IBM IMS Database Utility Solution for z/OS
Version 1 Release 1

Overview and Customization

IBM
IBM IMS Database Utility Solution for z/OS
Version 1 Release 1

Overview and Customization
Note:
Before using this information and the product it supports, read the "Notices" topic at the end of this information.
About this information

IBM® IMS™ Database Utility Solution for z/OS® (also referred to as IMS Database Utility Solution) is a product that combines a number of IBM products into a consolidated solution that provides a set of efficient management utilities for IMS full-function databases and High Availability Large Databases (HALDBs).

IMS Database Utility Solution combines the following products into a single offering:
- IBM IMS Database Reorganization Expert for z/OS
- IBM IMS High Performance Unload for z/OS
- IBM IMS High Performance Load for z/OS
- IBM IMS Index Builder for z/OS
- IBM IMS High Performance Image Copy for z/OS
- IBM IMS Database Utility Solution for z/OS IMS High Availability Large Database (HALDB) Toolkit

IMS Database Utility Solution also includes Database Sensor.

These topics provide an overview of the products and capabilities delivered with IMS Database Utility Solution. It also includes post-SMP/E installation instructions and customization instructions which must be performed before these products can be used.

These topics are designed to help database administrators, system programmers, application programmers, and system operators perform the following tasks:
- Understand the capabilities of the functions associated with IMS Database Utility Solution tools
- Plan for the installation of IMS Database Utility Solution
- Migrate from previous releases of the tools that comprise IMS Database Utility Solution
- Perform the post-SMP/E installation of IMS Database Utility Solution
- Customize IMS Database Utility Solution tools

Before using this product, you should understand basic IMS concepts.

To use these topics, you should have a working knowledge of:
- The z/OS operating system
- ISPF
- SMP/E

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

Chapter 1. IMS Database Utility Solution for z/OS overview

IBM IMS Database Utility Solution for z/OS (also referred to as 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).

IMS Database Utility Solution is specifically designed to provide database administrators (DBAs) with smart solutions to database operation and maintenance tasks.

Topics:
- “What is IMS Database Utility Solution?” on page 2
- “Benefits” on page 5
- “Installation requirements” on page 6
- “Product publications” on page 8
- “Service updates and support information” on page 9
- “IMS Database Utility Solution documentation and updates” on page 10
- “Accessibility features” on page 12
What is IMS Database Utility Solution?

IMS Database Utility Solution combines IMS Tools products into a single solution to provide an effective and efficient approach for managing your IMS full-function databases and HALDBs quickly and accurately.

The following tools are included in IMS Database Utility Solution but are shipped in separate target and distribution libraries:

- “IBM IMS Database Reorganization Expert for z/OS”
- “IBM IMS High Performance Unload for z/OS”
- “IBM IMS High Performance Load for z/OS” on page 3
- “IBM IMS Index Builder for z/OS” on page 3
- “IBM IMS High Performance Image Copy for z/OS” on page 3
- “IMS High Availability Large Database Toolkit” on page 3

IMS Database Utility Solution also includes Database Sensor (see “Database Sensor” on page 4).

IBM IMS Database Reorganization Expert for z/OS

IBM IMS Database Reorganization Expert for z/OS (also referred to as IMS Database Reorganization Expert) facilitates your reorganization scenario by releasing you from the complex database diagnosis tasks that are needed to acknowledge the database health.

When a database is diagnosed to be in need of reorganization, the product automatically runs the reorganization job, and you will receive a well-summarized report on the database status. By using IMS Database Reorganization Expert, you can reduce the amount of work and expertise that is required for database reorganization tasks and realize higher productivity with less maintenance time and training costs.

To learn more about IMS Database Reorganization Expert, see the IMS Database Reorganization Expert User’s Guide.

IBM IMS High Performance Unload for z/OS

IBM IMS High Performance Unload for z/OS (also referred to as IMS HP Unload) provides high speed unloading of IMS databases and improves performance of IMS data retrieval application programs by using the Unload application programming interface (API).

As processing volumes increase, more work needs to be done in a shorter period of time due to shrinking batch windows. The tool saves your time and money by reducing the CPU and elapsed time required for IMS database unloading and for running IMS data retrieval application programs. Powerful functions such as the ability to continue processing after a pointer error, a user exit facility, and a variety of unloaded record formats are provided—all with the goal of improving availability and throughput.

To learn more about IMS HP Unload, see the IMS High Performance Unload User’s Guide.
IBM IMS High Performance Load for z/OS

IBM IMS High Performance Load for z/OS (also referred to as IMS HP Load) provides high-speed loading of IMS databases and improves the performance of IMS database initial loading application programs by using the Load Application Programming Interface (API).

As processing volumes increase, more work needs to be done in a shorter period of time due to shrinking batch windows. This tool saves you time and money by reducing the CPU and elapsed time that is required for IMS database loading and reorganization.

To learn more about IMS HP Load, see the **IMS High Performance Load User’s Guide**.

IBM IMS Index Builder for z/OS

IBM IMS Index Builder for z/OS (also referred to as IMS Index Builder) provides improved technology for the recovery, maintenance, and addition of IMS indexes and eliminates the need to image copy index data sets for recovery and backup purposes.

IMS Index Builder allows you to rebuild IMS indexes rather than recover or reorganize them using the traditional unload and reload processes used for the primary data store. This eliminates the need to image copy indexes, means faster recovery and reorganization times, and allows for adding new indexes quickly without the need to reorganize the primary databases. IMS Index Builder provides an easy-to-use, one-step procedure for building all IMS index types including primary, secondary, and indirect list data sets.

To learn more about IMS Index Builder, see the **IMS Index Builder User’s Guide**.

IBM IMS High Performance Image Copy for z/OS

IBM IMS High Performance Image Copy for z/OS (also referred to as IMS HP Image Copy) enables you to quickly back up and recover database data sets by providing support for advanced copying features.

Using image copies to create backup data is essential to the timely recovery of databases after a loss of data or a programming error. However, taking data offline can reduce user productivity and negatively impact your business. IMS HP Image Copy provides rapid image copy features that reduce the amount of time that database data sets are unavailable. These features enable automated operation that takes the database offline before taking a batch image copy and restarts it after the process. IMS HP Image Copy helps you speed recovery time by supporting quick copy and restarting methods, and allows your users to become more productive and avoid expensive losses from missed business opportunities.

To learn more about IMS HP Image Copy, see the **IMS High Performance Image Copy User’s Guide**.

IMS High Availability Large Database Toolkit

IMS High Availability Large Database Toolkit (also referred to as IMS HALDB Toolkit) provides High Availability Large Database (HALDB) functions for HALDB maintenance and operation tasks.
Features of IMS HALDB Toolkit include application enabling functions and system utilities to make better use of the HALDB environment. IMS HALDB Toolkit can help reduce the time and minimize the skills that are required to perform application support tasks and provide IMS HALDB maintenance, modeling, and analysis.

To learn more about IMS HALDB Toolkit, see the *IMS Database Utility Solution IMS HALDB Toolkit User’s Guide*.

**Database Sensor**

Database Sensor collects statistics about IMS databases and optionally stores them as *sensor data* in the Sensor Data repository of IMS Tools Knowledge Base. Sensor data can be used for monitoring and maintaining the health, performance, and recoverability of the database.

To learn more about Database Sensor, see the *IMS Solution Packs Database Sensor User’s Guide*. 
Benefits

If you use the tools of IMS Database Utility Solution, you can simplify and accelerate the database maintenance tasks for IMS full-function databases and HALDBs.

IMS Database Utility Solution provides a set of tools that help IMS DBAs in every phase of database management. The tools are high performance, easy-to-use, and powerful, and include capabilities for database reorganization, data backup, tuning, monitoring, and optimization of IMS databases.

IMS Database Utility Solution provides the following benefits:

- The high performance reorganization tool can save time and money by reducing the CPU and elapsed time required for IMS database reorganization tasks, and for the IMS database retrieval and initial loading application programs by providing the APIs.
- IMS Database Reorganization Expert further reduces time and resource requirements by enabling unload, load, index build, and backup tasks to run concurrently, and by eliminating I/Os for intermediate data sets. It also enhances the productivity of DBAs by making the reorganization processes simpler and easier, and by minimizing manual interventions.
- IMS Database Reorganization Expert saves online system resources by evaluating the database with user-specified criteria, and running the reorganization job only when reorganization is determined to be effective for the database.
- IMS Index Builder eliminates the need to image copy and log updates to IMS index data sets by providing a quick and efficient method for rebuilding indexes. It also provides the ability to add new indexes to existing IMS databases as needed.
- IMS HP Image Copy reduces the unavailability time of databases by providing rapid image copy features, parallel processing, and minimized manual interventions. It also reduces operational and media costs by compressing and stacking the image copies.
- IMS HALDB Toolkit efficiently diagnoses HALDB structures and suggests effective database structures.
Installation requirements

The tools that are provided in IMS Database Utility Solution have dependencies on IMS and require the tools provided in IBM Tools Base for z/OS (also referred to as Tools Base).

**Installation requirements**

IMS Database Utility Solution requires z/OS V2.2 (5650-ZOS).

In addition, IMS Database Utility Solution requires IBM Tools Base for z/OS, V1.5 (5655-V93) or later. IBM Tools Base for z/OS must be installed into the same SMP/E CSI zone as IMS Database Utility Solution.

**Operational requirements**

An operational requisite is defined as a product that is required and must be present or a product that is not required but should be present on the system in order for this product to operate all or some of its functions.

IMS Database Utility Solution operates with the following IMS versions:

- IMS Version 12 Release 1 (5635-A03)
- IMS Version 13 Release 1 (5635-A04)
- IMS Version 14 Release 1 (5635-A05)
- IMS Database Value Unit Edition Version 13 Release 1 (5655-DSM)
- IMS Database Value Unit Edition Version 14 Release 1 (5655-DSE)

To use IMS Database Reorganization Expert, IMS High Performance Load and IMS High Performance Unload must be installed.

**Common tool requirements**

The following common tools, which are provided in Tools Base, are used by the tools of IMS Database Utility Solution:

- IMS Tools Common Services
- IMS Tools Knowledge Base
- Policy Services

These common tools are not distributed with IMS Database Utility Solution but are instead distributed with Tools Base. Tools Base must be installed and configured before IMS Database Utility Solution.

**Conditional operational requirements**

A conditional operational requisite identifies the following products that are not required for the basic function but are needed at run time for the tool to utilize specific functions.
### Table 1. Conditional operational requirements

<table>
<thead>
<tr>
<th>Tool</th>
<th>Function</th>
<th>Required product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Database Sensor</td>
<td>Stand-alone Database Sensor function</td>
<td>IMS Database Reorganization Expert for z/OS</td>
</tr>
<tr>
<td>IMS HALDB Toolkit</td>
<td>Any functions of HALDB Toolkit</td>
<td>The DFSORT program, which is included in z/OS, or a functionally equivalent sort program</td>
</tr>
<tr>
<td></td>
<td>Enable all the functions of IMS HALDB Toolkit</td>
<td>• IMS High Performance Load for z/OS&lt;br&gt;• IMS High Performance Image Copy for z/OS&lt;br&gt;• IMS High Performance Pointer Checker for z/OS&lt;br&gt;• IMS Library Integrity Utilities for z/OS</td>
</tr>
<tr>
<td></td>
<td>Process through TSO terminals</td>
<td>The Interactive System Productivity Facility (ISPF), which is included in z/OS</td>
</tr>
<tr>
<td>IMS Database Reorganization Expert</td>
<td>Enable all the functions of IMS Database Reorganization Expert</td>
<td>• IMS Index Builder for z/OS&lt;br&gt;• IMS High Performance Image Copy for z/OS&lt;br&gt;• IMS High Performance Prefix Resolution for z/OS&lt;br&gt;• IMS High Performance Pointer Checker for z/OS&lt;br&gt;• IMS Library Integrity Utilities for z/OS</td>
</tr>
<tr>
<td>IMS HP Image Copy</td>
<td>HDPC Hash Pointer Check function</td>
<td>IMS High Performance Pointer Checker for z/OS</td>
</tr>
<tr>
<td></td>
<td>DEDB Hash Pointer Check function</td>
<td>IMS Fast Path Solution Pack for z/OS</td>
</tr>
<tr>
<td></td>
<td>Integrated Database Sensor function</td>
<td>IMS Database Reorganization Expert for z/OS</td>
</tr>
<tr>
<td>IMS HP Load</td>
<td>PSSR function</td>
<td>The DFSORT program, which is included in z/OS, or a functionally equivalent sort program</td>
</tr>
<tr>
<td></td>
<td>Language Environment interface for user exit routines written in COBOL or PL/I</td>
<td>Language Environment (LE), which is included in z/OS</td>
</tr>
<tr>
<td>IMS Index Builder</td>
<td>Index build processing</td>
<td>The DFSORT program, which is included in z/OS, or a functionally equivalent sort program</td>
</tr>
</tbody>
</table>
Product publications

For detailed information about tools and components of IMS Database Utility Solution and related products, refer to the publication libraries of the individual products.

**IMS Database Reorganization Expert for z/OS, Version 4 Release 1**  
*User’s Guide, SC19-1137*

**IMS Database Utility Solution for z/OS, Version 1 Release 1, IMS HALDB Toolkit**  
*User’s Guide, SC27-9007*

**IMS High Performance Image Copy for z/OS, Version 4 Release 2**  
*User’s Guide, SC19-2756*

**IMS High Performance Load for z/OS, Version 2 Release 1**  
*User’s Guide, SC18-9222*

**IMS High Performance Unload for z/OS, Version 1 Release 2**  
*User’s Guide, SC27-0936*

**IMS Index Builder for z/OS, Version 3 Release 1**  
*User’s Guide, SC18-9101*

**IMS Solution Packs Database Sensor**  
*User’s Guide, SC19-3283*

**IMS Solution Packs IMS Database Space Tuning Guide**  
*User’s Guide, SC19-3395*

All the information about these tools and common tools (Tools Base and Management Console) can be found in IBM Knowledge Center at [http://www.ibm.com/support/knowledgecenter](http://www.ibm.com/support/knowledgecenter)
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:

IMS Database Utility Solution 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 Support service.

**IMS Database Utility Solution information on the web**

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


You can also access documentation for many IMS Tools from IBM Knowledge Center:

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

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

http://www.redbooks.ibm.com

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


**Receiving documentation updates automatically**

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To register with the My Notifications service:

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

**Prerequisite knowledge**

Before using this information, you must understand basic IMS concepts, the IMS environment, and your installation's IMS system. Therefore, IMS publications are prerequisite for all IMS Database Utility Solution products and components.
How to send your comments

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

- Use the online reader comment form, which is located at [http://www.ibm.com/software/data/rcf/](http://www.ibm.com/software/data/rcf/)
- Send your comments by email to comments@us.ibm.com. Include the name of the book, the part number of the book, the version of the product that you are using, and, if applicable, the specific location of the text you are commenting on, for example, a page number or table number.
Accessibility features

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

The major accessibility features in IMS Database Utility Solution 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 ISPF, including the use of keyboard shortcuts or function keys (PF keys), include the default settings for the PF keys, and explain how to modify their functions.
Chapter 2. Migration considerations

If you have one or more of the products that are included in IMS Database Utility Solution installed on your system, complete the migration tasks.

IMS Database Utility Solution includes the following tools:
• IMS Database Reorganization Expert for z/OS, Version 4 Release 1
• IMS High Performance Unload for z/OS, Version 1 Release 2
• IMS High Performance Load for z/OS, Version 2 Release 1
• IMS Index Builder for z/OS, Version 3 Release 1
• IMS High Performance Image Copy for z/OS, Version 4 Release 2

In addition, IMS Database Utility Solution includes the following components:
• IMS High Availability Large Database Toolkit
• Database Sensor

Topics:
• “Migrating from individual products” on page 14
Migrating from individual products

If you have been using one or more of the products included in IMS Database Utility Solution, complete the following steps to migrate to the IMS Database Utility Solution environment.

Procedure

1. Determine the SMP/E CSI zone to install IMS Database Utility Solution.
   IMS Database Utility Solution can be installed in the same SMP/E CSI zone that is used for the existing product or in a different SMP/E CSI zone.

   **Important:** If you install IMS Database Utility Solution in the same SMP/E CSI zone, the resources of the existing products are replaced with the IMS Database Utility Solution resources. If you plan to use the same the SMP/E CSI zone, create a backup copy of all SMP/E data sets, target libraries, and distribution libraries before you complete the migration steps.

2. Install the latest version of IBM Tools Base for z/OS in the same target SMP/E CSI zone.
   IMS Database Utility Solution requires Tools Base for z/OS, Version 1 Release 5 or later. Tools Base must be installed before IMS Database Utility Solution can be installed.

3. Migrate the Tools Base components.
   The products included in IMS Database Utility Solution previously required older versions of IMS Tools Knowledge Base, IMS Tools Online System Interface, and IMS Tools Generic Exits than what is required by this release of IMS Database Utility Solution. These common tools, along with several other tools are now delivered with Tools Base.

   If the existing products have been configured to use the following Tools Base components, complete the migration task for each Tools Base component that you use:

   **IMS Tools Knowledge Base**
   If you have been using IMS Tools Knowledge Base, migrate existing IMS Tools Knowledge Base to that of Tools Base 1.5 or later. For instructions, see the topic "Configuring an existing installation of IMS Tools KB (migration)" in the Tools Base IMS Tools Knowledge Base User’s Guide.

   **IMS Tools Online System Interface and IMS Tools Generic Exits**
   If you have been using the IMS Tools Online System Interface and IMS Tools Generic Exits, migrate the existing components to those of Tools Base 1.5 or later. For migration considerations, see the Tools Base IMS Tools Common Services User’s Guide.

   All the components included in Tools Base are compatible with earlier releases of IMS Tools Knowledge Base, IMS Tools Online System Interface, and IMS Tools Generic Exits.

4. Install IMS Database Utility Solution by following the instructions in the Program Directory for IBM IMS Database Utility Solution for z/OS, V1.1, GI13-4327.

What to do next

After you install IMS Database Utility Solution, follow the instructions in Chapter 4, “Customizing the tools of IMS Database Utility Solution,” on page 23 and complete the customization steps. Review all the customization steps and complete the steps that are required for your environment.
Chapter 3. Installing IMS Database Utility Solution

Before you install IMS Database Utility Solution, you must first complete the SMP/E installation of Tools Base.

Complete the SMP/E installation of the products in the following order:
1. “Installing the required common tools from Tools Base” on page 16
2. “Installing Management Console” on page 17
3. “Installing the components of IMS Database Utility Solution” on page 18
4. “Gathering the data set names of IMS Database Utility Solution and Tools Base” on page 19
Installing the required common tools from Tools Base

Many of the tools included in IMS Database Utility Solution require the use of the common tools that are included in Tools Base.

The following common tools integrate with the tools of IMS Database Utility Solution:

- IMS Tools Common Services
- IMS Tools Knowledge Base
- Policy Services

To perform the SMP/E installation, see the Program Directory for IBM Tools Base for z/OS, GI10-8819. This process allocates and downloads the target and distribution libraries and performs the SMP/E installation of the tools included in Tools Base.

After you install Tools Base, continue with the installation of Management Console (optional) and IMS Database Utility Solution before customizing the tools included in Tools Base.
Installing Management Console

If you plan to use the graphical web interface of Management Console, install IBM Management Console for IMS and DB2® for z/OS.

To perform the installation, see the Program Directory for IBM Management Console for IMS and DB2 for z/OS, GI10-9007.

While you install Management Console, make sure that you install the Management Console feature that includes capabilities for managing IMS environments. This feature is installed by the following parameter or option during installation:
• For z/OS: imsbase.feature parameter on the install command
• For Windows: Management Console for IMS Management Base Feature option
Installing the components of IMS Database Utility Solution

Install the IMS Database Utility Solution libraries provided to you by IBM.

The tools of IMS Database Utility Solution are shipped in separate target and distribution libraries.

To perform the SMP/E installation, see the Program Directory for IBM IMS Database Utility Solution for z/OS, V1.1, GI13-4327.

The following table lists the data sets of the target libraries distributed in IMS Database Utility Solution.

<table>
<thead>
<tr>
<th>Type</th>
<th>Name</th>
<th>Description</th>
<th>Local DSN name</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLIST</td>
<td>SIHCSKEL</td>
<td>Executable CLIST members for IMS HALDB Toolkit</td>
<td></td>
</tr>
<tr>
<td>LMOD</td>
<td>SHPSLMD0</td>
<td>Executable load library for IMS Database Utility Solution</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SIHCLOAD</td>
<td>Executable load library for IMS HALDB Toolkit</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SIIULMOD</td>
<td>Executable load library for IMS Index Builder</td>
<td></td>
</tr>
<tr>
<td>MAC</td>
<td>SHPSMAC0</td>
<td>Distributed product macros</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SIHCMACS</td>
<td>Distributed product macro for IMS HALDB Toolkit</td>
<td></td>
</tr>
<tr>
<td>MESSAGE</td>
<td>SIHCMESG</td>
<td>ISPF messages for IMS HALDB Toolkit</td>
<td></td>
</tr>
<tr>
<td>PANEL</td>
<td>SIHCPANL</td>
<td>ISPF panels for IMS HALDB Toolkit</td>
<td></td>
</tr>
<tr>
<td>SAMPLE</td>
<td>SDFABASE</td>
<td>SMP/E JCL members for installation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SHPSBASE</td>
<td>SMP/E JCL members for installing individual products (see Note)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SHPSJCL0</td>
<td>IVP and customization JCL members</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SHPSSAMP</td>
<td>Sample JCL members, exit codes, and cataloged procedures</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SIIUBASE</td>
<td>SMP/E JCL members for installing IMS Index Builder (see Note)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SIIUCNTL</td>
<td>Sample JCL members for IMS Index Builder</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SIIUPROC</td>
<td>Sample cataloged procedures for IMS Index Builder</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SIHCSAMP</td>
<td>Sample JCL members for IMS HALDB Toolkit</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** SHPSBASE and SIIUBASE libraries are created during the installation of IMS Database Utility Solution but they are not used.
Gathering the data set names of IMS Database Utility Solution and Tools Base

After you installed Tools Base and IMS Database Utility Solution, record your data set names.

Fill in the following tables with the data set names for modifying the procedures and JCL members.

Subsections:

- “Data set names of IMS Database Utility Solution”
- “Data set names of Tools Base” on page 20
- “Data set names of IMS libraries” on page 20
- “Data set names of other libraries” on page 21
- “Data set names of your program libraries” on page 21

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 Unload
- Database Sensor
- IMS Database Utility Solution macro library
- IMS Database Utility Solution sample JCL library

Table 3. Data set names of IMS Database Utility Solution resources (SHPSxxxx library)

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Your data set name</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHPSLMD0</td>
<td>Executable load module library</td>
<td></td>
</tr>
<tr>
<td>SDFABASE</td>
<td>SMP/E JCL members for installation</td>
<td>SDFABASE</td>
</tr>
<tr>
<td>SHPSJCL0</td>
<td>Sample JCL members</td>
<td>SHPSJCL0</td>
</tr>
<tr>
<td>SHPSSAMP</td>
<td>Sample cataloged procedures</td>
<td>SHPSSAMP</td>
</tr>
<tr>
<td>SHPSMAC0</td>
<td>Distributed product macros</td>
<td>SHPSMAC0</td>
</tr>
</tbody>
</table>

The SIIUxxxx libraries include the data sets for IMS Index Builder.

Table 4. Data set names of IMS Index Builder (SIIUxxxx library)

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Your data set name</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIIULMOD</td>
<td>Executable load module library for IMS Index Builder</td>
<td></td>
</tr>
<tr>
<td>SIIUCNTL</td>
<td>Sample JCL members for IMS Index Builder</td>
<td></td>
</tr>
</tbody>
</table>
Table 4. Data set names of IMS Index Builder (SIIUxxxx library) (continued)

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIIUPROC</td>
<td>Sample cataloged procedures for IMS Index Builder</td>
</tr>
</tbody>
</table>

The SIHCxxxx libraries include the data sets for IMS HALDB Toolkit.

Table 5. Data set names of IMS HALDB Toolkit (SIHCxxxx library)

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIHCLOAD</td>
<td>Executable load module library for IMS HALDB Toolkit</td>
</tr>
<tr>
<td>SIHCSKEL</td>
<td>Executable CLIST member for IMS HALDB Toolkit</td>
</tr>
<tr>
<td>SIHCMESSG</td>
<td>ISPF messages for IMS HALDB Toolkit</td>
</tr>
<tr>
<td>SIHCPANL</td>
<td>ISPF panels for IMS HALDB Toolkit</td>
</tr>
<tr>
<td>SIHCMACS</td>
<td>Distributed product macro for IMS HALDB Toolkit</td>
</tr>
<tr>
<td>SIHCSAMP</td>
<td>Sample JCL members for IMS HALDB Toolkit</td>
</tr>
</tbody>
</table>

**Data set names of Tools Base**

The following table summarizes the libraries of Tools Base.

Table 6. Data set names of Tools Base

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFOILOAD</td>
<td>Executable load module library for IMS Tools Online System Interface</td>
</tr>
<tr>
<td>SGLXLOAD</td>
<td>Executable load module library for IMS Tools Generic Exits</td>
</tr>
<tr>
<td>SHKTLOAD</td>
<td>Executable load module library for IMS Tools Knowledge Base and Policy Services</td>
</tr>
<tr>
<td>SHKTCEXE</td>
<td>Executable CLIST members for IMS Tools Knowledge Base</td>
</tr>
</tbody>
</table>

**Data set names of IMS libraries**

The following table summarizes the IMS resources.

Table 7. Data set names of IMS resources

<table>
<thead>
<tr>
<th>Name</th>
<th>Your data set name</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMS SDFSRESL</td>
<td></td>
</tr>
<tr>
<td>IMS SDFSMAC</td>
<td></td>
</tr>
<tr>
<td>IMS SMP/E CSI data set</td>
<td></td>
</tr>
<tr>
<td>IMS PROCLIB</td>
<td></td>
</tr>
</tbody>
</table>
Table 7. Data set names of IMS resources (continued)

<table>
<thead>
<tr>
<th>Name</th>
<th>Your data set name</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBDLIB</td>
<td></td>
</tr>
<tr>
<td>PSBLIB</td>
<td></td>
</tr>
<tr>
<td>ACBLIB</td>
<td></td>
</tr>
<tr>
<td>MDALIB</td>
<td></td>
</tr>
<tr>
<td>USERLIB (see Note)</td>
<td></td>
</tr>
<tr>
<td>RECON1</td>
<td></td>
</tr>
<tr>
<td>RECON2</td>
<td></td>
</tr>
<tr>
<td>RECON3</td>
<td></td>
</tr>
</tbody>
</table>

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 8. Data set names of other resources

<table>
<thead>
<tr>
<th>Name</th>
<th>Your data set name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISPF (SISPLPA)</td>
<td></td>
</tr>
<tr>
<td>ISPF (SISPLOAD)</td>
<td></td>
</tr>
<tr>
<td>LE (SCEELKED)</td>
<td></td>
</tr>
<tr>
<td>MVS™ PROCLIB</td>
<td></td>
</tr>
</tbody>
</table>

Data set names of your program libraries

Use the following table to record the program libraries in which your user exit modules, site default modules, and base configuration modules are stored.

Table 9. Data set names of your program libraries

<table>
<thead>
<tr>
<th>Description</th>
<th>Your data set name</th>
</tr>
</thead>
</table>
Before using any of the tools that are included in IMS Database Utility Solution, many of the tools must be customized. Use the following topics to manually customize tools in IMS Database Utility Solution. These topics also cover customization of common tools that are included in Tools Base for z/OS.
Customization checklist

Use the following checklist to customize the tools and components for IMS Database Utility Solution.

<table>
<thead>
<tr>
<th>Status</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>“Configuring Tools Base” on page 25</td>
</tr>
<tr>
<td>2.</td>
<td>“Configuring Management Console” on page 27</td>
</tr>
<tr>
<td>3.</td>
<td>“APF authorizing the program libraries” on page 28</td>
</tr>
<tr>
<td>4.</td>
<td>“Performing security-related tasks” on page 29</td>
</tr>
<tr>
<td>5.</td>
<td>“Obtaining XCF group names for Tools Base servers” on page 36</td>
</tr>
<tr>
<td>6.</td>
<td>“Updating sample procedures and JCL” on page 37</td>
</tr>
<tr>
<td>7.</td>
<td>“Setting up IMS HALDB Toolkit” on page 39</td>
</tr>
<tr>
<td>8.</td>
<td>“Setting up the ISPF interface for IMS HALDB Toolkit” on page 41</td>
</tr>
</tbody>
</table>
# Configuring Tools Base

Identify the Tools Base components that will be required in your environment and configure the components.

## About this task

Many of the tools included in IMS Database Utility Solution integrate with the components of Tools Base. The following Tools Base components might be used in your IMS Database Utility Solution environment.

### IMS Tools Common Services

IMS Tools Generic Exits provides the ability to define multiple IMS exits and enable them to be called within the IMS control region. One of the exits supported is the Partner Product exit routine (DFSPPUE0). This exit is required to use IMS Tools Online System Interface.

IMS Tools Online System Interface is a command interface that allows IMS Tools to interface with all supported versions of IMS.

### IMS Tools Knowledge Base

IMS Tools Knowledge Base is the foundational infrastructure that provides a centralized information management environment for IMS Tools products and Policy Services. IMS Tools Knowledge Base allows you to store, manage, and access resources (such as reports, sensor data, policies, rules, and notification lists) that are generated or used by any tool product that has been enabled and registered to participate in an IMS Tools Knowledge Base information management environment. IMS Tools Knowledge Base must be configured if you want to store reports and sensor data in central repositories or use autonotics capabilities.

### Policy Services

Policy Services is a core IMS Tools technology that can monitor specific database state by evaluating the sensor data collected by an IMS Tools product, and by providing a response to any conditions that exceed the threshold values specified for this state. Policy Services must be configured if you plan to use the Conditional Reorganization Support Service in Smart Reorg utility jobs of IMS Database Reorganization Expert or policy evaluation.

## Procedure

1. Identify which Tools Base components will be used in your environment.

   The following table shows the Tools Base components and whether they are supported by each tool of IMS Database Utility Solution. Tools Base components that are not listed in the table are not used by the tools of IMS Database Utility Solution.

<table>
<thead>
<tr>
<th>IMS Tools</th>
<th>IMS Tools Common Services</th>
<th>IMS Tools Knowledge Base</th>
<th>Policy Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMS Database Reorganization Expert</td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
</tr>
<tr>
<td>IMS HP Unload</td>
<td>-</td>
<td>Optional</td>
<td>-</td>
</tr>
<tr>
<td>IMS HP Load</td>
<td>-</td>
<td>Optional</td>
<td>-</td>
</tr>
<tr>
<td>IMS Index Builder</td>
<td>Optional</td>
<td>Optional</td>
<td>-</td>
</tr>
<tr>
<td>IMS HP Image Copy</td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
</tr>
</tbody>
</table>
2. Follow the instructions in the *Tools Base Configuration Guide for IMS* to configure the Tools Base components that you identified in step 1 on page 25.

The following considerations and additional information help you configure the Tools Base components for use with IMS Database Utility Solution.

**IMS Tools Knowledge Base**

When you register the IMS Tools products and reports by using the product administration utility (HKTAPRA0) of IMS Tools Knowledge Base, refer to the product definition table names in the following table. These product definition table names are used for the ADDPROD statements of the HKTAPRA0 utility.

<table>
<thead>
<tr>
<th>Tool</th>
<th>Product definition table</th>
<th>Product ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMS Database Reorganization Expert</td>
<td>HPSGITKB</td>
<td>DA</td>
</tr>
<tr>
<td>IMS HP Unload</td>
<td>HPSUITKB</td>
<td>DU</td>
</tr>
<tr>
<td>IMS HP Load</td>
<td>HPSRITKB</td>
<td>DL</td>
</tr>
<tr>
<td>IMS Index Builder</td>
<td>IIUTITKB</td>
<td>DX</td>
</tr>
<tr>
<td>IMS HP Image Copy</td>
<td>FABJITKB</td>
<td>DI</td>
</tr>
<tr>
<td>Database Sensor</td>
<td>DFASITKB</td>
<td>DG</td>
</tr>
</tbody>
</table>

For example, you can use the following ADDPROD statements to register the reports of the Database Sensor component and IMS Database Reorganization Expert:
```
ADDPROD TABLE=DFASITKB,REPLACE=YES
ADDPROD TABLE=HPSGITKB,REPLACE=YES
```
Configuring Management Console

You must configure IBM Management Console for IMS and DB2 for z/OS (Management Console) if you want to view sensor data charts and reports through a web browser.

About this task

You can install the web server for Management Console on Windows or on z/OS. The Management Console web server is a central server that consolidates information from various z/OS sources, so only a single server must be installed.

Procedure

For instructions for configuring the Management Console server, see the topic "Configuring Management Console" in the Management Console User’s Guide.
APF authorizing the program libraries

You must make certain changes to your MVS system to allow IMS Database Utility Solution to operate with the required level of authority.

About this task

Before using any of the tools in IMS Database Utility Solution, you must ensure that all the authorizations are set up correctly for your environment. The following libraries require authorized program facility (APF) authorization:

- The library that contains the IMS Database Utility Solution executable modules
- All tools that are part of IMS Database Utility Solution that are not in the SHPSLMD0 library
- The libraries of related common tools of Tools Base
- The libraries that contain the user exit modules, site default table modules, and base configuration modules, if they exist

Procedure

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 12. Load libraries to be APF-authorized

<table>
<thead>
<tr>
<th>Library</th>
<th>Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHPSLMD0</td>
<td>IMS Database Utility Solution</td>
</tr>
<tr>
<td>SIIULMOD</td>
<td>IMS Index Builder</td>
</tr>
<tr>
<td>SIIHCLOAD</td>
<td>IMS HALDB Toolkit</td>
</tr>
<tr>
<td>SGLXLOAD</td>
<td>IMS Tools Generic Exits</td>
</tr>
<tr>
<td>SFOILOAD</td>
<td>IMS Tools Online System Interface</td>
</tr>
<tr>
<td>SHKTLOAD</td>
<td>IMS Tools Knowledge Base and Policy Services</td>
</tr>
</tbody>
</table>

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 the z/OS MVS Initialization and Tuning Reference.
Performing security-related tasks

IMS Database Utility Solution requires specific RACF® and security settings. You must ensure that all products have the necessary security authorizations in order for them to operate correctly.

Data spaces

Data spaces are used by IMS HP Load and IMS HP Image Copy under certain conditions.

Your environment might restrict the use of data spaces. If your site restricts which tools can create and use data spaces, you must authorize the following two products to allow the tool to function properly.

The following information pertains to the tools that use data spaces and the parameters that you can use to control their use.

IMS HP Load

IMS HP Load uses data spaces to reorganize the database records in the overflow part of the DBDS and to resolve long synonym chains after the database is reorganized.

The minimum amount of space that is used is 128 KB for each database. If IMS HP Load needs more data spaces, it obtains an additional 128 KB each time.

IMS HP Image Copy

IMS HP Image Copy uses data spaces only when it is called within IMS Database Reorganization Expert jobs that process secondary index databases with Type-A Image Copy processing.

IMS HP Image Copy uses data spaces to share control data among address spaces. Specifically, it uses data spaces to hold data that is being processed or to pass data between multiple address spaces. IMS HP Image Copy keywords control the use of the data spaces.

The amount of space used is 128 KB plus an additional 8 KB for each DBDS that is being processed.

If your site restricts which tools can create and use data spaces, you must authorize the load module library of IMS HP Image Copy (SHPSLMD0) to allow the tool to function properly.

Address spaces

IMS Index Builder and IMS HP Image Copy use the multiple address space architecture.

A common example is the user or job scheduler initiating the master address space (MAS) by submitting a set of saved JCL. The MAS then initiates one or more subordinate address spaces (SAS) to perform the requested processing. In some cases, the SAS also initiates other subordinate address spaces.
IMS Index Builder address space considerations

IMS Index Builder executes in a multiple address space environment. The main job can be submitted by the user or a job scheduler, or initiated as a started task.

The job name is determined by the user. The authority is obtained from the user ID that is associated with the job. IMS Index Builder can then initiate either of the following subordinate address spaces types, depending on the processing that is being performed:

**IIUSORTS**

The IMS Index Builder sort subordinate address space that is initiated as a started task. The name of the started task, by default, is IIUSORTS. However, the name can be changed in the IIURPRMS customization module by using the IIURDFL SORTP parameter.

By default, IMS Index Builder uses the IIUBSRT procedure, found in the system procedure library to create the JCL for this started task. This procedure name can be overridden in the IIURPRMS customization module using the IIURSORT parameter. However, changing this procedure affects all the created address spaces.

**IIUSCANS**

The IMS Index Builder scan address space which is initiated as a started task. The name of the started task, by default, is IIUSCANS. However, the name can be changed in the IIURPRMS customization module using the IIURDFL SCAN parameter.

By default, IMS Index Builder uses the IIUBSRT procedure, found in the system procedure library to create the JCL for this started task. This procedure name can be overridden in the IIURPRMS customization module using the IIURSORT parameter. However, changing this procedure affects all the created address spaces.

**IIUAPIFC**

The IMS Index Builder API address space. This address space is initiated as a started task when the Parallel Reorganization Service of IMS Database Reorganization Expert initiates IMS Index Builder. The name of the started task, by default, is IIUAPIFC. However, the name can be changed in the IIURPRMS customization module by using the IIURDFL APIP parameter.

IMS Index Builder uses the same procedure for creating both the IIUAPIFC and IIUSORTS address spaces.

All started tasks that are created by IMS Index Builder run with the same authority as the main job that was initiated. When IMS Index Builder initiates a started task, code that is executing in that address space creates a security control block that matches the one associated with the main job. This control block is swapped in the new address space so that it has the same level of authority as the main job. However, there is a short time in which the started task is running with default authority. For details on this situation and potential problems, see "Authorizing IMS Index Builder subordinate address space" on page 34.

The user ID that is associated with the IMS Index Builder job needs the following authority to the listed data sets:

- CONTROL access to the RECON data sets
- READ access to database data sets
- ALTER access to index data sets
**IMS HP Image Copy address space considerations**

IMS HP Image Copy executes in a multiple address space environment. The main job can be submitted by the user or a job scheduler, or initiated as a started task.

**About this task**

Advanced Image Copy Services of IMS HP Image Copy schedules the DFSMSdss program (server) and uses its application programming interface (API). The DFSMSdss server runs in a different address space from the address space of IMS HP Image Copy. When a batch job starts, it starts the DFSMSdss server address space. The server remembers which job started the server. While the server is running, it accepts other connections until the originating job ends. At the end of the originating job, the job notifies the server that it has finished and this notification alerts the server that it can stop. Until the DFSMSdss address space is stopped, the address space is reused by the DFSMSdss API.

You can also start the DFSMSdss server within IMS HP image Copy jobs. When the server is started, the server can be used by other applications that run in the same system.

**Tip:** The DFSMSdss server address space simplifies the running of multiple jobs. Therefore, consider starting the DFSMSdss server address space in the system whenever possible.

**Procedure**

To start the DFSMSdss server address space within an IMS HP Image Copy job, follow these steps:

1. Create the following started task procedure and add it to SYS1.PROCLIB.

```plaintext
//******************************************************************************
//* THIS PROCEDURE WILL CREATE AN APPROPRIATE DFSMSDSS CROSS MEMORY SERVER TO BE
//* MEMORY REQUESTING THE DEFAULT DFSMSDSS SERVER NAME.
//* TO USE, ENTER THE FOLLOWING AT A CONSOLE:
//* START DFSMSDSS,PROG=ADRXMAIB
//* WHEN THE DFSMSDSS CROSS MEMORY SERVER IS NO LONGER REQUIRED
//* ISSUE THE FOLLOWING MODIFY COMMAND:
//* F DFSMSDSS,STOP
//******************************************************************************
//DFSMSDSS PROC PROG=IEFBR14
//IEFPROC EXEC PGM=&PROG,REGION=0M,TIME=1440,DYNAMNBR=1635
```

2. Start the DFSMSdss server address space by using either of the following methods:
   - Issue the following command:
     ```plaintext
     S DFSMSDSS,PROG=ADRXMAIB
     ```
   - Add the procedure as a started task in your IPL procedure.

3. When the DFSMSdss server address space is started, run the IMS HP Image Copy jobs.

4. When your IMS HP Image Copy jobs end, and if you want to stop the server address space, issue the following command:
Defining RACF (or equivalent security) authorization for IMS commands

You must define RACF (or equivalent security software) authorizations for Database Sensor, IMS Database Reorganization Expert, and IMS HP Image Copy to operate.

About this task

The Database Sensor, IMS Database Reorganization Expert, and IMS HP Image Copy functions allow you to execute IMS commands through a batch job. IMS commands must be secured with RACF or other equivalent security software to control access to who can issue IMS commands. There are three different options for securing IMS commands through this feature. The information about IMS command authorization is defined in the Tools Base IMS Tools Knowledge Base RECONID record.

Procedure

In the **IMSCMD Security** field, which is located in the RECONID record, specify the type of security that you want to implement by entering one of these values:

**NONE**

No security authorization is performed. This value is intended for test environments only and should not be used in a secured environment. The security level of NONE allows anyone to issue any supported IMS command.

**APPL**

The RACF application (APPL) resource class is used for command security checking. This method uses the application resource class (APPL) to protect the IMS commands. The **RACF Class** field in the RECONID record indicates the specific application resource name, within the RACF APPL class, that is used for securing the IMS commands.

When you use the APPL resource class method, you must first define the application resource name (applname in the next example) to RACF. Define the application resource name to RACF by using the RDEFINE command, as shown in this example:

```plaintext
RDEFINE APPL applname UACC(NONE) AUDIT(NONE)
```

After you have defined the application resource name, your RACF administrator can permit users either READ or UPDATE levels of command authorization by using the PERMIT command, as shown in this example:

```plaintext
PERMIT applname CLASS(APPL) ID(userid) ACCESS(READ|UPDATE)
```

The userid specifies a particular RACF user or RACF group. ACCESS specifies either read-level access or update-level access. Read-level access allows a user to issue IMS commands that display IMS system information, and update-level access allows users to issue IMS commands that alter IMS system resources. The next table indicates which IMS commands are allowed and the corresponding level of access that is required to run them.

**IMS**

The IMS resource class is used for command security checking. This method uses the same IMS command security class that is used by the online IMS system. The **RACF Class** field in the RECONID record
indicates the RACF security class that is used for securing IMS commands. This value must match the one that you specified to IMS using the RCLASS= keyword on the SECURITY macro. This method allows you to use the same security class that is used by your online IMS control region.

**Commands and required access levels for RACF APPL resource class authority**

During the customization process, you will need to issue various commands. Make sure that your user ID has the required authority to issue these commands.

IMS commands and their corresponding required access levels for RACF APPL resource class authority are shown here.

**IMS commands**

The following table summarizes the IMS commands that are used in product jobs and the access levels that are required to issue the commands.

<table>
<thead>
<tr>
<th>Command</th>
<th>Access level required</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>/DBDUMP</td>
<td>Update</td>
<td>IMS Database Reorganization Expert</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IMS Index Builder</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IMS HP Image Copy</td>
</tr>
<tr>
<td>/DBRECOVERY</td>
<td>Update</td>
<td>IMS HP Image Copy</td>
</tr>
<tr>
<td>/DISPLAY</td>
<td>Read</td>
<td>IMS Database Reorganization Expert</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IMS Index Builder</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IMS HP Image Copy</td>
</tr>
<tr>
<td>/START</td>
<td>Update</td>
<td>IMS Database Reorganization Expert</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IMS Index Builder</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IMS HP Image Copy</td>
</tr>
<tr>
<td>QUERY</td>
<td>Read</td>
<td>IMS HP Image Copy</td>
</tr>
<tr>
<td>UPDATE</td>
<td>Update</td>
<td>IMS HP Image Copy</td>
</tr>
</tbody>
</table>

**DBRC API requests and DBRC commands**

The following table summarizes the DBRC API requests and the DBRC commands that are used in product jobs.

<table>
<thead>
<tr>
<th>DBRC API request or command</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBRC API - AUTH</td>
<td>IMS Index Builder</td>
</tr>
<tr>
<td>DBRC API - QUERY</td>
<td>IMS Database Reorganization Expert</td>
</tr>
<tr>
<td></td>
<td>IMS Index Builder</td>
</tr>
<tr>
<td></td>
<td>IMS HP Image Copy</td>
</tr>
<tr>
<td>DBRC API - STARTDBRC/RELBUF/STOPDBRC</td>
<td>IMS Database Reorganization Expert</td>
</tr>
<tr>
<td></td>
<td>IMS Index Builder</td>
</tr>
<tr>
<td></td>
<td>IMS HP Image Copy</td>
</tr>
<tr>
<td>DBRC command - CHANGE</td>
<td>IMS Database Reorganization Expert</td>
</tr>
<tr>
<td></td>
<td>IMS Index Builder</td>
</tr>
<tr>
<td></td>
<td>IMS HP Image Copy</td>
</tr>
<tr>
<td>DBRC API request or command</td>
<td>Product</td>
</tr>
<tr>
<td>----------------------------</td>
<td>---------------------------------------------------</td>
</tr>
<tr>
<td>DBRC command - DELETE</td>
<td>IMS HP Image Copy</td>
</tr>
<tr>
<td>DBRC command - LIST</td>
<td>• IMS Database Reorganization Expert</td>
</tr>
<tr>
<td></td>
<td>• IMS Index Builder</td>
</tr>
<tr>
<td></td>
<td>• IMS HP Image Copy</td>
</tr>
<tr>
<td>DBRC command - NOTIFY</td>
<td>• IMS Database Reorganization Expert</td>
</tr>
<tr>
<td></td>
<td>• IMS Index Builder</td>
</tr>
<tr>
<td></td>
<td>• IMS HP Image Copy</td>
</tr>
</tbody>
</table>

For the access levels that are required to issue these requests and commands, see the following topics:

- Topics about DBRC security in *IMS System Administration*
- Topics about DBRC API security features in *IMS System Programming APIs*

To set RACF control information for these IMS commands, DBRC API requests, and DBRC commands, see *IMS Commands* for the version of IMS that you are using.

**Defining RACF authority to dynamically allocate and catalog data sets**

Set up the RACF authority to dynamically allocate and catalog data sets beginning with the high-level qualifier that you specified in the JCL and PROC members.

Here are some examples:

- Database data sets
- Index data sets
- Image copy data sets
- Work data sets

**Setting up security for IMS Index Builder**

Setting up security for IMS Index Builder includes three tasks: Authorizing IMS Index Builder subordinate address space, granting READ access to the IMS Index Builder load library for the user ID, and granting ALTER work file access to the IMS Index Builder users.

**Authorizing IMS Index Builder subordinate address space**

You must authorize the IMS Index Builder subordinate address space to run under a security system. Before using the subordinate address space, make sure that you have established proper security authorization and access.

**About this task**

The subordinate address space's user ID is obtained in two phases, as described in the following steps:

**Procedure**

1. Before the IMS Index Builder code is dispatched in the subordinate address space and has the opportunity to set its security identity, the operating system attempts to use the user ID from the profile definitions in the security system's STARTED class as the user ID for these started tasks.
If you use the IMS Index Builder default job names, you can use the following RDEFINE to specify the user ID. The STARTED class is RACLISTed and must be refreshed after you make updates.

RDEFINE STARTED I1U*.* STDATA(USER(userid))
SETROPTS RACLIST(STARTED) REFRESH

You can also use the started procedures module ICHRIN03 to associate started procedures and jobs with user IDs, instead of using the RDEFINE STARTED command.

If you use the IIURPRMS module to override the default job names, you must define the STARTED class profiles that correspond to the installation names.

2. After the IMS Index Builder code is dispatched in the subordinate address space, IMS Index Builder processing determines the user ID under which the master address space runs. The subordinate address space changes its own initial user ID to match that of the master address space. Once this change occurs, the subordinate address space runs with the same security authorities as the master.

**Granting READ access to the IMS Index Builder load library for the user ID**

You must grant READ access to the IMS Index Builder load library SIIULMOD for the user ID.

Defining the IMS Index Builder load library to the security system with UACC(READ) is recommended so that all user IDs have access to the STEPLIB. If you do not want to define UACC(READ), you must set READ access to the load library for the user ID or for the group associated with the STARTED class profile, and also for the user ID under which the master address space runs.

**Granting ALTER work file access to the IMS Index Builder users**

Depending on which processing mode IMS Index Builder uses, IMS Index Builder can use stripe data sets to pass records between its address spaces. The stripe data sets exist only for the duration of that particular IMS Index Builder run.

When stripe data sets are used, the user ID associated with the master address space requires ALTER access to these data sets. You associate ALTER access to the stripe data sets by defining an I1U.STRIPE.* DATASET profile with UACC(ALTER). If your installation security policies do not allow UACC(ALTER), you must add each user that executes IMS Index Builder to this DATASET profile's access list with ALTER access.

By default, stripe data sets are allocated with the high-level qualifiers I1U.STRIPE. You can override this default by using the I1URDFLT CLASS setting in the IIURPRMS parameter module. However, if you override the default high-level qualifiers, you must define a DATASET profile corresponding to the installation's qualifiers.
Obtaining XCF group names for Tools Base servers

You must obtain the XCF group names for the Tools Base server groups to set up JCL streams, cataloged procedures, and site default options for IMS Database Utility Solution tools.

XCF group name for the IMS Tools Knowledge Base servers

The XCF group name for the IMS Tools Knowledge Base servers must be specified in the JCL streams for IMS Database Utility Solution tools to use one of the following services of Tools Base directly from tools’ jobs:

- IMS Tools Knowledge Base report repository service
- Policy Services

For example, specify the ITKBSRVR=server_name parameter in the HPSIN input of IMS Database Reorganization Expert. You can set default values for the runtime options by using the installation default option to make the specification applied to all the run of IMS Database Reorganization Expert jobs, without specifying them in each JCL stream.

XCF group name for the IMS Tools Online System Interface server tasks

The XCF group name for the IMS Tools Online System Interface server tasks must be specified in the JCL streams for IMS Database Utility Solution tools to issue IMS commands from the tools’ jobs.

For example, specify the TOSIXCFGRP=grpname parameter in the HPSIN input of IMS Database Reorganization Expert, where grpname is the 5-character XCF group name.
Updating sample procedures and JCL

Update the required sample members in the SHPSSAMP library and sample PROC in the SIIUPROC library.

Updating the required sample members in the SHPSSAMP library

Create or modify the required sample members in the SHPSSAMP library for IMS Database Utility Solution.

Each sample member has instruction on how to customize each member.

Copy and modify the necessary PROC and JCLPDS members to your IMS PROCLIB, system PROCLIB, or JCLPDS data sets.

The following tables summarize the sample members that are used to implement each product distributed in the IMS Database Utility Solution sample library SHPSSAMP.

Subsections:
- “IMS HP Unload sample members”
- “IMS HP Load sample members”
- “IMS HP Image Copy sample members” on page 38

IMS HP Unload sample members

The following table summarizes the sample members for IMS HP Unload.

Table 13. IMS HP Unload sample members in the SHPSSAMP library

<table>
<thead>
<tr>
<th>Sample member</th>
<th>Description</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>FABHDBB</td>
<td>IMS HP Unload DBB region procedure</td>
<td>PROC</td>
</tr>
<tr>
<td>FABHDB2</td>
<td>IMS HP Unload DLI region procedure</td>
<td>PROC</td>
</tr>
<tr>
<td>FABHDLI</td>
<td>IMS HP Unload DLI region procedure</td>
<td>PROC</td>
</tr>
<tr>
<td>FABHULU</td>
<td>IMS HP Unload ULU region procedure</td>
<td>PROC</td>
</tr>
<tr>
<td>FABIRGEN</td>
<td>IMS HP Unload Asm/Link procedure to generate Sequential Subset Randomizer</td>
<td>PROC</td>
</tr>
</tbody>
</table>

IMS HP Load sample members

The following table summarizes the sample members for IMS HP Load.

Table 14. IMS HP Load sample members in the SHPSSAMP library

<table>
<thead>
<tr>
<th>Sample member</th>
<th>Description</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>FABSPSSI</td>
<td>IMS HP Load procedure to invoke Physical Sequence Sort Reload</td>
<td>PROC</td>
</tr>
<tr>
<td>FABSPSSR</td>
<td>IMS HP Load procedure to invoke Physical Sequence Sort Reload</td>
<td>PROC</td>
</tr>
</tbody>
</table>
IMS HP Image Copy sample members

The following table summarizes the sample members for IMS HP Image Copy.

Table 15: IMS HP Image Copy sample members in the SHPSSAMP library

<table>
<thead>
<tr>
<th>Sample member</th>
<th>Description</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>FABJICD1</td>
<td>Defaults for GENJCL.IC</td>
<td>Input</td>
</tr>
<tr>
<td>FABJICD2</td>
<td>Defaults for GENJCL.IC</td>
<td>Input</td>
</tr>
<tr>
<td>FABJICS0</td>
<td>Skeleton JCL for GENJCL.IC</td>
<td>JCLPDS</td>
</tr>
<tr>
<td>FABJRVGR</td>
<td>Skeleton JCL for GENJCL.RECOV</td>
<td>JCLPDS</td>
</tr>
</tbody>
</table>

Updating the required sample PROC in the SIIUPROC library

Copy the required sample PROC in the SIIUPROC library to your IMS PROCLIB or system PROCLIB data sets and modify the member.

Table 16: Sample PROC in the SIIUPROC library

<table>
<thead>
<tr>
<th>Sample member</th>
<th>Product</th>
<th>Description</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>IIUBSRT</td>
<td>IMS Index Builder</td>
<td>Sort address space procedure</td>
<td>PROC</td>
</tr>
</tbody>
</table>
Setting up IMS HALDB Toolkit

IMS HALDB Toolkit provides functions to maintain HALDBs and to convert IMS full-function databases to HALDBs. If you want to use IMS HALDB Toolkit, you must create the base configuration module for IMS HALDB Toolkit.

About this task

IMS HALDB Toolkit uses temporary RECON data sets and a temporary DBD library for some functions. The base configuration module defines the allocation parameters for creating these resources when IMS HALDB Toolkit is started.

Procedure

1. Edit the sample member, IHCCSET, which is provided in the SIHCSAMP library.

   The following figure shows the IHCCSET job. This job creates the base configuration module for IMS HALDB Toolkit.

   a. Define the allocation information for the temporary RECON data set.

      The following allocation parameters are used to create the temporary RECON data set. Depending on your SMS definition, you might use only a subset of these parameters. However, if you are not using SMS, you must specify a volume serial number.

```plaintext
//IHCCSET JOB
//C EXEC PGM=ASMA90,
// PARM='LIST,RENT,DECK,NOOBJ'
//SYSPRINT DD SYSOUT=*..SYSLIB DD DSN=SYS1.MACLIB,DISP=SHR
// DD DSN=DBSP.SIHCSAMP,DISP=SHR
//SYSUT1 DD SPACE=(CYL,(2,2)),UNIT=SYSDA
//SYSPUNCH DD DSN=&&OBJ,SPACE=(CYL,(1,1)),
// UNIT=SYSDA,DISP=(MOD,PASS),
// DCB=(BLKSIZE=2400,LRECL=80,RECFM=FB)
//SYSPRINT DD SYSOUT=*..SYSLIB DD DISP=SHR,DSN=DBSP.SIHCLOAD
//SYSLMOD DD DISP=SHR,DSN=DBSP.SIHCLOAD
//SYSUT1 DD SPACE=(CYL,(5,2)),
// UNIT=SYSDA
//SYSLIN DD DSN=&&OBJ,DISP=(OLD,DELETE)
// DD *
// NAME IHCCSET0(R)
//
```

Chapter 4. Customizing the tools of IMS Database Utility Solution 39
### RECON Parameter

**Description**

Required. Specifies the temporary RECON data set name high-level qualifier.

You can specify up to 26 characters of the data set name. This parameter will be appended internally with the DBD name plus a time stamp.

### RCVOL Parameter

**Description**

Required for non-SMS environments. Specifies the volume serial number for the temporary RECON data set.

### RCDATA Parameter

**Description**

Optional. Specifies the DATAACLAS for the temporary RECON data set.

### RCSORC Parameter

**Description**

Optional. Specifies the STORCLAS for the temporary RECON data set.

---

**b. Define the allocation information for the temporary DBD library.**

The following allocation parameters are used to create the DBD library:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DBDDSN</strong></td>
<td>Required. Specifies the temporary DBDLIB data set name high-level qualifier. You can specify up to 26 characters of the data set name.</td>
</tr>
<tr>
<td><strong>DBDVOL</strong></td>
<td>Required for non-SMS environments. Specifies the volume serial number for the temporary DBDLIB.</td>
</tr>
<tr>
<td><strong>DBDCLAS</strong></td>
<td>Optional. Specifies the DATAACLAS for the temporary DBDLIB data set.</td>
</tr>
<tr>
<td><strong>DBSCLAS</strong></td>
<td>Optional. Specifies the STORCLAS for the temporary DBDLIB data set.</td>
</tr>
</tbody>
</table>

---

2. **Run the IHCCSET job.**

   HLASM and the LINKAGE editor create the base configuration module.

3. **Add the base configuration module to the STEPLIB DD concatenation of IMS HALDB Toolkit runtime JCL. Ensure that the executable load libraries of IMS HALDB Toolkit are APF-authorized.**
Setting up the ISPF interface for IMS HALDB Toolkit

If you want to run IMS HALDB Toolkit as an ISPF application, you must define a VSAM KSDS data set to prepare the ISPF environment definition data set, and then configure your CLIST file to start the ISPF panel of IMS HALDB Toolkit.

Procedure

1. Locate the sample JCL, IHCCKSDS, in the SHICSAMP data set and modify the JCL statements.

   This sample JCL creates and initializes a VSAM KSDS data set for the ISPF environment definition data set, and creates an ISPF base environment module that defines the name of the ISPF environment definition data set.

   a. To create and initialize the VSAM KSDS data set, change your_ksds_data_set to the VSAM KSDS data set name for your environment.

   ```
   DELETE your_ksds_data_set
   DEFINE CLUSTER(NAME(your_ksds_data_set)
   INDEXED KEYS(16,0) RECZSZ(2026,4080) -
   CIZSZ(4096) VOL(vvvvv) CYLINDER(31))
   ```

   b. To create an ISPF base environment module that defines the name of the ISPF environment definition data set, modify the JCL statements as follows:

      - Change ISPF_environment_definition_data_set to your ISPF environment definition data set name, which is the name of the VSAM KSDS data set that you specified in Step.

      - Change your_program_library to the program library that you want the ISPF base environment module to be created in.
c. Submit the job.
2. Make sure that all users who work with IMS HALDB Toolkit have update authority for the ISPF environment definition data set.
3. Configure the CLIST file so that it starts the ISPF panel interface of IMS HALDB Toolkit.
   The sample CLIST file is provided as IHCCHAL in SIHSSAMP.
   Copy the sample CLIST file to your ISPF CLIST library and modify it.
4. Issue the following command to ensure that the IMS HALDB Toolkit ISPF main panel starts:

```bash
ex 'your_ISPF_CLIST_data_set_name(IHCCHAL)'
```
Chapter 5. Troubleshooting

Use these topics to diagnose and correct problems that you experience with IMS Database Utility Solution tools.

While you customize IMS Database Utility Solution, IMS Database Utility Solution components issue messages to help you track progress and to inform you when errors occur. For an explanation of the messages, refer to the corresponding product’s user guide. See “Product publications” on page 8.

Topics:
- “How to look up message explanations” on page 46
- “Gathering diagnostic information” on page 47
How to look up message explanations

You can use several methods to search for messages and codes.

Searching for messages on the web

You can use any of the popular search engines that are available on the web to search for message explanations. When you type the specific message number or code into the search engine, you are presented with links to the message information in IBM Knowledge Center.
Gathering diagnostic information

Before you report a problem with IMS Database Utility Solution tools to IBM Software Support, you need to gather the appropriate diagnostic information.

Procedure

Provide the following information for all IMS Database Utility Solution problems:

• A clear description of the problem and the steps that are required to re-create the problem.
• The version of IMS and the version of the operating system that you are using.
• A complete log of the job.
• The maintenance level of the product or the component.

If the product in error supports the Diagnostics Aid program, run the Diagnostics Aid program to generate a Load Module/Macro APAR Status report. Provide the report when you contact IBM Software Support. For information about creating a Load Module/Macro APAR Status report, see the documentation of the individual products.
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