDB Toolkit	
SIHCPANL	ISPF panels for IMS HALDB Toolkit	
SIHCMACS	Distributed product macro for IMS HALDB Toolkit	

Table 57. Data set names of IMS HALDB Toolkit (SIHCxxxx library) (continued)

Name	Description	Your data set name
SIHCSAMP	Sample JCL members for IMS HALDB Toolkit	

The SFABxxxx libraries include the data sets for Database Repair Facility.

Table 58. Data set names of Database Repair Facility (SFABxxxx library)

Name	Description	Your data set name
SFABLMD0	Executable load module library for Database Repair Facility	
SFABCLIB	Executable CLIST members for Database Repair Facility	
SFABMLIB	ISPF messages for Database Repair Facility	
SFABPLIB	ISPF panels for Database Repair Facility	

The SATYxxxx libraries include the data sets for IMS Administration Tool.

Table 59. Data set names of IMS Administration Tool (SATYxxxx library)

Name	Description	Your data set name
SATYBASE	SMP/E JCL members for installation	
SATYCEXE	Executable CLIST members for IMS Administration Tool	
SATYLOAD	Executable load module libraries for IMS Administration Tool	
SATYMENU	ISPF messages for IMS Administration Tool	
SATYPENU	ISPF panels for IMS Administration Tool	
SATYSAMP	Sample JCL members and macros for IMS Administration Tool	
SATYTENU	Table data for IMS Administration Tool	

Data set names of IMS Database Utility Solution

IMS Database Utility Solution provides the libraries that are summarized in the following tables.

The SHPSxxxx libraries include the data sets for the following IMS Database Utility Solution tools and resources:

- IMS Database Reorganization Expert
- IMS HP Image Copy
- IMS HP Load
- IMS HP Pointer Checker
- IMS HP Unload
- IMS Library Integrity Utilities
- Database Sensor
- IMS Database Utility Solution macro library
- IMS Database Utility Solution sample JCL library

Table 60. Data set names of IMS Database Utility Solution resources (SHPSxxxx library)

Name	Description	Your data set name
SHPSLMD0	Executable load module library	
SDFABASE	SMP/E JCL members for installation	
SHPSBASE	SMP/E JCL members for installation	
SHPSJCL0	Sample JCL members	
SHPSSAMP	Sample cataloged procedures	
SHPSMAC0	Distributed product macros	
SHPSCLIB	Executable CLIST members	
SHPSMLIB	ISPF messages	
SHPSPLIB	ISPF panels	

The SIIUxxxx libraries include the data sets for IMS Index Builder.

Table 61. Data set names of IMS Index Builder (SIIUxxxx library)

Name	Description	Your data set name
SIIUBASE	SMP/E JCL members for installation	
SIIULMOD	Executable load module library for IMS Index Builder	
SIIUCNTL	Sample JCL members for IMS Index Builder	
SIIUPROC	Sample cataloged procedures for IMS Index Builder	

The SIHCxxxx libraries include the data sets for IMS HALDB Toolkit.

Table 62. Data set names of IMS HALDB Toolkit (SIHCxxxx library)

Name	Description	Your data set name
SIHCLOAD	Executable load module library for IMS HALDB Toolkit	
SIHCBASE	SMP/E JCL members for installation	
SIHCSKEL	Executable CLIST member for IMS HALDB Toolkit	
SIHCMESG	ISPF messages for IMS HALDB Toolkit	
SIHCPANL	ISPF panels for IMS HALDB Toolkit	
SIHCMACS	Distributed product macro for IMS HALDB Toolkit	
SIHCSAMP	Sample JCL members for IMS HALDB Toolkit	

The SFABxxxx libraries include the data sets for Database Repair Facility.

Table 63. Data set names of Database Repair Facility (SFABxxxx library)

Name	Description	Your data set name
SFABLMD0	Executable load module library for Database Repair Facility	

Table 63. Data set names of Database Repair Facility (SFABxxxx library) (continued)

Name	Description	Your data set name
SFABCLIB	Executable CLIST members for Database Repair Facility	
SFABMLIB	ISPF messages for Database Repair Facility	
SFABPLIB	ISPF panels for Database Repair Facility	

Data set names of IMS Fast Path Solution Pack

The SHFPxxxx libraries include the data sets for the following IMS Fast Path Solution Pack tools:

- IMS HP Fast Path Utilities
- Database Sensor

Table 64. Data set names of IMS HP Fast Path Utilities (SHFPxxxx library)

Name	Description	Your data set name
SHFPLMD0	Executable load library	
SHFPBASE	SMP/E JCL members for installation	
SHFPJCL0	IVP JCL member and sample installation JCL members for individual tools	
SHFPSAMP	Sample JCL members, exit codes, and cataloged procedures	
SHFPMAC0	Distributed product macros	

The SHPSxxxx libraries include the data sets for IMS HP Image Copy and IMS Library Integrity Utilities.

Table 65. Data set names of IMS HP Image Copy and IMS Library Integrity Utilities (SHPSxxxx library)

Name	Description	Your data set name
SHPSLMD0	Executable load library	
SHPSBASE	SMP/E JCL members for installation	
SHPSJCL0	IVP and customization JCL members	
SHPSAMP	Sample JCL members, exit codes, and cataloged procedures	
SHPSMAC0	Distributed product macros	

The SFABxxxx libraries include the data sets for Database Repair Facility.

Table 66. Data set names for Database Repair Facility (SFABxxxx library)

Name	Description	Your data set name
SFABLMD0	Executable load module library for Database Repair Facility	
SFABCLIB	Executable CLIST members for Database Repair Facility	
SFABMLIB	ISPF messages for Database Repair Facility	
SFABPLIB	ISPF panels for Database Repair Facility	

Data set names of IMS Recovery Solution Pack

The following table summarizes the libraries that you need to specify for IMS Recovery Solution Pack.

Table 67. IMS Recovery Solution Pack data set names

Name	Description	Your data set name
SFRXEXEC	IMS Recovery Solution Pack REXX/CLISTS	
SHPCCEXE	IMS High Performance Change Accumulation Utility REXX/CLISTS	
SFRXLOAD	IMS Recovery Solution Pack executable load library	
SHPCLMDO	IMS High Performance Change Accumulation Utility load library	
SBSYLOAD	IMS Recovery Expert executable load library	
SFRXMENU	IMS Recovery Solution Pack ISPF messages	
SHPCMLIB	IMS High Performance Change Accumulation Utility ISPF messages	
SBSYMENU	IMS Recovery Expert ISPF messages	
SFRXPENU	IMS Recovery Solution Pack ISPF panels	
SHPCPLIB	IMS High Performance Change Accumulation Utility ISPF panels	
SBSYPENU	IMS Recovery Expert ISPF panels	
SFRXSAMP	IMS Recovery Solution Pack PROC/JCL samples	
SHPCSAMP	IMS High Performance Change Accumulation Utility PROC/JCL samples	
SBSYSAMP	IMS Recovery Expert PROC/JCL/CLIST samples	
SFRXSENU	IMS Recovery Solution Pack ISPF skeletons	
SBSYSLIB	IMS Recovery Expert ISPF Skeletons	
SFRXTENU	IMS Recovery Solution Pack ISPF tables	

Data set names of IMS libraries

The following table summarizes the IMS resources.

Table 68. Data set names of IMS resources

Name	Your data set name
IMS SDFSRESL	
IMS SDFSMAAC	
IMS SMP/E CSI data set	
IMS PROCLIB	
DBDLIB	
PSBLIB	
ACBLIB	

Table 68. Data set names of IMS resources (continued)

Name	Your data set name
MDALIB	
USERLIB (see Note)	
RECON1	
RECON2	
RECON3	

Note: USERLIB is the load module library where your randomizer, segment compression exits, user exit routines, and other resources exist.

Data set names of other libraries

The following table summarizes other resources.

Table 69. Data set names of other resources

Name	Your data set name
GDDM (SADMMOD)	
ISPF (SISPLPA)	
ISPF (SISPLOAD)	
LE (SCEELKED)	
MVS PROCLIB	

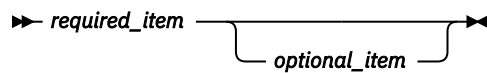
Chapter 26. How to read syntax diagrams

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

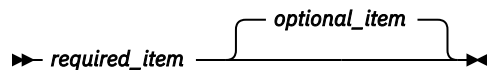
- Read the syntax diagrams from left to right, from top to bottom, following the path of the line. The following conventions are used:
 - The >>--- symbol indicates the beginning of a syntax diagram.
 - The ---> symbol indicates that the syntax diagram is continued on the next line.
 - The >--- symbol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

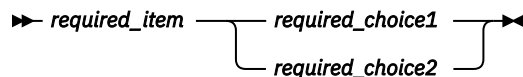
- Optional items appear below the main path.



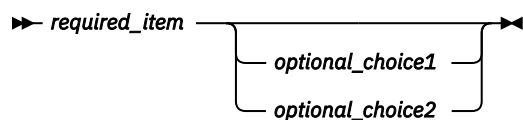
If an optional item appears above the main path, that item has no effect on the execution of the syntax element and is used only for readability.



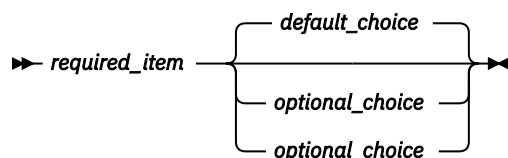
- If you can choose from two or more items, they appear vertically, in a stack.
If you *must* choose one of the items, one item of the stack appears on the main path.



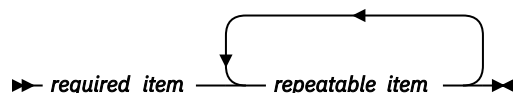
If choosing one of the items is optional, the entire stack appears below the main path.



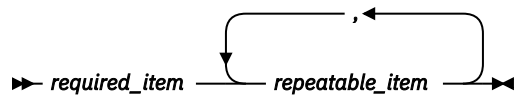
If one of the items is the default, it appears above the main path, and the remaining choices are shown below.



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

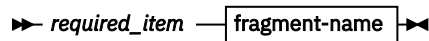


If the repeat arrow contains a comma, you must separate repeated items with a comma.

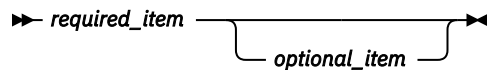


A repeat arrow above a stack indicates that you can repeat the items in the stack.

- 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.
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