

IBM IMS High Performance Load for z/OS
2.1

User's Guide



Note:

Before using this information and the product it supports, read the information in [“Notices” on page 299](#).

10th Edition (October 2021)

This edition applies to Version 2.1 of IBM IMS High Performance Load for z/OS (program number 5655-M26) and to all subsequent releases and modifications until otherwise indicated in new editions.

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About this information

IBM® IMS High Performance Load for z/OS® (also referred to as IMS High Performance Load or IMS HP Load) is a reloading tool that you can use to reload IMS full-function databases.

This information is designed to help IMS system programmers, application programmers, system analysts, database administrators, and computer operators who need to know how to operate IMS HP Load. It is a complete reference for this utility and covers the following topics:

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

To use this book, you should have a working knowledge of:

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

Also before using this guide, you should understand basic IMS concepts, the IMS environment, and your installation's IMS system.

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

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

The IMS Tools Product Documentation web page includes:

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

Part 1. IMS High Performance Load overview

IBM IMS High Performance Load for z/OS (also referred to as IMS High Performance Load or IMS HP Load) provides a complete set of high performance reorganization reload procedures for various database organizations.

Topics:

- [Chapter 1, “Introduction to IMS High Performance Load,” on page 3](#)
- [Chapter 2, “Installing and configuring IMS High Performance Load,” on page 17](#)

Chapter 1. Introduction to IMS High Performance Load

IMS High Performance Load provides high-speed loading of IMS databases and a complete set of high-speed reorganization procedures. IMS High Performance Load saves you time and money by reducing the CPU and elapsed time that is required for IMS database loading and reorganization.

Topics:

- [“What's new in IMS High Performance Load” on page 3](#)
- [“What does IMS High Performance Load do?” on page 8](#)
- [“Features and benefits” on page 10](#)
- [“Restrictions” on page 10](#)
- [“What's new in IMS High Performance Load 2.1” on page 11](#)
- [“Integration with other utilities and products” on page 12](#)
- [“Compatibility with former products” on page 12](#)
- [“Service updates and support information” on page 13](#)
- [“Product documentation and updates” on page 13](#)
- [“Accessibility features for IMS HP Load” on page 14](#)

What's new in IMS High Performance Load

This topic summarizes the technical changes for this edition. Changes include publication updates and product enhancements.

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.

SC18-9222-09 (October 2021)

Description	Related APARs
Added a new message to indicate that Bitmap Resetter does not support HALDB partitions whose OLR cursor is active. The following topics are updated: <ul style="list-style-type: none">• Chapter 15, “Introduction to the Bitmap Resetter utility,” on page 177• New message: HPSB0518E	PH38371

Description	Related APARs
<p>OSAM database encryption support for IMS Database Reorganization Expert in conditional reorganization jobs, Physical Sequence Sort for Reload (PSSR), and Bitmap Resetter. The following topics are updated:</p> <ul style="list-style-type: none"> • “Bitmap Resetter control statements” on page 182 > “ZIIPMODE control statement” on page 183 • Updated messages: FABS3680W, FABS3699E, HPSB0317E 	PH32332
<p>OSAM database encryption support for IMS Database Reorganization Expert jobs. A fix for a problem that occurs in IMS Database Reorganization Expert jobs; IMS HP Load does not update the REORG number (REORG#) under certain conditions. “ILDSBLD control statement” on page 47 is updated.</p>	PH28860
<p>OSAM database encryption support. The following topics are updated:</p> <ul style="list-style-type: none"> • “Restrictions” on page 24 • “DBIOBUF control statement” on page 44 • New and updated messages: HPSR3614E, HPSR3784E, HPSR3680E, HPSR3681E 	PH22458
Updated some report examples.	N/A

SC18-9222-08 (June 2019)

Description	Related APARs
<p>If IMS HP Load is being called from an IMS Online Reorganization Facility job, you can use the DELOLPART control statement to delete unloaded records that will not be reloaded to the HALDB partitions. For more information, see “DELOLPART control statement” on page 45.</p>	PI93412
<p>The ZIIPMODE control statement offloads IMS HP Load processing to System z® Integrated Information Processor (zIIP). For more information, see the following topics:</p> <ul style="list-style-type: none"> • IMS HP Load: “JCL requirements” on page 25 • IMS HP Load: “ZIIPMODE control statement” on page 65 • Bitmap Resetter: “Bitmap Resetter JCL requirements” on page 180 • Bitmap Resetter: “ZIIPMODE control statement” on page 183 	PI88156
<p>IMS HP Load has been enhanced to support IMS-managed ACBs. For more information, see the following topics:</p> <ul style="list-style-type: none"> • IMS HP Load: “JCL requirements” on page 25 • IMS HP Load: “Example 5: Reloading an HDAM database in an IMS-managed ACBs environment” on page 103 • Load API: “Load API JCL requirements” on page 111 • Physical Sequence Sort for Reload: “PSSR JCL requirements” on page 131 	PI79464
<p>The new parameter for the ILDSBLD control statement, YES,COND, lets IMS HP Load decide whether to apply ILDSBLD=YES,DSPR (rebuild ILDS) or ILDSBLD=YES,INITONLY (initialize ILDS without rebuilding it). For more information, see “ILDSBLD control statement” on page 47.</p>	PI69221

Description	Related APARs
<p>The CHKTRAIL control statement skips record count check in Physical Sequence Sort for Reload (PSSR) processing. For more information, see the following topics:</p> <ul style="list-style-type: none"> FABSPSSR PSSRIN data set: “CHKTRAIL control statement” on page 138 FABSPSSI PSSRIN data set: “CHKTRAIL control statement” on page 143 	PI67773
<p>The behavior of the EXTENT control statement option has changed. When HPIO=YES, the extension number is checked every time an extent is allocated to prevent allocating extents more than the maximum allowable number of extents. For more information, see “EXTENT control statement” on page 46. Also, the value of the EXTENT control statement can be specified as a site default value in the site default option table.</p>	PH11351
<p>The BYTELIMIT control statement specifies the maximum number of bytes for a database record that can be inserted into the root addressable area. For more information, see “BYTELIMIT control statement” on page 40.</p>	PH00974

SC18-9222-07 (June 2016)

Description	Related APARs
<p>New COMPAUTH control statement to call the segment compression exit in supervisor state. For more information, see “COMPAUTH control statement” on page 42.</p>	PI51537 and PI53313
<p>Ability to sort the PHIDAM database before loading the database. For more information, see “SORTHIDAM control statement” on page 58.</p>	PI50574

SC18-9222-06 (February 2015)

Description	Related APARs
<ul style="list-style-type: none"> IMS HP Load is enhanced to enable the Smart Reorg utility of IMS Database Reorganization Expert rebuild partitioned secondary indexes (PSINDEXes). New INITONLY parameter for the ILDSBLD control statement. If you specify this parameter, IMS HP Load initializes ILDSs without building ILEs. For more information, see “ILDSBLD control statement” on page 47. 	PM94789
<p>New PAD control statement to specify the padding character to fill out the segments to adjust to the length defined in the DBD definition. For more information, see “PAD control statement” on page 52.</p>	PM82937 and PI05052
<p>New TWINSTAT control statement to print statistics about the twin chained segments in the Segment Statistics report. For more information, see “TWINSTAT control statement” on page 59.</p>	PM79675
<p>Support for IMS 14.1.</p>	PI27637
<p>New CHKEMPTYUL control statement to check whether the unloaded data set contains segment data. It can also define the return code that is set when no segment data is found in the unloaded data set. For more information, see “CHKEMPTYUL control statement” on page 40.</p>	PI14950

SC18-9222-05

Description	Related APARs
New REPAIRILK control statement to reassign ILKs. By reassigning ILKs, you can prevent duplicate segment ILKs. For more information, see “REPAIRILK control statement” on page 54.	PM68882
Support for IMS 12.1	PM22118 and PM65263
You can create WFP data sets, which are work data sets for rebuilding PSINDEXes with IMS Index Builder. By using the WFP data sets as input to IMS Index Builder, you can rebuild PSINDEXes without scanning the database. For more information, see HPSRPnnn DD statement in “JCL requirements” on page 25.	PM62216
Support for IMS Tools Base IMS Tools Knowledge Base. You can store the reports that are generated by IMS HP Load in the Output repository of IMS Tools Knowledge Base. For more information, see “Configuring the IMS Tools Knowledge Base server” on page 18.	PM00732 and PM58706
DDEFPS DD statement specifies the IDCAMS commands to delete or to define database data sets while you reload the database. For more information, see “JCL requirements” on page 25.	PM46445
You can create a generation data group (GDG) base entry when DFSURWF1 is defined as a generation data set and when a GDG base does not exist. For more information, see “GDGBASE control statement” on page 46.	PM07578

SC18-9222-04

Description	Related APARs
*CP format (the communication industry partitioned format) is supported as an input for reload.	PK95918
<ul style="list-style-type: none">The CHKTRAIL control statement is added. This control statement specifies whether to check if a trailer record exists in the *HD or *SH format of the unload data set. For more information, see “CHKTRAIL control statement” on page 41.Support for installation default options is added. For more information, see Chapter 17, “Setting installation default options,” on page 189.	PK88818
The SORTHIDAM control statement specifies whether to run the sort processing before the load process starts for an HIDAM database. For more information, see “SORTHIDAM control statement” on page 58.	PK75509
Support for IMS 11.1.	PK74299
The WF1REC control statement specifies whether to write the WF1 records in the DFSURWF1 or HPSRSINDX output work data set. This control statement is useful when you do not need the WF1 records for the secondary index or logical relationships. For more information, see “WF1REC control statement” on page 62.	PK73015
The BMSETDSG control statement specifies the threshold value for the bitmap block. For more information, see “BMSETDSG control statement” on page 39.	PK73015

SC18-9222-03

Description	Related APARs
Enables validation of changes in the compression routine during reorganization.	PK59570
A new option added to the ILDSBLD control statement. This option enables the rebuild of ILDS by using less data space than ILDSBLD=YES.	PK57506
Enables the IPR Reload utility to store several IPR Reload utility reports in the output repository of IMS Tools Knowledge Base.	PK54068
A new option added to the PARTINIT control statement. By enabling this option, you do not need to set the PARTITION INIT NEEDED flag in the DBRC RECON for the partitions that do not contain any segment after reload.	PK48420

SC18-9222-02

Description	Related APARs
The SORT control statement is supported for the reload task of the IPR Driver. To use this function, APAR PK33846 must be applied to IMS Parallel Reorganization 3.2.	PK34472
Support for IMS 10.1.	PK33129
Support for IMS Parallel Reorganization 3.2.	PK28098
A new option COND, is added to the SORT control statement. With this option, you can run the physical sequential sorting depending on conditions.	PK21494
The OADSPR control statement is provided to reduce the usage of data space when the overflow area of (P)HDAM is processed.	PK16004 and PK18989

SC18-9222-01

Description	Related APARs
(Load utility) A new control statement, CHKUPDT, to do a check against DBRC to see whether an update of the database has been done between unload and reload processes.	PK12257
(Bitmap Resetter) New utility, Bitmap Resetter. Bitmap Resetter is a utility that changes bitmap data.	PK10446
(LOAD API) The initial load process is much faster than the DL/I load the database and provides the statistics about the database. These APARs also provide a new control statement SORT to specify whether to run the physical sequential sort processing before the load process starts.	PK07435 and PK09141

Changes in IMS High Performance Load for OS/390 1.1

The following items describe the publication updates and product enhancements of IMS High Performance Load for OS/390 1.1.

SC27-0938-01

This edition incorporates documentation changes that are made in the following APARs for IBM IMS High Performance Load for OS/390:

Description	Related APARs
(Load utility) Support for user header conversion exit	PQ69009

Description	Related APARs
(PSSR) Support for the PAD parameter of the Segment Edit/Compression exit routine	PQ67957
(PSSR) Description of the SORT parameter corrected	PQ67346
(Load utility) Support for SEQERROR=ACCEPT	PQ62856
(PSSR) Message FAS3642E added	PQ61148
(Load utility) Message HPSR3674E added	PQ61147
(Load utility) Support for the DECODE option of IMS Parallel Reorganization for z/OS 2.1	PQ59841
(Load utility) Description added for COMP=	PQ59763
(Overall) Support to run under IMS 8.1	PQ57582
(Load utility) Description added for the user exit interface	PQ54734
(Load utility) Support for HISAM and SHISAM	PQ53316 and PQ54113
(PSSR) Description for key compress segments added	PQ52914
(Load utility) Message HPSR3695E added	PQ51495
(Load utility) Description of DATASPACE=YES changed and its message added	PQ51000
(PSSR) Support for HIDAM	PQ48740
(Load utility) Restrictions added for the utility	PQ47222

SC27-0938-00

This edition covers IMS High Performance Load for OS/390 1.1. The product is a follow-on of the IMS System Utilities/Data Base Tools (DBT) 2.1 Fast Reorganization Reload and HDAM Physical Sequence Sort/Reload. This User's Guide contains new information about the following subjects:

Description	Related APARs
Support for IMS 7.1, including High Availability Large Database (HALDB)	N/A
The following new functions are introduced for Physical Sequence Sort for Reload:	N/A
<ul style="list-style-type: none"> • User Exit support • Segment Edit/Compression exit support • IMS/ESA® Year 2000 Exit Tool (5697-E04) support 	

What does IMS High Performance Load do?

IMS High Performance Load consists of the IMS HP Load utility, the Physical Sequence Sort for Reload utility, and the Bitmap Resetter utility. It also provides the Load application programming interface (Load API).

IMS HP Load provides a complete set of high performance reorganization reload procedures for the following database organizations:

- HDAM (Hierarchical Direct Access Method)
- HIDAM (Hierarchical Indexed Direct Access Method)
- HISAM (Hierarchical Indexed Sequential Access Method)
- SHISAM (Simple Hierarchical Indexed Sequential Access Method)

- PHDAM (Partitioned Hierarchical Direct Access Method)
- PHIDAM (Partitioned Hierarchical Indexed Direct Access Method)

IMS HP Load utility

The IMS HP Load utility provides high performance reload processing for databases. The utility is a performance replacement of the IMS HD Reorganization Reload utility (DFSURGL0). The IMS HP Load utility supports various database organizations. It creates the indirect list data set (ILDS) of a HALDB that is compatible with the one created by IMS standard IMS HD Reorganization Reload utility. Also, the utility provides reports that contain statistics about space use and segment pointers.

Load API (application programming interface)

IMS High Performance Load provides the Load application programming interface (Load API). By using the Load API, you can run the initial load process much faster than that of IMS DL/I.

Physical Sequence Sort for Reload utility

The Physical Sequence Sort for Reload utility sorts an unloaded database data set that is produced for an HDAM database to reduce the elapsed time that is required to reload the database. It also sorts unloaded database data sets of HDAM, PHDAM, HIDAM, PHIDAM, HISAM, and SHISAM databases. When you change the partition selection method of a HALDB, Physical Sequence Sort for Reload is required before you reload the HALDB by using IMS HP Load. The utility also provides reports, for use in the tuning analysis of the randomizing parameters.

Bitmap Resetter utility

The Bitmap Resetter utility can be used to adjust the bitmap of HDAM, HIDAM, PHDAM, and PHIDAM databases to accommodate denser packing of the database blocks.

The following subsections describe the program functions of the IMS HP Load utility.

- [“Reloading IMS databases by using high performance methods” on page 9](#)
- [“Initializing an empty database” on page 10](#)
- [“Providing a user exit facility for additional processing of each segment” on page 10](#)
- [“Generating statistics reports to aid in tuning the database” on page 10](#)

Reloading IMS databases by using high performance methods

IMS HP Load performs high-performance reloading of IMS databases from an HD unloaded data set that is created by:

- Unload utilities of IMS High Performance Unload for z/OS
- IPR Unload utility of IMS Database Reorganization Expert for z/OS (formerly known as IMS Parallel Reorganization for z/OS)
- IMS HD Reorganization Unload utility (DFSURGU0)

You can use this utility to increase the efficiency of the database reorganization process.

When you use IMS HP Load to reload a HALDB, the partition data set of that HALDB does not need to be initialized. You can skip the step before you run IMS HP Load, by specifying the PARTINIT=YES statement in the FRRIN data set. IMS HP Load itself performs the required partition initialization.

Optionally, IMS HP Load can reload an HD unloaded database data set with compressed segments, created by the IMS High Performance Unload for z/OS unload utilities or by other compatible utilities, in a compressed form without calling the segment compression routine. In this case, the segment compression routine must not be changed during the reorganization. IBM IMS Library Integrity Utilities for z/OS can be used to detect such a change. If it detects the change and the input unloaded data set is in a compressed form, the reload job ends abnormally. For information about IMS Library Integrity Utilities, see the *IMS Library Integrity Utilities User's Guide*.

IMS HP Load supports logical relationships and secondary indexes. Logical relationships and secondary indexes of HALDB databases are also supported.

IMS HP Load supports the IMS DBRC feature.

Initializing an empty database

If you specify the DFSUINPT DD DUMMY statement, HDAM and HIDAM databases are initialized.

If you specify the DFSUINPT DD DUMMY statement and the PARTINIT=YES control statement, and also if the partition initialization flag is on for the partition to initialize, PHDAM and PHIDAM databases are initialized.

For an HDAM database and each partition of a PHDAM database, the entire root addressable area is preformatted.

An HIDAM and each partition in a PHIDAM database contains a root segment with a key of all X'FF'.

Providing a user exit facility for additional processing of each segment

IMS HP Load supports user exit routine. IMS HP Load invokes the user exit routine to exercise additional selectivity or modification of segments to be received from the HD unloaded data set.

Generating statistics reports to aid in tuning the database

IMS HP Load generates statistics reports about data sets, segments, and segment pointers. These reports serve as a valuable aid in tuning the database.

Features and benefits

IMS High Performance Load offers several unique and significant features that you can use to increase the efficiency of reloading your databases.

High performance

IMS HP Load is designed to provide high-performance processing by default parameter settings. You can get optimized performance on each reorganization job.

Ease of use

By dynamically allocating database data sets of a full-function database or HALDB, IMS HP Load saves you the trouble of writing DD statements for database data sets.

Data compatibility

Data that is created by IMS HP Load, such as the DFSURWF data set, is compatible with IMS standard utilities.

Saving time

IMS HP Load does not require HALDB partition data set initialization before reload. For partitions not populated by any segment during reload, IMS HP Load initializes the partition data set.

IMS HP Load offers the following benefits:

- Reduces time and costs for reorganization of IMS databases
- Offers more flexible control over the reorganization of IMS databases
- Provides a means to initialize empty HDAM, HIDAM, HISAM, and SHISAM databases
- Initializes partitions of PHDAM or PHIDAM databases within reload processing
- Provides statistical data that is needed for database tuning tasks and space analysis tasks

Restrictions

The following restrictions apply to all the utilities of IMS HP Load.

- IMS HP Load does not run under IMS Utility Control Facility (UCF).
- IMS HP Load does not support the checkpoint and restart capability.
- No user-written data conversion exit routine is supported (see [“Software requirements” on page 17.](#))

Other restrictions for each utility are described in each utility topic.

What's new in IMS High Performance Load 2.1

IMS High Performance Load 2.1 has been enhanced with features that simplify the reloading of IMS databases. This topic describes the enhancements included in IMS High Performance Load for z/OS 2.1. It also summarizes the major changes that are made by the APARs for IMS High Performance Load for OS/390 1.1.

Encrypted IMS OSAM database support

IMS HP Load supports encrypted IMS OSAM database data sets.

HPIO control statement for using High Performance I/O Driver

You can specify whether to use High Performance I/O Driver for output database data sets. For more information, see [“HPIO control statement” on page 47](#).

USERHDR control statement for unloaded files that have customized segment header

You can reload the unloaded data set that has customized segment header by using the USERHDR control statement. For more information, see [“Control statements” on page 34](#).

Provides ease of use by dynamically allocating database data sets

If HPIO=YES is specified, the authorization of Authorized Program Facility (APF) is required for the load library of IMS HP Load. For specifying libraries that contain the members for dynamic allocation, which are generated by using the DFSMDA macro of IMS, a new DD statement IMSDALIB is supported. It bypasses the step that needs APF-authorization of the dynamic allocation library.

For more information about the specification of the IMSDALIB DD statement, see [“JCL requirements” on page 25](#).

Eliminates the POINTERS DD statement

This DD statement is not necessary in IMS High Performance Load 2.1. IMS HP Load uses data space as a temporary space for database blocks and pointer information instead of using the DD statements. If any is coded in a JCL stream for IMS High Performance Load 2.1, it is ignored. For more information, see [“Compatibility with former products” on page 12](#).

SORT control statement

The HDAM/PHDAM unloaded data must be in the physical sequence of the block and RAP numbers. With this control statement, you can reload without PSSR even if the HDAM or the PHDAM database is not in physical sequence.

If you reload a database by using IMS High Performance Load 2.1, you cannot use PSSR to prevent cascading. To prevent cascading and avoid degradation of performance in reloading, it is recommended that you use the SORT=YES and the SEARCH=-nnn parameter instead of using PSSR.

For example, if the randomizer is changed, you can use this control statement by specifying SORT=YES.

Load API

You can use the application program as input of the Load API for the initial load processing. For more information, see [Chapter 9, “Introduction to the Load API,” on page 107](#).

Support for IMS-managed ACBs

IMS HP Load supports IMS-managed ACBs. For more information, see the following topics:

- IMS HP Load: [“JCL requirements” on page 25](#)
- IMS HP Load: [“Example 5: Reloading an HDAM database in an IMS-managed ACBs environment” on page 103](#)
- Load API: [“Load API JCL requirements” on page 111](#)
- Physical Sequence Sort for Reload: [“PSSR JCL requirements” on page 131](#)

System z Integrated Information Processor (zIIP) support

You can use the ZIIPMODE control statement to offload IMS HP Load processing to System z Integrated Information Processor (zIIP). For more information, see the following topics:

- IMS HP Load: [“JCL requirements” on page 25](#)
- IMS HP Load: [“ZIIPMODE control statement” on page 65](#)

- Bitmap Resetter: [“Bitmap Resetter JCL requirements” on page 180](#)
- Bitmap Resetter: [“ZIIPMODE control statement” on page 183](#)

Integration with other utilities and products

IMS HP Load interfaces with other IMS utilities and products.

IMS HP Load can receive HD unloaded data sets that are created by the following utilities:

- IMS High Performance Unload for z/OS unload utilities
- IPR Unload utility of IMS Database Reorganization Expert for z/OS
- IMS HD Reorganization Unload utility (DFSURGU0)

IMS HP Load can also receive, in compressed format, HD unloaded data sets created by the following utilities:

- IMS High Performance Unload for z/OS unload utilities
- IPR Unload utility of IMS Database Reorganization Expert for z/OS
- IMS DBT Version 2 High Speed Sequential Retrieval (HSSR) unload utilities

Note: If you create an unloaded data set by specifying the DECN option without applying APAR PQ22654, you must specify the COMPRESS=NO parameter when you reload the data set.

"Work file 1 data set" (DFSURWF1) is compatible with the data set that is created by the IMS HD Reorganization Reload utility.

IMS HP Load integrates with IMS Tools Knowledge Base for storing and retrieving reports. For more information, see [“Configuring the IMS Tools Knowledge Base server” on page 18](#).

Compatibility with former products

IMS High Performance Load for z/OS 2.1 is compatible with its former products. The following topics explain the compatibility of IMS High Performance Load for z/OS 2.1 with its earlier products.

Compatibility with IMS High Performance Load for OS/390 1.1

IMS High Performance Load for z/OS 2.1 is compatible with IMS High Performance Load for OS/390 1.1.

The following sections explain compatibility with IMS High Performance Load for OS/390 1.1.

Subsections:

- [“IMS High Performance Load” on page 12](#)
- [“Physical Sequence Sort for Reload \(PSSR\)” on page 13](#)

IMS High Performance Load

JCL and control statements that are used in IMS High Performance Load for OS/390 1.1 can be used in IMS High Performance Load for z/OS 2.1, except that:

SORT control statement must be added if you change the randomizer for HDAM or PHDAM

If the randomizer or its parameter is changed between the unload process and the reload process, either the control statement SORT=YES or SORT=COND is needed because of a new restriction that HDAM or PHDAM unloaded data must be in the physical sequence of the block and RAP numbers. This change eliminates direct I/O and improves performance.

If the SORT=YES or SORT=COND control statement is missing, error message HPSR3630E RAP ASSIGNED OUT OF PHYSICAL SEQUENCE is issued. For more information about the SORT control statement, see [“SORT control statement” on page 57](#).

DATASPACE control statement is not effective and data space is always used

The DATASPACE control statement is not effective. If specified, it is ignored. IMS High Performance Load 2.1 or later uses data space by its default, instead of using data sets POINTERS DD or OVERFLOW DD, to keep the pointer information and the block image of the overflow area.

If there is not enough data space available on the system, and the error HPSR3643E DSPSERV CREATE or EXTEND FAILURE OCCURRED is shown, you can reduce the usage of the data space by specifying OADSPR=YES. For more information about the OADSPR control statement, see [“OADSPR control statement” on page 51](#).

If you specify ILDSBLD=YES, you can also reduce the usage of data space by specifying ILDSBLD=YES,DSPR. For more information about the ILDSBLD control statement, see [“ILDSBLD control statement” on page 47](#).

Condition for how to use the OVERFLOW DD statement has changed

The OVERFLOW DD is used only if OADSPR=YES and HPIO=NO are specified. Otherwise, data space is used instead of the data set.

POINTERS DD statement is not effective

The POINTERS DD is no longer used. If this DD is specified, it is ignored.

Physical Sequence Sort for Reload (PSSR)

Before you use PSSR, the following differences must be noted:

- When you reload an HDAM database by using IMS HP Load 2.1 or later, you cannot use the SORTOUT2 DD statement. For the details, see [“Considerations before using PSSR” on page 121](#).
- You cannot use PSSR to prevent cascading. To prevent cascading and avoid degradation of performance in reloading, use the SORT=YES and the SEARCH=-nnn parameters instead of using PSSR.

Compatibility with IMS DBT Version 2

IMS High Performance Load for z/OS is compatible with IMS System Utilities/Data Base Tools (IMS DBT) Version 2 Fast Reorganization Reload and HDAM Physical Sequence Sort/Reload.

The load module name DFSURGLO of IMS DBT Version 2 Fast Reorganization Reload can be used in IMS HP Load. JCL statements for IMS DBT Version 2 Fast Reorganization Reload can be used for IMS HP Load.

Service updates and support information

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

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

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

Product documentation and updates

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

Information on the web

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

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

The IMS Tools Product Documentation web page includes:

- Links to [IBM Documentation](#) for the user guides ("HTML")

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

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

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

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

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

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4. Click **Continue** to specify the types of updates that you want to receive.
5. Click **Submit** to save your profile.

How to send your comments

Your feedback helps IBM to provide quality information. Send any comments that you have about this book or other IMS Tools documentation to comments@us.ibm.com. Include the name and version number of the product and the title and number of the book. If you are commenting on specific text, list the location of the text (for example, a chapter, topic, or section title).

Accessibility features for IMS HP Load

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

Accessibility features

The major accessibility feature of the product is the keyboard-only operation for ISPF editors. It uses the standard TSO/ISPF interface.

Keyboard navigation

You can access IMS ISPF panel functions by using keyboard shortcuts.

For information about navigating the IMS ISPF panels by using TSO/E or ISPF, refer to the following publications for information about accessing ISPF interfaces:

- *z/OS ISPF User's Guide, Volume 1, SC34-4822*
- *z/OS TSO/E Primer, SA22-7787*

- *z/OS TSO/E User's Guide*, SA22-7794

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

Chapter 2. Installing and configuring IMS High Performance Load

The following topics provide information about prerequisites and requirements for installing IMS High Performance Load, and explain the configuration procedures.

Topics:

- [“Hardware and software prerequisites” on page 17](#)
- [“Configuring the IMS Tools Knowledge Base server” on page 18](#)
- [“Configuring for DBRC command authorization” on page 19](#)
- [“Configuring the environment to use the Load API” on page 19](#)

Hardware and software prerequisites

Before you install and configure IMS HP Load, make sure that your environment meets the following minimum hardware and software requirements.

Software requirements

IMS High Performance Load for z/OS operates in a z/OS environment. Its operating system requirements are the same as those for IMS supported by IMS High Performance Load for z/OS.

IMS High Performance Load for z/OS requires one of the currently supported versions of IMS or IMS Database Value Unit Edition.

Note: In these topics, all supported versions of IMS are referred to as IMS, except where distinctions among them need to be made.

IMS High Performance Load for z/OS supports the data conversion exit of IMS. For this support, it requires IMS/ESA Year 2000 Exit Tool Release 1 (5697-E04).

IMS High Performance Load for z/OS supports only the exit routines for data conversion that are provided by this product.

To store IMS HP Load reports in the IMS Tools Knowledge Base server (ITKBSVR=*server_name* option), IBM IMS Tools Base for z/OS IMS Tools Knowledge Base must be installed.

To use IMS HP Load in an IMS-managed ACBs environment, IBM IMS Tools Base for z/OS IMS Tools Knowledge Base must be installed.

Physical Sequence Sort for Reload requires DFSORT (Data Facility Sort), which is a part of z/OS. It is the same as when you specify YES for the SORT control statement.

To write the user exit routine, use:

- Enterprise COBOL for z/OS
- Enterprise PL/I for z/OS

To use the user exit routine that is written in one of these languages, you must use it in Language Environment®.

Hardware requirements

The hardware requirements are the same as those for IMS.

Configuring the IMS Tools Knowledge Base server

IMS Tools Knowledge Base (IMS Tools KB) is a component of IMS Tools Base that provides common services for storing and viewing reports that are generated by other participating IMS Tools products. Configure the IMS Tools Knowledge Base server if you want to store IMS HP Load reports in the IMS Tools Knowledge Base Output repository.

About this task

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

Procedure

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

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

1. Ensure that APAR PM00732 is applied to IMS HP Load.
2. Ensure that IMS Tools Base IMS Tools Knowledge Base is installed.
3. Set up an IMS Tools KB server.
4. If needed, register the RECON.
5. Register IMS HP Load with IMS Tools Knowledge Base.

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

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

After you register IMS HP Load with IMS Tools Knowledge Base, see the topic "Listing registered products and reports" in the *Tools Base Configuration Guide* to list the registered products and reports, and ensure that IMS HP Load (product ID is DL) is added.

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

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

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

Specify the IMS Tools Knowledge Base server information on the `ITKBLOAD` and `ITKBSRVR` control statements. These control statements can be specified in the `FRRIN` data set. These control statements direct IMS HP Load to communicate to the IMS Tools Knowledge Base server so that IMS HP Load reports can be stored in the IMS Tools Knowledge Base repository. For more information about the control statements to specify in the `FRRIN` data set and the reports that can be stored in the repository, see [“ITKBSRVR control statement” on page 50](#) and [“ITKBLOAD control statement” on page 49](#).

What to do next

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

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

Configuring for DBRC command authorization

If IMS DBRC command and API request authorization support with RACF is used, the user ID of the master address space must have authorization to access resources so that IMS HP Load can issue DBRC commands and DBRC API requests.

Procedure

The user ID under which IMS HP Load runs must be authorized to access resources for certain DBRC commands and API requests. Such resources are listed in the following table.

Table 1. DBRC command authorization for IMS High Performance Load

Resource	Description
<i>hlq</i> .LIST.DB.dbname	Always issued.
<i>hlq</i> .LIST.RECON	Issued only when processing a HALDB OSAM database.
<i>hlq</i> .STDBRC	Issued only when processing a HALDB OSAM database.

For more information about authorizing user IDs, see the topic "Security for DBRC commands and API requests" in *IMS System Administration*.

Configuring the environment to use the Load API

To use the application programming interface of IMS HP Load (Load API), you must configure the environment before you use it.

Procedure

Before you use the Load API for the first time, copy the module HPSRSVIO in the member of IMS HP Load library to a library that is concatenated to the STEPLIB DD with the name DFSISVIO.

Tip: If you already created DFSISVIO while preparing IMS High Performance Unload, you do not need to copy the HPSRSVIO module again.

Part 2. IMS High Performance Load

The IMS HP Load utility replaces the IMS HD Reorganization Reload utility (DFSURGL0) to reload IMS full-function databases by using high-performance methods. The utility also analyzes database performance and prepares reports that contain statistics about space use and segment pointers.

Topics:

- [Chapter 3, “Reloading IMS databases with IMS High Performance Load,” on page 23](#)
- [Chapter 4, “Reorganizing a HALDB database,” on page 85](#)
- [Chapter 5, “Reloading user-defined header format records,” on page 87](#)
- [Chapter 6, “Reloading a corrupted database,” on page 91](#)
- [Chapter 7, “User exit interface,” on page 93](#)
- [Chapter 8, “Examples,” on page 99](#)

Chapter 3. Reloading IMS databases with IMS High Performance Load

The IMS HP Load utility is a performance replacement of the basic IMS HD Reorganization Reload utility (DFSURGL0). It reloads IMS HDAM, HIDAM, HISAM, SHISAM, PHDAM, and PHIDAM databases by using high-performance methods. It also analyzes database performance and prepares reports that contain statistics about space use and segment pointers.

Topics:

- [“Data flow” on page 23](#)
- [“Restrictions” on page 24](#)
- [“Reloading a database” on page 25](#)
- [“JCL requirements” on page 25](#)
- [“Control statements” on page 34](#)
- [“Reports and statistics” on page 65](#)

Data flow

The IMS HP Load utility reads data from the unloaded data set that is generated by the IMS HP Unload utility, the IPR Unload utility of IMS Database Reorganization Expert, or the IMS HD Reorganization Unload utility (DFSURGU0), and reloads the data into the specified database.

The behavior of the IMS HP Load job can be controlled by the control statements that are specified in the FRRIN data set. After the job is run, the data is reloaded into the specified database and SYSPRINT data set contains statistics reports about the database.

The following figure shows the general data flow for the IMS HP Load utility.

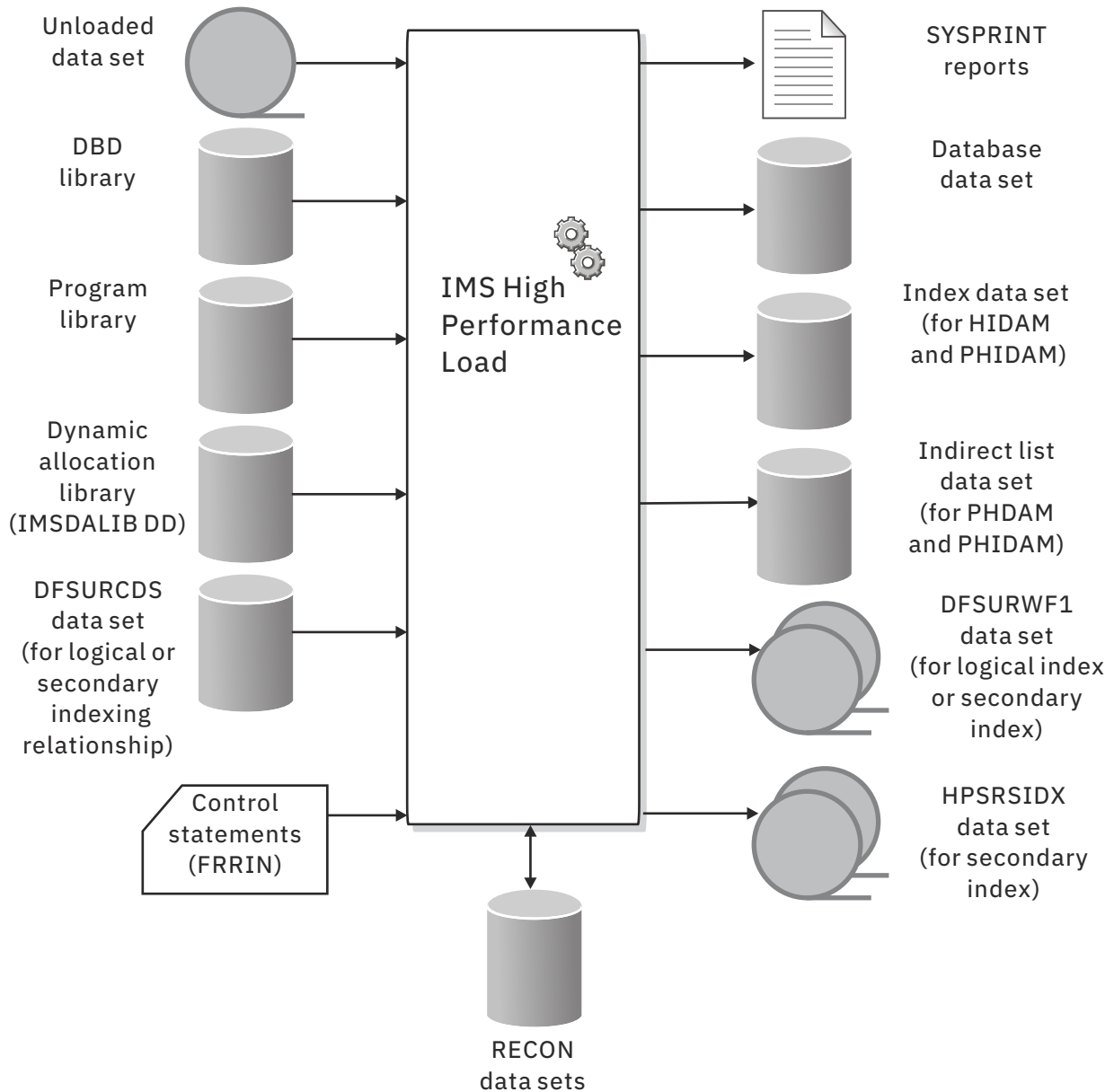


Figure 1. Data flow of IMS HP Load

Restrictions

IMS HP Load performs the same functions as the IMS HD Reorganization Reload utility, with certain restrictions.

The following restrictions apply to the IMS HP Load utility:

- HDAM DBDs must specify a nonzero maximum relative block number in the RMNAME operand of the DBD macro because it formats the entire root addressable area.
- IMS HP Load does not run under the Utility Control Facility (UCF). Checkpoint and restart of the reload process under the UCF are not supported.
- Because of the difference between the free space search algorithms of the IMS HD Reorganization Reload utility and of IMS HP Load, the latter might use more DASD.
- If you want to change partition boundaries during the reorganization of a HALDB, you must sort the unloaded records by specifying the SORT=YES statement in the FRRIN data set.

- If the access method used is VSAM, the total record number in the catalog information is cleared. But if you did not receive any warning or error message from IMS HP Load, all records are reloaded into the target database data sets.
- If the randomizer or its parameter is changed between unload and reload processes, you must sort the unload records by specifying the SORT=YES statement in the FRRIN data set.
- IMS catalog databases that are not registered to RECON cannot be encrypted during reload.

Reloading a database

To reload data into a database, you must prepare JCL for the IMS HP Load job.

Procedure

1. Prepare JCL for IMS HP Load.

For the JCL requirements, see [“JCL requirements” on page 25](#).

2. Code the FRRIN control statements.

FRRIN control statements control the behavior of the job. See [“JCL requirements” on page 25](#) for descriptions of the FRRIN control statements.

3. Submit the JCL to run the job.
4. Check the output reports and messages.

For more information about the reports and messages, see [“Reports and statistics” on page 65](#).

JCL requirements

JCL statements required to run IMS HP Load are basically the same as for the IMS HD Reorganization utility, with the addition of a STEPLIB DD statement to some steps.

Subsections:

- [“EXEC and DD statements” on page 25](#)
- [“Default values for the data set access method buffer” on page 33](#)

EXEC and DD statements

The following table summarizes DD statements. Explanations of JCL parameters follow the table.

Table 2. DD statements and record format for IMS HP Load

DDNAME	Use	Format	Need
STEPLIB	Input		Required (Note 1)
IMSDALIB	Input	Same as that used in the IMS control region startup JCL stream	Optional
IMS	Input		Optional
PROCLIB	Input		Optional
DFSACBPD	Input	LRECL=80	Optional
DFSRESLB	Input		Optional
DFSUINPT	Input	(Note 2)	Required
DFSURCDS	Input	LRECL=1600	Optional
DFSVSAMP	Input	LRECL=80	Optional
FRRIN	Input	LRECL=80	Optional

Table 2. DD statements and record format for IMS HP Load (continued)

DDNAME	Use	Format	Need
DDEFPDS	Input	RECFM=FB LRECL=80	Optional
RECONx	Input/Output		Optional for Non-HALDB Required for HALDB
<i>database</i>	Output	(Note 2)	Optional (Note 3)
DFSURWF1	Output	RECFM=VB LRECL=900	Optional
HPSRPnnn	Output	RECFM=FB, LRECL=7250	Optional (Note 4)
HPSRSIDX	Output	RECFM=VB LRECL=900	Optional
OVERFLOW	Input/Output	RECFM=VB (Note 2)	Optional
HPSRISMG	Output	LRECL=133	Optional
SEQERROR	Output	RECFM=VB	Optional (Note 5)
SYSPRINT	Output	LRECL=81	Required
HPSRAMSO	Output	LRECL=133	Optional
SNAP	Output	LRECL=133	Optional
SYSUDUMP	Output	LRECL=133	Optional
SORTWKnn	Input/Output		Optional
HPSRILEA	Input/Output		Optional
HPSRILEB	Input/Output		Optional
HPSRWKnn	Input/Output		Optional

Notes:

1. When you specify HPIO=YES or when you delete and define database data sets by specifying the DDEFPDS DD statement, the load module library of STEPLIB must be authorized through the Authorized Program Facility (APF).
2. Large format data set can be specified.
3. If you use dynamic allocation, do not use the DD statements for these data sets.
4. HPSRPnnn DD statements are effective only when the WFPHLQ control statement is specified.
5. This data set is required only if the SEQERROR=SAVE control statement is specified.

EXEC

Must be in the following form:

```
//name EXEC PGM=HPSRRC00,PARM='ULU,DFSURGL0,dbdname'
```

dbdname is the name of the DBD that includes the database to be reloaded. The general IMS positional parameters, such as DBRC and SWAP, can follow the *dbdname*.

To reload a HALDB, you must set DBRC=Y.

If you do not use the functions that require authorization for the STEPLIB DD (for example, HPIO, COMPAUTH, and DDEFPS), you can specify DFSRRC00 as follows:

```
//name EXEC PGM=DFSRRC00,PARM='ULU,DFSURGL0,dbdname'
```

To reload a database in an IMS-managed ACBs environment, either modify the EXEC statement or the STEPLIB DD statement as follows:

- Specify an additional EXEC parameter, DFSDF, as shown in the following example:

```
//name EXEC PGM=HPSRRC00,PARM=(ULU,DFSURGL0,dbdname,  
//          ,,,,,,,,,Y,N,,,,,,,,,DFSDF=CAT')
```

Replace the 3-character suffix CAT with the suffix of the DFSDFxxx member that enables IMS-managed ACBs.

- Place the IMS Catalog Definition exit routine (DFS3CDX0) in the STEPLIB DD concatenation.

With either method, you must allocate the catalog partition definition data set when reloading a database with DBRC=NO. To do so, add the DFSHDBSC DD statement or the DFSMDA member with the TYPE=CATDBDEF statement.

To reload an IMS catalog database that is not registered to the RECON data set, either modify the EXEC statement or the STEPLIB DD statement as follows:

- Specify an additional EXEC parameter, DFSDF, as shown in the following example:

```
//name EXEC PGM=HPSRRC00,PARM=(ULU,DFSURGL0,DFSCD000,  
//          ,,,,,,,,,N,N,,,,,,,,,DFSDF=CAT')
```

Replace the 3-character suffix CAT with the suffix of the DFSDFxxx member that specifies the unregistered IMS catalog database name.

- Place the IMS Catalog Definition exit routine (DFS3CDX0) in the STEPLIB DD concatenation.

With either method, you must allocate the catalog partition definition data set. To do so, add the DFSHDBSC DD statement or the DFSMDA member with the TYPE=CATDBDEF statement.

STEPLIB DD

Points to two library data sets that must be in the following order:

```
//STEPLIB DD DISP=SHR,DSNAME=pgmlib  
DD DISP=SHR,DSNAME=IMSESA.RESLIB
```

pgmlib is the name of the library that contains the load module of IMS HP Load. IMSESA.RESLIB is the name of the library that contains the load modules of IMS.

To reload a database in an IMS-managed ACBs environment or offload eligible workloads to zIIP processors, the name of the SGLXLOAD library of IMS Tools Base must also be specified on the STEPLIB DD statement.

If you specify HPIO=YES, ZIIPMODE=COND, COMPAUTH=YES, or DDEFPS DD, the load module libraries that are specified on the STEPLIB DD must be APF-authorized.

IMSDALIB DD

Specifies a partitioned data set or data sets that contain the dynamic allocation members for the database, index, and the RECON data sets.

Allocation of the database, index, and the RECON data sets are attempted in the following order:

1. DD statements that are coded in the JCL stream
2. Dynamic allocation members in the IMSDALIB concatenation
3. Dynamic allocation members in JOBLIB or STEPLIB concatenation

For dynamic allocation of HALDB databases, the RECON data sets are used instead of the IMSDALIB DD statement.

IMS DD

Describes the library that contains the DBD referred to in the PARM field of the EXEC statement. This data set must reside on a direct-access device.

If the IMS management of ACBs is enabled, the IMS DD statement is ignored.

PROCLIB DD

Points to the IMS.PROCLIB data set.

If you specify DFSDF=xxx in the EXEC statement, you must also specify this DD statement, and the DFSDFxxx member must exist in the IMS.PROCLIB data set.

DFSACBPD DD

Defines the control statement data set to be used in an IMS-managed ACBs environment. This DD statement is optional. STAGING is the only valid keyword.

When the IMS management of ACBs is enabled, IMS retrieves DBDs from the IMS catalog. If you unload a database and make offline changes to the database definition, you can reload either the active changes from the IMS catalog directory data sets or the pending changes from the catalog staging data sets.

When the IMS management of ACBs is enabled, by default, IMS HP Load obtains the active database definition from the IMS catalog directory. To override the default behavior and obtain the pending ACBs from the staging data sets in IMS catalog, specify the keyword STAGING on the DFSACBPD DD statement.

When the IMS management of ACBs is not enabled, the DFSACBPD DD statement is ignored.

DFSRESLB DD

Points to an authorized library that contains IMS SVC modules. For an IMS HP Load job, IMSESA.RESLIB and any data set that is concatenated to it on the DFSRESLB DD statement must be authorized through the Authorized Program Facility (APF). If you do not specify IMSESA.RESLIB in the STEPLIB DD statement or if a library that is concatenated to the STEPLIB DD statement is not APF-authorized, the DFSRESLB DD statement is needed.

For more information, see *IMS System Definition*.

DFSUINPT DD

Describes the input data set that contains the data to be reloaded. This data set must be created by the unload utilities of IMS High Performance Unload or an equivalent utility. The data set must reside either on a tape or a direct-access device.

DFSURCDS DD

Defines the control data set for this program. The data set must be the output that is generated by the IMS Database Preorganization utility (DFSURPRO).

This DD statement is applicable only for logical relationships and must be included if logical relationships exist.

This data set must reside either on a tape or a direct-access device.

DFSVSAMP DD

Describes the data set that contains the buffer pool information that is required by the IMS DL/I buffer handler. For more information about the control statement format, see *IMS Database Administration*.

Notes:

- If the DFSVSAMP DD statement is omitted, the DL/I Buffer Pool is not allocated.
- You must specify the DFSVSAMP DD statement when you reload a HALDB or when you use DL/I calls in the user exit routine.

FRRIN DD

Defines the optional data set that contains control statements that specify optional functions of IMS HP Load.

DDEFPPDS DD

Defines the optional data set that contains the IDCAMS commands for deleting and defining the database data sets to be processed by IMS HP Load. IMS HP Load searches for the delete and define statements for each database data set in the member that has the same name as the database DD name.

The member must contain only the delete and define statements.

Requirements:

- To delete and define database data sets by specifying this DD statement, the load module library of STEPLIB must be authorized through the Authorized Program Facility (APF).
- Program HPSRRC00 must be specified on the EXEC statement.
- To delete and define HALDB data sets by specifying this DD statement, the input unloaded data set must be created by IMS HP Unload with the CHECKREC=YES option. The unloaded data set must not be concatenated.

RECON1 DD

Defines the first Data Base Recovery Control (DBRC) RECON data set.

RECON2 DD

Defines the second DBRC RECON data set.

RECON3 DD

Defines the optional DBRC RECON data set that is used when an error is encountered in RECON1 or RECON2. This RECON data set must be the same RECON data set as the control region is using.

Restriction: If you use dynamic allocation, do not specify these RECON data set DD statements.

database DD

Defines the database data set to be reorganized. You need one statement for each data set that appears in the DBD that describes this database. The ddname must match the ddname in the DBD.

For an HIDAM database, DD statements must also exist for the data sets that represent the index. The DD statements that relate to the index must contain ddnames specified in the DBD for the index database. No DD statements are required for any secondary indexes that are associated with this database.

For a HISAM database, DD statements must exist for both the primary data set (KSDS) and the overflow (ESDS) data sets. The DD names for primary and the overflow data sets must be the same as the ddnames in the DBD that was referred to when this data set was unloaded.

This data set must reside on a direct-access device.

Recommendation: For VSAM database data sets, the SPEED option for DEFINE CLUSTER is strongly recommended. The SPEED option improves the performance of IMS HP Load.

IMS HP Load optimizes the buffer specification for the database data set by itself. You do not need to specify the AMP parameter or the DCB (NCP) parameter for the DD statement.

Restriction: If you use dynamic allocation, do not specify the DD statements for the database data sets.

For HALDBs, no database DD statements are necessary for any database data sets because the data sets are always dynamically allocated.

DFSURWF1 DD

Describes the work data set to be created during reload.

The data set is used as input to the following utilities to resolve logical or secondary index relationships:

- IMS Index Builder
- IMS High Performance Prefix Resolution
- IMS Database Prefix Resolution utility

This DD statement is necessary if at least one of the following conditions is met:

- The database is HDAM, HIDAM, or HISAM and it has logical relationships.
- The database has a secondary index and INDEXBLD=NO is specified for the IPR Driver, but the HPSRSIDX DD statement is not coded.

Notes:

- If WF1REC=NO is specified, you can omit this DD statement. If the preceding condition is not met, this DD statement is not required.
- If you omit the DFSURWF1 DD statement and specify the WF1DSN statement, IMS HP Load allocates the DFSURWF1 data set dynamically. You can specify the attributes of the data set by using WF1SPACE, WF1UNIT, and WF1VOLUME statements.

If HPSRSIDX DD is specified, only the records of logical relationships are written to this data set, and it can be used as an input for utilities to resolve logical relationships.

You can specify DUMMY if the database being reloaded is neither involved in logical relationships nor with a secondary index.

The DCB parameters for the DD statement must include RECFM=VB and BLKSIZE. The specification must be the same as that for the work data set of the user's initial load program or for the Database Scan utility (DFSURGS0). A value of LRECL=900 is the default and recommended, but a smaller value (as small as 300) can be used if no secondary indexes are present or if HPSRSIDX DD is specified.

The data set must reside either on a tape or a direct-access device.

HPSRPnnn DD

Describes the WFP work data sets. WFP data sets are work data sets that can be used by Index Builder to rebuild partition secondary indexes (PSINDEXes). These data sets are created while IMS HP Load reloads HALDB partitions. One work data set is created for each HALDB partition.

If you want IMS HP Load to dynamically allocate WFP data sets, omit this DD statement.

For *nnn*, specify a 3-digit decimal number from 001 to 999. The value can also be T00 or T01. T01 represents 1000, and T01 represents 1001. If you designate IMS HP Load to dynamically allocate the WFP data sets, IMS HP Load uses sequence numbers for *nnn*.

The data sets must reside on a direct-access device.

Create WFP data sets when all of the following conditions are met:

- The database has PSINDEXes.
- You are going to rebuild PSINDEXes by using IMS Index Builder in a subsequent job step or in another job.
- You want to avoid scanning the database while rebuilding indexes with IMS Index Builder.

If you are not sure whether the HALDB database contains empty partitions, use the unloaded data set that is created by IMS HP Unload with the CHECKREC=YES option. Otherwise, WFP data sets are not created for the empty partitions.

Naming convention for WFP data sets

If you specify the names of WFP data sets by using HPSRPnnn DD statements, ensure that the data set names on the DSN parameters conform to the following naming convention.

The prefix for the WFP data sets is specified by the WFPHLQ control statement. For each HPSRPnnn DD statement specified, specify the data set name as follows:

```
DSN=WFPHLQ_value.partition_name.WFP
```


For example, if you specify WFPHLQ=IMSTOOLS.WORK.HMPORDP1 to define the prefix, and if you specify HPSRP001 and HPSRP002 DD statements for partitions that are named PART001 and PART002, the DSN parameters for the WFP data sets must be specified as follows:

```
DSN=IMSTOOLS.WORK.HMPORDB1.PART001.WFP
DSN=IMSTOOLS.WORK.HMPORDB1.PART002.WFP
```

If you do not specify this statement, IMS HP Load allocates the data sets dynamically by using the values summarized in the following table.

Table 3. DYNALLOC parameters for dynamically allocating WFP data sets

Parameter	Value	Description
DDN	HPSRPnnn	nnn: Sequence number
DSN	hlq.partition_name.WFP	hlq: The value that is specified on the WFPHLQ control statement partition_name: The partition name of the primary database WFP: Fixed value
DISP	NEW,CATLG,DELETE	
UNIT	unit_name	The value that is specified on the WFPUNIT control statement. If the control statement is not specified, SYSALLDA is used.
SPACE	{(TRK, or CYL), primary_alloc, secondary_alloc, RLSE}	The value that is specified on the WFPSPACE control statement. If the control statement is not specified, the region size is estimated based on the allocation size of the partition data set.
RECFM	FB	
LRECL	7250	
VOL=SER	volume_name or *	The value that is specified on the WFPVOL control statement. If the control statement is not specified, the VOLUME parameter for the DYNALLOC macro is not set.
DSNTYPE	LARGE	

When IMS HP Load attempts to dynamically allocate a WFP data set and if the WFP data set already exists with the intended data set name, IMS HP Load deletes the existing data set and creates the data set with the same name.

HPSRSIDX DD

Defines the optional output work data set. If it is specified and secondary indexes are present in the DBDs being processed, the data set is used as input to utilities to resolve secondary index relationships. The use of this data set increases the performance of utilities to resolve secondary index relationships because it has fewer records to read. DCB parameters specified within this program are RECFM=VB and LRECL=900. BLKSIZE must be provided on the HPSRSIDX DD statement. The data set must reside on either a tape or a direct-access device. This DD statement is not necessary if the database has no secondary index or INDEXBLD=YES is specified for the IPR Driver.

OVERFLOW DD

Defines the optional sequential data set that is used as a temporary storage to keep database blocks that are directed to the overflow area during HDAM RAA reloading. Such blocks are written into the overflow area after RAA reloading is completed. This data set is used only when both OADSPR=Y and HPIO=N are specified. The SPACE parameter for the DD statement must be large enough to hold all

CIs or blocks in the overflow area. The DCB parameters must include RECFM=VB. This data set must reside on either a tape or a direct-access device. If both OADSPR=Y and HPIO=N are specified and this DD statement is not specified, IMS HP Load attempts to allocate it dynamically on a direct-access device using the value calculated internally with the following method.

Method for calculating the size for dynamic allocation: The number of database blocks directed to the overflow area during HDAM RAA reloading cannot be estimated in advance. For optimization, IMS HP Load calculates the cylinders for OVERFLOW DD, which can be 25% of RAA cylinders. IMS HP Load uses the same value to calculate both primary and secondary values. If the calculated value is less than 10 cylinders, 10 cylinders are used.

The way to maintain the blocks in OVERFLOW DD is different from the one in an actual database data set, so the number of cylinders for the OVERFLOW DD is not directly comparable with the 25% of RAA cylinders.

For calculation, IMS HP Load uses the 3390 device type geometry regardless of the actual device type of OVERFLOW DD because the device type cannot be known prior to allocation. If a 3380 or a 9345 DASD is used, for example, the effective percentage of RAA of the allocation amount is a little smaller, and will be approximately 20%.

However, there is no formula to estimate the space requirement for OVERFLOW DD beforehand. The size of OVERFLOW DD depends on the number of segments that is to be directed to the overflow part of the database. But the size equal to the overflow part of the original database is enough, until you change the DBD definition or the randomizer.

HPSRISMG DD

This optional output data set contains the messages that are issued by DFSORT. This data set is used only when ILDSBLD=YES, DSPR is specified. If the DD statement is omitted, the data set is allocated dynamically.

SEQERROR DD

Defines a sequential output data set in which segment data in key sequence error is to be kept.

This data set is required only if SEQERROR=SAVE is specified. This data set saves segments in key sequence error and their hierarchical dependent segments. If the DCB parameter is specified on the DD, the record format VB (RECFM=VB) is required. Do not specify the logical record length or the block size of the data set.

SYSPRINT DD

Defines the statistics output data set. The data set can reside on a tape or a direct-access device, or it can be routed through the output stream.

HPSRAMSO DD

Defines the output data set for the Result of Database Data Set Allocation report. The data set can reside on a tape, a direct-access device, or it can be routed through the output stream. If this DD statement is not coded, the data set is dynamically allocated to the SYSOUT stream of the output class that is specified by the MSGCLASS parameter on the JOB statement.

SNAP DD

Defines a snap dump data set. It contains printed dumps of the DBD for your reference. The snap dump is activated by the DBDSNAP=YES specification in the FRRIN data set. If no snap dump is required, the DUMMY statement can be specified.

SYSUDUMP DD

Defines a dump data set. Most errors encountered end the IMS HP Load job by issuing an ABEND macro with the DUMP operand. Only a SYSUDUMP DD is needed. The SYSABEND DD statement is not required.

SORTWKnn DD

These data sets are intermediate storage data sets used by DFSORT. If SORT=YES or SORTHIDAM=YES is specified, you can define these data sets and adjust the size of work space that is used for the sort process. You can specify multiple data sets, *nn* showing its serial number. This specification is optional. If you do not specify SORTWKnn DD statements, these data sets are dynamically allocated by DFSORT.

- For a (P)HDAM database, the size is estimated based on the size of RAA.

- For a HIDAM database, the size is estimated based on the primary allocation size of the primary data set group of the HIDAM database.
- For a PHIDAM database, the size is estimated based on the number of partitions.

If the number of unloaded records is provided by the RECNUM statement, this value supersedes other values and will be used for estimation.

If the estimated size is extremely large or extremely small, specify SORTWKnn DD explicitly.

For more information about how to code SORTWKnn DD statements, see the *DFSORT Application Programming Guide*.

HPSRILEA DD

HPSRILEB DD

These data sets are used by DFSORT, as substitute for SORTIN data sets, when ILDSBLD=YES, DSPR is specified. If you do not specify the statement, the data sets are allocated dynamically with sizes estimated on the basis of the allocation size of ILDS.

To avoid space shortage problems that might be caused by extension of the data sets, the size estimation is adjusted as follows:

- If the high used RBA of ILDS is greater than the primary space amount, the equivalent amount is specified as the primary space amount.
- If the secondary space amount is less than 1/5 of the high used RBA of ILDS, the equivalent amount is specified as the secondary space amount.
- If the primary or secondary space amount of ILDS is less than 100 cylinders, 100 cylinder is used as the space amount.
- The data set is allocated with volume count so that it can be extended on up to 10 volumes.

You can specify the data class and the storage class for HPSRILEA and HPSRILEB data sets by using ILEDATAC and ILESTORC control statements.

A dummy data set or the DISP=MOD parameter cannot be specified for the HPSRILEA DD and the HPSRILEB DD statements.

For more information about SORTIN data sets, see the *DFSORT Application Programming Guide*.

HPSRWKnn DD

These data sets are used by DFSORT, as substitute for SORTWK data sets, when ILDSBLD=YES, DSPR is specified. Here, nn is its serial number. If you do not specify the statement, the data sets are allocated dynamically by DFSORT.

For more information, see the *DFSORT Application Programming Guide*.

Notes:

- The DFSCTL data set is not supported.
- Any DD name that starts with SYS, DFS, HPS, or FAB is reserved for system use.

Default values for the data set access method buffer

IMS HP Load uses a performance default of the access method buffer number for each input and output data set. The following table lists the default values.

<i>Table 4. IMS HP Load defaults for the data set access method buffer</i>				
DDNAME	Use	Access	Default parameter	Storage used
DFSUINPT	In	QSAM	DCB=(BUFNO=60)	private high
HPSRSIDX	Out	QSAM	DCB=(BUFNO=40)	private low
DFSURWF1	Out	QSAM	DCB=(BUFNO=40)	private low

Table 4. IMS HP Load defaults for the data set access method buffer (continued)

DDNAME	Use	Access	Default parameter	Storage used
HPSRPnnn	Out	QSAM	DCB=(BUFNO=105)	private high
database	Out	ESDS BSAM	DBIOBUF=30 ^(Note 1) DBIOBUF=15 ^(Note 2)	private high private high

Notes:

1. IMS HP Load calculates the number of VSAM buffers that fits into 30 tracks (that is, the default value of the DBIOBUF parameter) depending on the CI size, and specifies AMP=('BUFND=nn') in the ESDS database data set internally.
2. IMS HP Load calculates the number of VSAM buffers that fits into 30 tracks depending on the CI size, and specifies AMP=('BUFND=nn,BUFNI=100') in the KSDS database data set internally. BUFNI=100 is used commonly for any CI size.
3. IMS HP Load calculates the number of BSAM buffers that fits into 15 tracks (that is, the default value of the DBIOBUF parameter) depending on the block size, and specifies DCB=(NCP=nn) in the OSAM database data set internally.

Control statements

Optional IMS HP Load control statements can be specified on the FRRIN data set.

Tip: Some of the control statement keywords and their values can be set as the default values for your runtime environment. For details about setting the default values, see [Chapter 17, “Setting installation default options,”](#) on page 189.

Overview of control statements

IMS HP Load supports various options to control the behavior of IMS HP Load jobs.

Subsections:

- [“Control statements for process control”](#) on page 34
- [“Control statement for performance”](#) on page 37
- [“Control statements for reloading a HALDB database”](#) on page 38
- [“Control statements for performance diagnosis”](#) on page 39
- [“Control statement syntax”](#) on page 39

Control statements for process control

The following table lists the keywords that you can specify for the process control.

Table 5. IMS HP Load control statements for process control

Keyword	Accepted values	Default	Description
BMSETDSG	n or (n1, ..., n10) n=value or *	*	Specifies the threshold value that is used to set the bitmap block. See “BMSETDSG control statement” on page 39.
BYTELIMIT	DBD NOLIMIT nnnnnnnn	DBD	Specifies the maximum number of bytes for a database record that can be inserted into the root addressable area. See “BYTELIMIT control statement” on page 40.

Table 5. IMS HP Load control statements for process control (continued)

Keyword	Accepted values	Default	Description
CHKEMPTYUL	YES YES,WARN YES,WARN, <i>n</i> NO	YES,WARN,4	Specifies whether to check if the unloaded data set contains segment data. See “CHKEMPTYUL control statement” on page 40.
CHKTRAIL	YES YES,WARN YES,ERROR NO	YES,WARN	Specifies whether to check for the existence of the trailer record. See “CHKTRAIL control statement” on page 41.
CHKUPDT	YES YES,ABEND YES,WARN NO	NO	Specifies whether the check for an update is done between unload and reload processes. See “CHKUPDT control statement” on page 42.
COMPAUTH	YES or NO	NO	Specifies whether to call the segment compression exit in supervisor state. See “COMPAUTH control statement” on page 42.
COMPRESS	YES or NO	YES	Compresses segments during reload. See “COMPRESS control statement” on page 43.
DATXEXIT	YES or NO	NO	Controls the IMS/ESA Year 2000 Exit Tool support. See “DATXEXIT control statement” on page 43.
EXTENT	1–120	120	Specifies the maximum number of extensions of the OSAM data set that can be created. See “EXTENT control statement” on page 46.
FRSPC	YES or NO	YES	Secures free space factors. See “FRSPC control statement” on page 46.
GDGBASE	YES or NO	NO	Specifies whether to create a GDG base entry. See “GDGBASE control statement” on page 46.
GDGLIMIT	<i>nnn</i>	10	Specifies the maximum number of GDS that can be associated with the GDG that is to be created. See “GDGLIMIT control statement” on page 47.
HPIO	YES or NO	YES	Specifies whether IMS HP Load uses the High Performance I/O Driver for output data. See “HPIO control statement” on page 47.
INPUT	DFSUINPT, <i>exitname</i> ,L	DFSUINPT	Specifies the input data set, the user exit routine, and its language. See “INPUT control statement” on page 49.
ITKBLOAD	<i>library_name</i> or *NO	*NO	Specifies the library name of IMS Tools KB. See “ITKBLOAD control statement” on page 49.
ITKBSRVR	<i>server_name</i> or *NO	*NO	Specifies the XCF group name of the IMS Tools KB server. See “ITKBSRVR control statement” on page 50.

Table 5. IMS HP Load control statements for process control (continued)

Keyword	Accepted values	Default	Description
OADSPR	YES or NO	NO	Specifies whether to reduce the usage of data space to process (P)HDAM OA. See “OADSPR control statement” on page 51.
PAD	X'00'-X'FF'	X'00'	Specifies the padding character to fill out the segments to adjust to the length defined in the DBD definition. See “PAD control statement” on page 52.
PROGMON	0–999999	0	Monitors job progress. See “PROGMON control statement” on page 54.
RAAFORMAT	YES or NO	YES	Formats the HDAM RAA. See “RAAFORMAT control statement” on page 54.
RECNUM	<i>nnnnnnnnnn</i>	(none)	Specifies the number of unload records that are to be reloaded. See “RECNUM control statement” on page 54.
RMBSEGSZ	YES or NO	NO	Specifies how IMS HP Load calculates the database record size to determine whether to put the records into the overflow area. See “RMBSEGSZ control statement” on page 55.
SEARCH	0–999 -999--0	3	Sets the space search boundary. See “SEARCH control statement” on page 55.
SEQERROR	ABEND or SAVE	ABEND	Handles key sequence errors. See “SEQERROR control statement” on page 56.
SORT	YES, NO, or COND	NO	Specifies whether to run physical sequential sort before loading with (P)HDAM. See “SORT control statement” on page 57.
SORTHIDAM	YES or NO	NO	Specifies whether to run the sort processing before loading a HIDAM or PHIDAM. See “SORTHIDAM control statement” on page 58.
TWINSTAT	YES or NO	NO	Prints statistics about the twin chained segments in the Segment Statistics report. See “TWINSTAT control statement” on page 59.
USEREXIT	<i>exitname</i>	(none)	Specifies the name of the user exit routine. See “USEREXIT control statement” on page 59.
USERHDR	<i>element</i>	(none)	Specifies the name of the element of the header portion of the unloaded record. See “USERHDR control statement” on page 59.
USERHDRX	<i>exitname</i>	(none)	Specifies the name of the user header conversion exit routine. See “USERHDRX control statement” on page 61.
WF1DSN	<i>data_set_name</i> or <i>GDG_base_name.&GDG</i>	(none)	Specifies the data set name for the DFSURWF1 data set when dynamically allocating the data set. See “WF1DSN control statement” on page 61.

Table 5. IMS HP Load control statements for process control (continued)

Keyword	Accepted values	Default	Description
WF1REC	YES or NO	YES	Specifies whether to create WF1 records that are written to the DFSURWF1 output work data set. See “WF1REC control statement” on page 62.
WF1SPACE	CYL or TRK, <i>primary_alloc</i> , <i>secondary_alloc</i> (none)		Specifies the space parameter for the DFSURWF1 data set when dynamically allocating the data set. See “WF1SPACE control statement” on page 62.
WF1UNIT	<i>unit_name</i>	SYSALLDA	Specifies the device for the DFSURWF1 data set when dynamically allocating the data set. See “WF1UNIT control statement” on page 63.
WF1VOL	<i>volume_name</i> or *	(none)	Specifies the volume names for the DFSURWF1 data set when dynamically allocating the data set. See “WF1VOL control statement” on page 63.
WFPHLQ	<i>hlq</i>	(none)	Specifies the high-level qualifier for the WFP data sets. See “WFPHLQ control statement” on page 63.
WFPSPACE	CYL or TRK, <i>primary_alloc</i> , <i>secondary_alloc</i> (none)		Specifies the SPACE parameter for the WFP data sets when allocating WFP data sets dynamically. See “WFPSPACE control statement” on page 63.
WFPUNIT	<i>unit_name</i>	SYSALLDA	Specifies the device for the WFP data sets when allocating WFP data sets dynamically. See “WFPUNIT control statement” on page 64.
WFPVOL	<i>volume_name</i> or *	(none)	Specifies the volume names for the WFP data sets when allocating WFP data sets dynamically. See “WFPVOL control statement” on page 64.
WFPVOLCNT	<i>nnn</i>	(none)	Specifies the volume count for the WFP data sets when allocating WFP data sets dynamically. See “WFPVOLCNT control statement” on page 64.
ZIIPMODE	COND or NEVER	NEVER	Specifies whether to offload eligible workloads to zIIP processors. See “ZIIPMODE control statement” on page 65.

Control statement for performance

The following table lists the keywords you can specify for performance improvement.

Table 6. IMS HP Load control statements for performance

Keyword	Accepted values	Default	Description
BUFFERNO ^(Note 1)	5–32767	N/A	Sets the number of IMS HP Load buffers. See “BUFFERNO control statement” on page 40.

Table 6. IMS HP Load control statements for performance (continued)

Keyword	Accepted values	Default	Description
DBIOBUF	1–999	30 (for VSAM) 15 (for OSAM) (Note 2)	Sets the number of VSAM/OSAM buffers. See “DBIOBUF control statement” on page 44.
DBRLBUF <small>See Note 1</small>	1–999	45 ^(Note 2)	Sets the number of IMS HP Load buffers. See “DBRLBUF control statement” on page 45.

Notes:

1. DBRLBUF and BUFFERNO are mutually exclusive.
2. For HISAM, the default value for DBIOBUF is 15, and the default value for DBRLBUF is 2.

Control statements for reloading a HALDB database

The following table lists the keywords you can specify when reloading a HALDB database.

Table 7. IMS HP Load control statements for reloading a HALDB database

Keyword	Accepted values	Default	Description
DELOLPART	NO or YES	NO	Effective only when IMS HP Load is called from IMS Online Reorganization Facility. Specifies whether IMS HP Load deletes unloaded records that will not be reloaded to the HALDB partitions identified by the LPART statement. See “DELOLPART control statement” on page 45.
ILDSBLD	C YES YES,COND YES,DSPR NO	YES,COND	Specifies whether to build ILDS and how to build it during reorganization. See “ILDSBLD control statement” on page 47.
ILEDATAC	<i>data_class_name</i>	(none)	Specifies the data class (DATACLAS) for HPSRILEA and HPSRILEB. See “ILEDATAC control statement” on page 48.
ILESTORC	<i>storage_class_name</i>	(none)	Specifies the storage class (STORCLAS) for HPSRILEA and HPSRILEB. See “ILESTORC control statement” on page 48.
LPART	(<i>partname,nnn</i>), (<i>part1,...,partn</i>), or *ALL	N/A	Specifies the HALDB partitions to load. See “LPART control statement” on page 50.
PARTINIT	NO YES YES,PINITON YES,UNLOAD YES,LPART YES,ALL	NO	Initializes partitions not populated by any segment during reload. See “PARTINIT control statement” on page 52.
PARTSTAT	YES or NO	YES	Generates the statistics report for the partition. See “PARTSTAT control statement” on page 53.

Example 2

BMSETDSG=(1000,*,1200)

The threshold value for the first DSG is 1000, and the threshold value for the third DSG is 1200. For other DSGs, the length of the longest segment in the data set group will be used.

BUFFERNO control statement

Specifies the number of database buffers that are used for one database data set group when reading from or writing to the database.

This statement is mutually exclusive with the DBRLBUF statement. Determine whether you use DBRLBUF to specify the amount of database buffers or use BUFFERNO to specify the number of database buffers.

The size of a database buffer is almost the same as the CI or block size of the database data set group. Because database buffers are acquired by the data set group, the total number of database buffers is the sum of database buffers in each data set group.

This control statement is optional. If you do not specify this control statement, the DBRLBUF specification is used. If neither control statement is specified, DBRLBUF=45 is used.

➡ BUFFERNO= nnnnn ➡
 BUFNO=

Abbreviation BUFNO can be used for BUFFERNO.

nnnnn

Specifies a left-aligned decimal number in the range of 5 - 32767. There is no default.

Note: You can reduce EXCPs by increasing the number of database buffers. The amount of database buffers must be greater than the amount of access method buffers plus 10 tracks. If the amount of database buffers is insufficient, IMS HP Load internally adjusts the amount of database buffers. Select the suitable value for the number of database buffers based on your execution environment.

BYTELIMIT control statement

Specifies the maximum number of bytes for a database record that can be inserted into the root addressable area. This keyword is applicable only to HDAM and PHDAM databases.

This control statement is optional. If you do not specify this control statement, BYTELIMIT=DBD is used.

➡ BYTELIMIT= { DBD
 nnnnnnnn
 NOLIMIT } ➡

DBD

Specifies that the value is obtained from the DBD or the RECON data sets.

nnnnnnnn

Specifies a left-aligned decimal number in the range of 1 - 16777215.

NOLIMIT

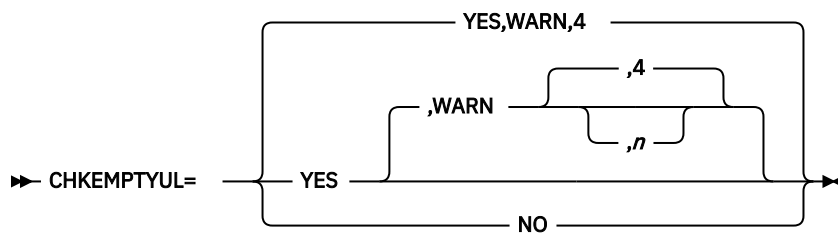
Specifies that there is no limit on the maximum number of bytes.

CHKEMPTYUL control statement

Specifies whether to check if the unloaded data set contains segment data. Also, specifies the return code that is set when no segment data is found in the unloaded data set.

If DUMMY is specified for the DFSUINPT DD statement, this check is not applicable.

This control statement is optional. If you do not specify this control statement, CHKEMPTYUL=YES,WARN,4 is used.



YES

Specifies to check if segment data exists in the unloaded data set.

If you specify CHKEMPTYUL=YES or CHKEMPTYUL=YES,WARN, CHKEMPTYUL=YES,WARN,4 is used.

WARN,*n*

Sets the job step return code to *n* when the unloaded data set contains no segment data. For *n*, specify a left-aligned decimal number in the range of 1 - 4.

NO

Specifies not to check if segment data exists in the unloaded data set. The return code is not changed even if no segment data exists in the unloaded data set.

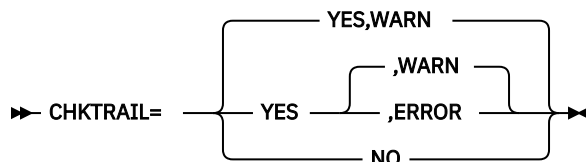
The return code that you specify with CHKEMPTYUL can be overridden by a higher return code set for some other reason.

Tip: The default value of the CHKEMPTYUL control statement can be changed. For details, see [Chapter 17, “Setting installation default options,”](#) on page 189.

CHKTRAIL control statement

Specifies whether to check if a trailer record exists in *HD or *SH format of the unload data set.

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



YES

Specifies that the existence of the trailer record is checked.

WARN

Specifies IMS HP Load to continue processing, setting the job step return code to 4 when a trailer record is not found in the unload data set.

If you specify only CHKTRAIL=YES, CHKTRAIL=YES,WARN is assumed.

ERROR

Specifies IMS HP Load to end with return code 16 when a trailer record is not found in the unload data set.

NO

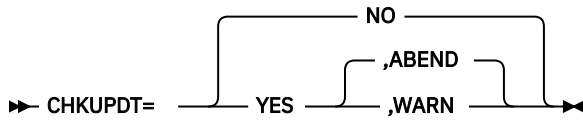
Specifies that the existence of trailer record is not checked. IMS HP Load will continue processing even if a trailer record does not exist in the unload data set.

Tip: The default value of the CHKTRAIL control statement can be changed. For details, see [Chapter 17, “Setting installation default options,”](#) on page 189.

CHKUPDT control statement

Specifies whether you want to do the IMS HP Load check against DBRC to see if an update of the database has been done between unload and reload processes.

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



NO

Specifies that update is not checked.

YES

Specifies that update between unload and reload processes is checked.

ABEND

Specifies that IMS HP Load ends abnormally when an update is found.

If you specify only CHKUPDT=YES, CHKUPDT=YES,ABEND is assumed.

WARN

Specifies that IMS HP Load continues processing and sets the job step return code to 4 when an update is found.

Restriction: The CHKUPDT control statement is not valid when you use the Load API.

The check against DBRC for an update is activated when all of the following conditions are met:

- DBRC is active
- The database and database data sets are registered to DBRC
- The unloaded data set was created by the IMS HP Unload FABHURG1 utility with the CHECKREC YES option

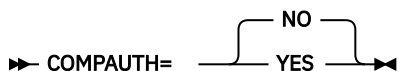
Tip: The default value of the CHKUPDT control statement can be changed. For details, see [Chapter 17, "Setting installation default options,"](#) on page 189.

COMPAUTH control statement

Specifies whether to call the segment compression exit in supervisor state.

Tip: If you use an encryption exit of InfoSphere® Guardium® Data Encryption for Db2® and IMS Databases as the segment compression exit, specifying COMPAUTH=YES reduces performance degradation. Even if the input data for IMS HP Load is created in compressed (encrypted) format, it is recommended to specify COMPAUTH=YES to reduce performance degradation because IMS HP Load calls the encryption exit to decrypt segment data for internal processes in some conditions.

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



NO

Specifies to call the segment compression exit in problem state.

YES

Specifies to call the segment compression exit in supervisor state.

Notes:

- You must run this statement under program HPSRRC00, which is the IMS HP Load version of the region controller program.

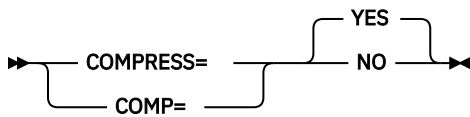
- Under IMS region controller (PGM=DFSRRRC00), COMPAUTH=NO is assumed. If you specify COMPAUTH=YES, it will be ignored.
- If you specify COMPAUTH=YES, you must APF-authorize the load module libraries that are specified on the STEPLIB DD.
- If one or more libraries on the STEPLIB DD are not APF-authorized, IMS HP Load applies COMPAUTH=NO even if COMPAUTH=YES is specified.

Tip: The default value of the COMPAUTH control statement can be changed. For details, see [Chapter 17, “Setting installation default options,”](#) on page 189.

COMPRESS control statement

Specifies whether to use a segment compression exit. This statement activates or deactivates calling the segment compress routine for all segment types with COMPRTN specified on their related SEGM statements in the DBD.

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



Abbreviation COMP can be used for COMPRESS.

YES

Specifies to compress the segments when the unloaded data set is decompressed.

NO

Specifies to process the segments as is when the unloaded data set is compressed.

If you use the output from the unload utilities of IMS High Performance Unload as an input, you do not need to specify the COMPRESS keyword because IMS HP Load automatically determines whether the segments are in compressed format. To avoid specification errors, it is recommended that you do not specify this control statement.

The COMPRESS=NO parameter is required under the following conditions:

- The input data set is created in compressed format by a utility other than IMS High Performance Unload or HSSR.
- The input data for the Load API function is created in compressed format.

Notes:

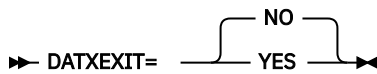
- An unloaded data set that is created by the unload utilities of IMS High Performance Unload with the DECOMPRESS=NO option cannot be used as an input for the IMS HD Reorganization Reload utility. If you use it, the HD reload job issues message DFS388A and ends with return code 16.
- An unloaded data set that is created by the unload utilities of IMS High Performance Unload with the DECOMPRESS=NO option cannot be used if you want to change the size of the segment by reorganization.

This control statement is in effect for all the database segments with COMPRTN= specified on their related SEGM statements in the DBD. This option cannot be selectively activated or deactivated for some compressed segments.

DATXEXIT control statement

Specifies whether to activate the IMS/ESA Year 2000 Exit Tool (5697-E04) support.

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



YES

Activates the IMS/ESA Year 2000 Exit Tool support. IMS HP Load treats the IMS/ESA Year 2000 Exit Tool in the same way that IMS does.

NO

Deactivates the IMS/ESA Year 2000 Exit Tool support. IMS HP Load does not call the IMS/ESA Year 2000 Exit Tool exit routine (the DFSDBUX1 exit routine) regardless of the DATXEXIT parameter in the DBD.

Use this option in conjunction with the DATXEXIT=NO option of the unload utility job of IMS High Performance Unload, which creates an unloaded data set in the stored form.

If DATXEXIT=YES is specified in the FRRIN data set, IMS HP Load calls the DFSDBUX1 exit routine if it exists in the STEPLIB. As the result of the first call of the DFSDBUX1 exit routine, IMS HP Load determines which segment type in the database needs to be converted. After that, IMS HP Load does not call the DFSDBUX1 exit routine for any segment type determined not to be converted.

When the segment types determined to be converted are unloaded in the compressed format by an unload utility of IMS High Performance Unload with the DECOMPRESS=NO option, IMS HP Load calls the segment edit/compression exit routine to decompress such segments before calling the DFSDBUX1 exit routine, and calls it again after the DFSDBUX1 exit routine to recompress the segments. Decompression and recompression are performed even if COMPRESS=NO is specified in the FRRIN data set.

If the segment data requires the DFSDBUX1 exit routine to be called and if a user exit routine is specified on the INPUT or USEREXIT control statement, IMS HP Load calls the user exit routine to edit or delete the segment data first, and then calls the DFSDBUX1 exit routine to convert the segment data.

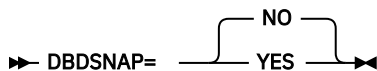
If DATXEXIT=NO is specified in the FRRIN data set, IMS HP Load does not call the DFSDBUX1 exit routine even if it is in the STEPLIB. A user exit routine, if used, receives segment data not converted (in the stored form).

Note: If you use SEQERROR=SAVE in conjunction with DATXEXIT=NO, the SEQERROR data set will contain segments in the stored form because IMS HP Load does not deconvert such segments. You cannot use segments in the stored form for reinsertion because IMS/ESA Year 2000 Exit Tool converts it again during DL/I insertion.

DBDSNAP control statement

Specifies whether to generate a snap dump report of the DBD.

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



NO

Specifies that a DBD snap dump report is not generated.

YES

Specifies that a DBD snap dump report is generated.

DBIOBUF control statement

Specifies the number of tracks for the access method (VSAM or BSAM) buffers that are used for one database data set group when the database is being read or written.

IMS HP Load translates the specified number into the AMP or DCB (NCP) parameter value internally. If the translated value exceeds the maximum allowable value for each access method, the translated value

is overwritten. If you specify the AMP or the DCB (NCP) parameter for the database DD statement, it precedes the DBIOBUF specification.

This control statement is optional. If you do not specify this control statement, DBIOBUF=30 is used for VSAM and OSAM LDS, and DBIOBUF=15 is used for OSAM. In the case of HISAM, DBIOBUF=15 is used.

For OSAM LDS, DBIOBUF=15 is printed in the FRRIN Control Statements report even when DBIOBUF=30 is applied.

➤➤ DBIOBUF= *nnn* ➤➤

nnn

Specifies a left-aligned decimal number in the range of 1 - 999.

Note: IMS HP Load calculates the number of VSAM buffers that fit into 30 tracks according to the CI size, and specifies AMP=('BUFND=*nn*,BUFNI=100') in the KSDS database data set internally. BUFNI=100 is used commonly for any CI size.

DBRLBUF control statement

Specifies the number of database buffers (the number of tracks) to be used for one database data set group when the database is being read or written.

This statement is mutually exclusive with the BUFFERNO statement. Determine whether you use DBRLBUF to specify the amount of database buffers, or use BUFFERNO to specify the number of database buffers. With the DBRLBUF statement, you can specify the buffer amount more directly, without calculating the value using the CI size or the block size of each database data set.

Because database buffers are acquired by the data set group, the total amount of database buffers is the sum of database buffers in each data set group.

This control statement is optional. If you do not specify this control statement, DBRLBUF=45 is assumed (that is, a buffer size of 45 tracks). In the case of HISAM, DBRLBUF=2 is used.

➤➤ DBRLBUF= *nnn* ➤➤

nnn

Specifies a left-aligned decimal number in the range of 1 - 999.

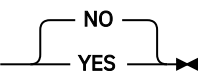
Note: You can reduce EXCPs by increasing the amount of database buffers. The amount of database buffers must be greater than the amount of access method buffers plus 10 tracks. If the amount of database buffers is insufficient, IMS HP Load internally adjusts the amount of database buffers. Select an appropriate value for the amount of database buffers based on your execution environment.

DELOLPART control statement

Specifies whether IMS HP Load deletes unloaded records that will not be reloaded to the HALDB partitions identified by the LPART statement.

The DELOLPART statement is effective only when IMS HP Load is started by IMS Online Reorganization Facility.

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

➤➤ DELOLPART=  ➤➤

NO

Does not delete unloaded records

YES

Deletes unloaded records that will not be reloaded.

Usage notes:

- The DELOLPART statement must be specified with the LPART statement. If you specify DELOLPART=YES without the LPART statement, DELOLPART=NO is applied.
- If you specify DELOLPART=YES with one of PARTINIT=YES options, the second parameter of PARTINIT control statement is set to LPART and PARTINIT=YES,LPART is applied.
- When DELOLPART=YES is applied, WFP data sets are not created.

EXTENT control statement

Specifies the maximum number of extensions of the OSAM data set that can be created.

When IMS HP Load detects an extension number that is greater than the EXTENT control statement value, IMS HP Load issues message HPSR3739E and ends abnormally:

- If HPIO=YES, IMS HP Load checks the extension number during reorganization. It checks the number every time an extent is allocated. The job could end abnormally during reorganization.
- If HPIO=NO, IMS HP Load checks the extension number after reorganization. The job ends abnormally only after reorganization.

This control statement is optional. If you do not specify this control statement, EXTENT=120 is applied.

Note: If the OSAM data set is created on EAV, this control statement is ignored.

►► EXTENT= *nnn* ►►

nnn

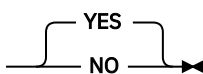
Specifies a left-aligned decimal number in the range of 1 - 120.

Tip: The default value of the EXTENT control statement can be changed. For details, see [Chapter 17, “Setting installation default options,”](#) on page 189.

FRSPC control statement

Specifies whether IMS HP Load secures free space according to the specification of the FRSPC parameter in DBD.

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

►► FRSPC=  ►►

YES

Free space is secured according to the specification of the DBD.

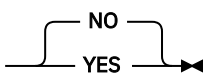
NO

Free space is not secured. The specification of the DBD is ignored.

GDGBASE control statement

Specifies whether to create a generation data group (GDG) base entry when a GDG base entry does not exist.

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

►► GDGBASE=  ►►

YES

If there is no GDG base entry for the generation data set that is to be created and if the generation data set is to be allocated dynamically, a GDG base entry is created.

NO

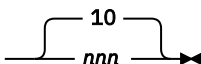
GDG base entry is not created.

Tip: The default value of the GDGBASE control statement can be changed. For details, see [Chapter 17, “Setting installation default options,”](#) on page 189.

GDGLIMIT control statement

Specifies the maximum number of generation data sets (GDS) that can be associated with the generation data group (GDG) that is to be created.

This specification is valid only when GDGBASE=YES is specified. This control statement is optional. If you do not specify this control statement, GDGLIMIT=10 is used.

➤ GDGLIMIT= 

nnn

Specifies a left-aligned decimal number in the range of 1 - 255.

Tip: The default value of the GDGLIMIT control statement can be changed. For details, see [Chapter 17, “Setting installation default options,”](#) on page 189.

HPIO control statement

Specifies whether IMS HP Load uses the High Performance I/O Driver for output database data sets.

This control statement is optional. If you do not specify this control statement, the value for the HPIO option is determined as follows: if the libraries that are specified on the STEPLIB DD statement are not APF-authorized, HPIO=NO is used; otherwise, HPIO=YES is used.

➤ HPIO= 

YES

The High Performance I/O Driver is used for output database data sets.

NO

The High Performance I/O Driver is not used for output database data sets.

Notes:

- For HISAM and SHISAM, HPIO=NO is assumed. If you specify HPIO=YES, it will be ignored.
- To enable this statement, run the job with program HPSRRC00, which is the IMS HP Load version of the region controller program.
- Under IMS region controller (PGM=DFSRRRC00), HPIO=NO is assumed. If you specify HPIO=YES, it will be ignored.

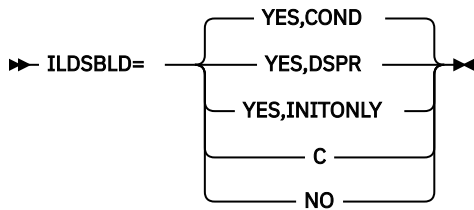
Tip: The default value of the HPIO control statement can be changed. For details, see [Chapter 17, “Setting installation default options,”](#) on page 189.

ILDSBLD control statement

Specifies whether to build ILDS and how to build ILDS.

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

Note: ILDSBLD=YES is obsolete. If you specify ILDSBLD=YES, ILDSBLD=YES,COND is used.



YES,COND

Applies either YES,DSPR or YES,INITONLY. If both of the following conditions are met, YES,INITONLY is applied. Otherwise, YES,DSPR is applied.

- WFPHLQ=*hlq* is specified.
- HALDB has no logical relationships defined.

YES,DSPR

ILDS is rebuilt using less amount of data space than the obsolete option ILDSBLD=YES.

In the process of rebuilding, the records of ILDS are arranged in sequence of the key value by using DFSORT. If you do not specify DD statements for HPSRILEA, HPSRILEB, and HPSRWKnn work data sets, which are used as SORTIN and SORTWK data sets, these data sets are allocated dynamically.

You can specify the data class and the storage class for HPSRILEA and HPSRILEB data sets by using ILEDATAC and ILESTORC control statements.

YES,INITONLY

The ILDS is initialized but no ILEs are built. Use ILDSBLD=YES,INITONLY only when the HALDB has no logical relationships and you want to rebuild PSINDEXes in a separate job by using IMS Index Builder.

C

ILDS is rebuilt in the same manner as with IMS HD Reorganization Reload.

If the database is an OSAM database, ILDSBLD=C is changed to ILDSBLD=YES,DSPR.

NO

ILDS is not rebuilt. In this case, You must rebuild ILDS after the reorganization of the database. To do so, scan the reorganized database by using the IMS HALDB Index/ILDS Rebuild Utility (DFSPRECO).

Tip: The default value of the ILDSBLD control statement can be changed. For details, see [Chapter 17, “Setting installation default options,”](#) on page 189.

ILEDATAC control statement

Specifies the name of the data class for the HPSRILEA and HPSRILEB data sets.

This control statement is effective only when IMS HP Load reloads the records with the ILDSBLD=YES,DSPR option. If any other ILDSBLD option is used, ILEDATAC control statement is ignored.

This control statement is optional. This control statement does not have a default value.

➤ ILEDATAC= *data_class_name* ➤

data_class_name

Specifies the name of the data class for HPSRILEA and HPSRILEB data sets.

Tip: The default value of the ILEDATAC control statement can be changed. For details, see [Chapter 17, “Setting installation default options,”](#) on page 189.

ILESTORC control statement

Specifies the name of the storage class for the HPSRILEA and HPSRILEB data sets.

This control statement is effective only when IMS HP Load reloads the records with the ILDSBLD=YES,DSPR option. If any other ILDSBLD option is used, ILESTORC control statement is ignored.

This control statement is optional. This control statement does not have a default value.

➤ ILESTORC= *storage_class_name* ➤

storage_class_name

Specifies the name of the storage class for HPSRILEA and HPSRILEB data sets.

Tip: The default value of the ILESTORC control statement can be changed. For details, see [Chapter 17, “Setting installation default options,”](#) on page 189.

INPUT control statement

Specifies the input source of the HD unloaded data set and specifies whether IMS HP Load invokes a user exit routine.

This control statement is optional. If you do not specify this control statement, INPUT=DFSUINPT is used.

➤ INPUT=DFSUINPT ➤

,exitname

,L

IMS HP Load can reload an unloaded data set that is specified in the DFSUINPT DD statement in one of the following formats—created by IMS HP Unload—or in an equivalent format created by a compatible program:

- The HD format
- The HD format with compressed segments
- The short header format
- The communication industry standard format (see [Restrictions](#))
- The communication industry partitioned format (see [Restrictions](#))

Restrictions:

- If the database has a logical relationship with another database, IMS HP Load cannot reload a data set in either communication industry standard format or communication industry partitioned format.
- If the database is a HALDB, IMS HP Load cannot reload a data set in either short header format or communication industry standard format.
- If the database is a SHISAM DB, communication industry standard format is not supported.
- If the database is a non-HALDB, IMS HP Load cannot reload a data set in communication industry partitioned format.

IMS HP Load determines which format is being used; you do not have to specify it.

exitname

The name of the user exit routine. Specify this operand if you use the exit interface of IMS HP Load. The specified exit routine must be in the STEPLIB concatenation.

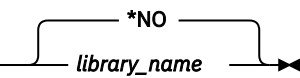
L

Specify this operand only if the user exit routine is to be run under an environment of LE (Language Environment). This option is effective when the user exit routine is written in Enterprise COBOL for z/OS or Enterprise PL/I for z/OS. This option is not effective for Assembler.

ITKBLOAD control statement

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

This control statement is used only when ITKBSRVR=*server_name* is specified. If you do not specify this control statement, ITKBLOAD=*NO will be used and IMS HP Load attempts to load the IMS Tools KB module from the STEPLIB libraries.

➤ ITKBLOAD= 

***NO**

IMS Tools KB modules are loaded from the private library or the system library of the job.

library_name

Specifies the name of the IMS Tools KB load module data set that is to be used by IMS HP Load.

Requirement: When STEPLIB needs to be APF-authorized, this library also needs to be APF-authorized.

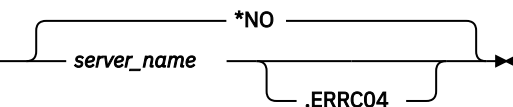
Tip: The default value of the ITKBLOAD control statement can be changed. For details, see [Chapter 17, “Setting installation default options,”](#) on page 189.

ITKBSRVR control statement

Specifies the XCF group name of the IMS Tools KB server.

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

Requirement: ITKBSRVR=*server_name* requires that an appropriate version of IMS Tools Knowledge Base is installed and that the server is started. For details, see [“Hardware and software prerequisites”](#) on page 17 and [“Configuring the IMS Tools Knowledge Base server”](#) on page 18.

➤ ITKBSRVR= 

***NO**

IMS HP Load does not store reports in the IMS Tool KB Output repository.

server_name

IMS HP Load stores reports in the IMS Tools KB Output repository of the specified server.

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

- FRRIN Control Statements
- Segment Count Summary
- Segment Statistics
- Data Set Statistics
- Pointer Count Summary
- Pointer Statistics
- HALDB Process Summary

ERRC04

IMS HP Load returns return code 4 when it encounters IMS Tools KB errors.

Tip: The default value of the ITKBSRVR control statement can be changed. For details, see [Chapter 17, “Setting installation default options,”](#) on page 189.

LPART control statement

Specifies the HALDB partitions to load.

Use the LPART control statement to specify the partitions to load in the following cases:

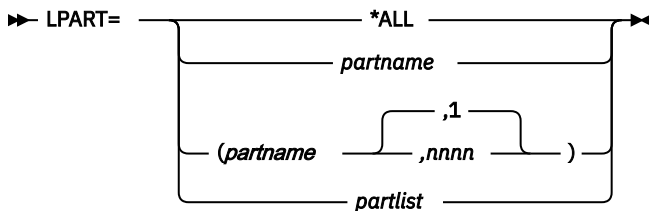
- When the database data sets are created by using the DDEFPS DD statement (IDCAMS commands) and the input unloaded data set is not created by IMS HP Unload with the CHECKREC=YES option.

- When the database data sets are created by using the DDEFPS DD statement (IDCAMS commands) and you have added new partitions after unloading the database.
- When you have added new partitions after unloading the database and you have one or more empty new partitions that you want to initialize with the PARTINIT=YES,LPART option.

Tip: To avoid errors, consider specifying this control statement only in these cases.

If the unload data sets contain segments for the partitions that are not specified on the LPART control statement, IMS HP Load issues message HPSR3768W and continues processing.

This control statement is optional and it does not have a default value. This control statement cannot be used for the Load API.



***ALL**

Specifies to load all the partitions. Use this option only when you reorganize the entire database and when the input unloaded data set contains data for all the partitions.

partname

Specifies the name of the partition to load, or the first partition of several sequential partitions to load.

nnnn

Specifies the number of sequential partitions to load. If this parameter is not specified, the default value of 1 is used.

For example, the following statements have the same meaning:

- LPART=PARTA
- LPART=(PARTA)
- LPART=(PARTA,1)

Important: The processing order of the partitions is determined by the HALDB partition selection exit routine or the HALDB high key values. The processing order does not depend on the partition names. When you process multiple partitions, be aware of the processing order.

partlist

Specifies lists of the partition names to load. The names must be separated by commas and enclosed in parentheses. You can specify up to 1001 names by using multiple statements as follows:

```

LPART=(part1,part2,part3,part4,part5)
LPART=(part6,part7,part8,part9,part10)

```

You can specify non-sequential partitions.

The processing order of the partitions is determined by the HALDB partition selection exit routine or the HALDB high key values. The order in the list does not affect the processing order.

OADSPR control statement

Specifies whether IMS HP Load reduces the usage of data space when processing the overflow area by using the High Performance I/O driver or by using an OVERFLOW DD. This specification is valid only for HDAM and PHDAM databases.

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



YES

Reduces the usage of data space when processing the overflow area.

NO

Does not reduce the usage of data space when processing the overflow area.

Notes:

- If you specify both OADSPR=YES and HPIO=YES, IMS HP Load attempts to reduce the usage of data space by using the High Performance I/O driver. It can also reduce the time for reload except when IPR Type-A Image Copy processing is used for a (P)HDAM that has extremely large overflow area.
- If you specify both OADSPR=YES and HPIO=NO, IMS HP Load attempts to reduce the usage of data space by using an OVERFLOW DD as a temporary data set. If the DD statement is not specified in the JCL, IMS HP Load attempts to allocate it dynamically on a direct-access device. For details, see [“JCL requirements”](#) on page 25.
- This function might not be able to reduce the usage of data space depending on the database. Because IMS HP Load keeps the data in a data space until the information for pointers in the block are resolved.

Tip: The default value of the OADSPR control statement can be changed. For details, see [Chapter 17, “Setting installation default options,”](#) on page 189.

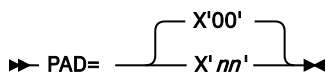
PAD control statement

Specifies the padding character to fill out the segments to adjust to the length defined in the DBD definition.

The segments are padded in the following cases:

- When a segment edit/compression exit is not used and the length of fixed-length segments is increased because the DBD definition changed.
- When a segment edit/compression exit is used and the length of fixed-length segments is shorter than the maximum number of bytes defined by the COMPRTN parameter in the DBD definition.
- When the length of variable-length segments is shorter than the minimum segment length defined in the DBD definition.

This control statement is optional. If you do not specify this control statement, PAD=X'00' is used.



nn

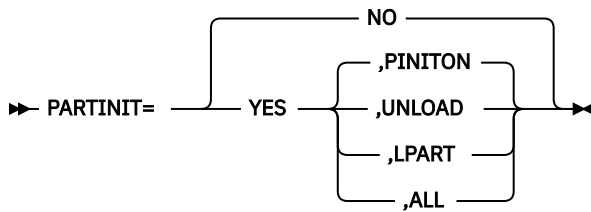
Specify a two digit hexadecimal code as the padding character. For example, PAD=X'FF'.

Tip: The default value of the PAD control statement can be changed. For details, see [Chapter 17, “Setting installation default options,”](#) on page 189.

PARTINIT control statement

Specifies whether to initialize HALDB partitions after reload. IMS HP Load initializes a HALDB partition when a HALDB partition does not contain any segment during reload. The PARTINIT control statement is valid only for HALDBs.

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



NO

Specifies that any initialization of a HALDB partition is not performed after reload.

YES

Specifies that initialization of a HALDB partition is performed for partitions that are not populated by any segment during reload.

PINITON

Specifies to initialize the HALDB partition when the flag in the DBRC RECON record for the partition shows that the partition needs to be initialized (PINIT). If you specify only PARTINIT=YES, PARTINIT=YES,PINITON is assumed.

UNLOAD

Specifies to initialize the HALDB partition when the partition information is included in the input unloaded data set. To enable this option, the following conditions must be satisfied:

- The input unloaded data set has been created by IMS HP Unload and with the CHECKREC=YES option.
- The input unloaded data sets are not concatenated.

LPART

Specifies to initialize the HALDB partitions that are specified on the LPART control statement.

ALL

Specifies to initialize all the HALDB partitions that are not populated by any segments during reload.

Use this option only when you request reorganization of all the HALDB partitions.

If you want to use IMS HP Load as a replacement for the HALDB partition data set initialization utility, specify the PARTINIT=YES control statement and DFSUINPT DD DUMMY in the IMS HP Load JCL, and run it.

IMS HP Load issues a warning message if the partition was not initialized by the following reasons:

- PARTINIT=YES,PINITON is specified but the flag in the RECON shows that the partition does not need to be initialized (NOPINIT).
- PARTINIT=YES,UNLOAD is specified but the partition information is not found in the unloaded data set.

The following conditions must be satisfied to issue the warning message:

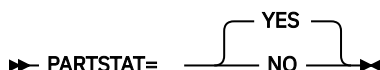
- The input unloaded data set was created by IMS HP Unload and with the CHECKREC=YES option.
- The input unloaded data sets are not concatenated.

Tip: The default value of the PARTINIT control statement can be changed. For details, see [Chapter 17, “Setting installation default options,”](#) on page 189.

PARTSTAT control statement

Specifies whether the partition-wide occurrence count report is generated. This specification is valid only for entire database reload of a partitioned database.

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



Specifies that the partition-wide occurrence count report is generated.

Specifies that the partition-wide occurrence count report is not generated.

PROGMON control statement

Specifies whether IMS HP Load issues a progress monitoring message at the specified intervals.

This control statement is optional. If you do not specify this control statement, PROGMON=0 is applied (no progress monitoring message is issued).

➤ PROGMON= *nnnnnn* ➤

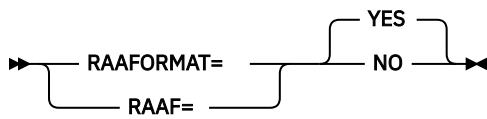
nnnnnn

Specifies a left-aligned decimal number in the range of 0 - 999999. After every *nnnnnn* database records are processed, IMS HP Load issues a progress monitoring message.

RAAFORMAT control statement

Specifies whether IMS HP Load is to format HDAM or PHDAM RAA blocks regardless of the number of blocks used. Once the overflow area is used, this parameter is ignored and the entire RAA is formatted. This specification is valid only for HDAM and PHDAM databases.

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



Abbreviation RAAF can be used for RAAFORMAT.

YES

The complete RAA is formatted.

NO

The complete RAA is not formatted. The RAA is formatted through the last block used.

RECNUM control statement

Specifies the number of unloaded records to reload. It helps to optimize the DFSORT main storage and the allocation of intermediate storage data sets.

You can use this control statement only when you specify SORT=YES, SORT=COND, or SORTHIDAM=YES.

This control statement is optional. This control statement does not have a default value.

▶▶ RECNUM= *nnnnnnnnnnnn* ◀◀

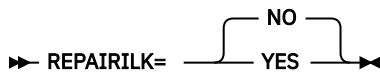
nnnnnnnnnn

Specifies a left-aligned decimal number in the range of 1 - 2147483647.

REPAIRILK control statement

Specifies whether to reassign indirect list keys (ILKs). In reassigning ILKs, IMS HP Load uses new RBA, partition ID, and reorganization number.

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



NO

ILKs are not reassigned.

YES

ILKs, stored in the segment prefix, are reassigned by using new RBA, partition ID, and reorganization number.



Attention: If you want to reassign ILKs by specifying REPAIRILK=YES, ensure that the entire HALDB (that is, all the partitions of the HALDB) is reorganized with the REPAIRILK=YES option. Otherwise, you might encounter problems that might be caused by duplicate segment ILKs.

If you specify REPAIRILK=YES, you must rebuild the PSINDEX for the target HALDB because ILKs are changed.

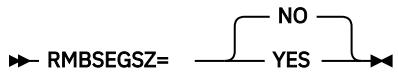
Restriction: Logical relationships are not supported.

Tip: The default value of the REPAIRILK control statement can be changed. For details, see [Chapter 17, “Setting installation default options,”](#) on page 189.

RMBSEGSZ control statement

Specifies how IMS HP Load calculates the database record size to determine whether to put the records to the overflow area.

This control statement is optional. If you do not specify this control statement, RMBSEGSZ=NO is assumed.



YES

The actual size of the variable length segment (the LL value) is used to calculate the database record size. This is applicable also for compressed segments.

NO

The MINBYTES value that is specified on the DBD is used to calculate the database record size.

This specification is valid for HDAM and PHDAM databases that have variable length segments. If databases other than HDAM and PHDAM databases that have the variable length segments are specified, IMS HP Load ignores them.

SEARCH control statement

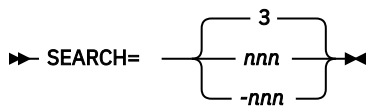
Specifies the limit value for a space search algorithm that finds a segment that does not fit in its home block. This specification is valid for HDAM and PHDAM databases.

IMS HP Load searches free space by either of the following methods:

- If the specified number is an unsigned value (*nnn*), IMS HP Load searches for free space the specified number (*nnn*) of adjacent blocks both forward and backward. IMS HP Load first searches backward, then forward.
- If the specified number is a negative value (*-nnn*), IMS HP Load searches for free space the specified number (*nnn*) of adjacent blocks only backward.

To search available free space for segment insertion, IMS HP Load simply ignores the SCAN parameter in DBD and uses the SEARCH parameter to process reloading faster.

This control statement is optional. If you do not specify this control statement, SEARCH=3 is used.



nnn

Specifies a left-aligned decimal number in the range of 0 - 999. IMS HP Load searches the specified number of adjacent blocks both forward and backward.

-nnn

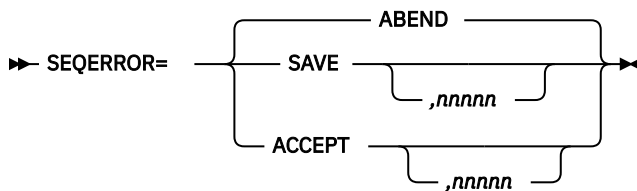
Specifies a left-aligned decimal number in the range of -0 - -999. IMS HP Load searches the specified number of adjacent blocks only backward.

0 and -0 have the same meaning, bypassing space search and putting the segment into the overflow area.

SEQERROR control statement

Specifies how to handle key sequence errors in the input unloaded data.

This control statement is optional. If you do not specify this control statement, SEQERROR=ABEND is used.



ABEND

Issues a user abend after a key sequence error.

SAVE

Continues processing after key sequence errors. Segments in error and their dependent segments are all placed in the SEQERROR data set.

If you specify this option, you must specify the SEQERROR DD statement.

You can write a DL/I program to insert segments saved in the SEQERROR data set into the database after database reload completes. A sample user application is provided in SHPSSAMP with member name FABFSQE1.

If you use the SEQERROR=SAVE option for a database with a logical relationship, the SEQERROR data set might contain logical child segments in key sequence error. Do not reinsert such logical child segments with a user-written DL/I insert program; otherwise, you receive the DL/I status code II.

Note: When root keys of HDAM or PHDAM are not in the physical sequence order of the block and RAP numbers, IMS HP Load issues a user abend even if SEQERROR=SAVE is specified.

nnnnn

Specifies the maximum number of sequence errors. *nnnnn* must be a left-aligned decimal number in the range of 1 - 32767. If the number of sequence errors exceeds this value, IMS HP Load issues a user abend.

If this value is not specified, IMS HP Load accepts any number of key sequence errors.

ACCEPT

Specifies that processing is to continue after key sequence errors of dependent segments and that the segments that contain errors are placed in the database with those errors. The root keys of HIDAM, HISAM, SHISAM, or PHIDAM should be in the proper ascending sequential order without duplication. The root keys of HDAM or PHDAM should be in the physical sequence order of the block and RAP numbers, and if a root segment that has duplicate key is found, it is placed in the synonym chain in the database. Details about each key sequence error are displayed in the Messages report.

Note: Even if you specify SEQERROR=ACCEPT, IMS HP Load issues a user abend under the following conditions:

- Root keys of HIDAM, HISAM, SHISAM, or PHIDAM are not in the proper ascending sequential order or have a duplicate key.
- Root keys of HDAM or PHDAM are not in the physical sequence order of the block and RAP numbers.

nnnnn

Specifies the maximum number of sequence errors. *nnnnn* must be a left-aligned decimal number in the range of 1 - 32767. If the number of sequence errors exceeds this value, IMS HP Load issues a user abend.

If this value is not specified, IMS HP Load accepts any number of key sequence errors.

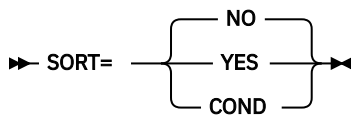
Note: If you specify SEQERROR=SAVE or ACCEPT, the numbers of occurrences of key sequence errors are listed in the Segment Count Summary report by segment type.

SORT control statement

Specifies whether to run the physical sequential sort processing before loading. This specification is valid only for HDAM and PHDAM databases.

The HDAM or PHDAM unloaded data must be in the order of hexadecimal value *bbbbbbrr* that represents the result of randomizing module conversion. *bbbbbb* is the block number and *rr* is the RAP number. If it is not in that order due to such reasons as changing randomizer, you must specify SORT=YES or SORT=COND.

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



NO

Does not run the sort process.

YES

Runs physical sequential sorting before the reload process. It sorts in the physical sequence of the block, then the RAP numbers.

COND

Runs the physical sequential sorting depending on conditions. To use this option, the input unloaded data set must be created by IMS High Performance Unload with the CHECKREC=YES option and the format of the unloaded data set must be in HD format or short header format.

The physical sequential sorting is done if any of the following is changed between the unload process and the reload process:

- The randomizing module name
- The number of root anchor points (RAP)
- The maximum BLK/CI number in RAA
- The starting position of the root key
- The length of the root key
- Whether the root segment has key sequence field
- Database organization is changed from (P)HIDAM to (P)HDAM

The physical sequential sorting is done whenever the following conditions are satisfied:

- The input unloaded data set was not created by IMS HP Unload with the CHECKREC=YES option.
- The input unloaded data set was created in communication industry standard format.

- The input unloaded data sets are concatenated.
- The Load API function is used.

Requirement: For the following changes, you must specify SORT=YES instead of SORT=COND, because these changes cannot be detected by IMS HP Load with SORT=COND:

- The logic of the randomizing module
- The name or logic of the HALDB partitions selection exit routine
- The partition selection string or the high key values

Restrictions:

- When processing HALDBs, this statement is used exclusively with the USERHDR and the USERHDRX control statements.
- The key value that is sorted by SORT=YES or SORT=COND cannot be changed by the user exit routine.
- The compressed root key cannot be sorted. Specify DECOMPRESS=YES in the IMS HP Unload utility to expand the compressed key.

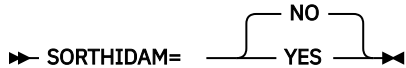
Note: If a workspace of DFSORT needs to be adjusted, specify the SORTWKnn DD statements.

Tip: The default value of the SORT control statement can be changed. For details, see [Chapter 17, “Setting installation default options,”](#) on page 189.

SORTHIDAM control statement

Specifies whether to run the sort processing before loading a HIDAM or a PHIDAM.

The HIDAM or PHIDAM unloaded data must be in the order of root keys. If it is not in that order because the root keys are changed after unloading, you must specify SORTHIDAM=YES. This control statement is optional. If you do not specify this control statement, SORTHIDAM=NO is used.



NO

Does not run the sort process.

YES

Runs the key sequential sort process before the reload process. The sort is done in the order of the root keys.

Restrictions:

- This control statement cannot be used for the Load API.
- The key value that is sorted by SORTHIDAM=YES cannot be changed by the user exit routine that is specified in the reload step.
- Compressed root keys cannot be sorted. Specify DECOMPRESS=YES for the IMS HP Unload job to expand the compressed keys.
- HPSRSVX2 exit cannot run with SORTHIDAM=YES.

Note: For a HIDAM database, DFSORT allocates intermediate storage data sets dynamically for the sort process with sizes estimated based on the primary allocation size of DBDS. For a PHIDAM database, the size is estimated based on the number of partitions. If you specify the number of unloaded records in the RECNUM control statement, this value supersedes other values and is used for estimation. If you need to adjust the size, specify the SORTWKnn DD statements explicitly.

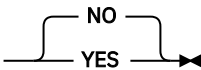
TWINSTAT control statement

Specifies whether to print statistics about the twin chained segments.

The statistics about the twin chained segments are printed in the Twin Segment Statistics section in the Segment Statistics report. For an example of the report, see [“Segment Statistics report”](#) on page 74.

This specification is valid for HDAM, HIDAM, PHDAM, and PHIDAM databases.

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

➤ TWINSTAT= 

NO

Statistics about the twin chained segments are not printed.

YES

Statistics about the twin chained segments are printed.

If you process a HALDB with TWINSTAT=YES, PARTSTAT=YES is internally used. The statistics reports, which include the twin segment statistics section, are generated for each partition.

Tip: The default value of the TWINSTAT control statement can be changed. For details, see [Chapter 17, “Setting installation default options,”](#) on page 189.

USEREXIT control statement

Specifies whether IMS HP Load invokes a user exit routine.

This control statement is optional. If you do not specify this control statement, no user exit is invoked.

➤ USEREXIT= *exitname* ➤

exitname

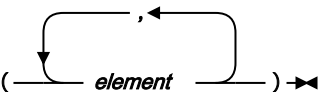
The name of the user exit routine. The specified exit routine must be in the STEPLIB concatenation.

You can use either the INPUT or USEREXIT statement to specify the name of the user exit routine. The result is the same.

If both INPUT and USEREXIT are specified at the same time, the INPUT statement is used. Unlike the INPUT control statement, L—for specifying the usage of Language Environment—cannot be specified with the USEREXIT control statement.

USERHDR control statement

Specifies the name of the element of the header portion of the unloaded record to read the customized unload file.

➤ USERHDR= 

You can specify up to 20 elements.

element

Describes an element that constitutes the user header portion of the unloaded file. 17 kinds of elements are supported as listed in the following table. You can use any combination of them as the parameters of the USERHDR control statement.

The order in which you specify the elements determines the order that the elements appear in the user header portion of the unloaded file.

If the specification exceeds one line, specify as follows:

```
//FRRIN DD *
USERHDR=(DBDNAME,SEGCODE,SEGLEV1,SEGNAME)
USERHDR=(SEGDATSZ,SEGKEY,FILLER11)
/*
```

The following table summarizes the elements that you can specify on the USERHDR control statement.

Table 9. Description and values of the elements of USERHDR

Element name	Unloaded file		
	Field written to unloaded file: length in bytes	Field written to unloaded file: format of contents	Field written to unloaded file: description
DBDNAME	8	character	Contains the DBD name.
FILLER nn	1–99	integer	The nn suffix defines the length of the field. The field is filled with low-values (binary zeros).
HDRLEN	2	binary	If you use SEGKEY, SEGCKEY, or ROOTKEY, the field contains the length of the user header record. This field is required.
ROOTKEY	variable	varies	Contains the sequence field of the root segment.
ROOTRBA	4	binary	Contains the database RBA of the root segment.
SEGCKEY	variable	varies	Contains the fully concatenated key of the segment.
SEGCKYSZ	2	binary	Contains the length of the segment's concatenated key.
SEGCODE	1	binary	Contains the segment code of the segment. Either this keyword or SEGNAME is required.
SEGDATSZ	2	binary	Contains the length of the segment's data.
SEGDBYTE	1	binary	Contains the delete byte of the segment as found in the database.
SEGKEY	variable	varies	Contains the sequence field of the segment.
SEGKEYOF	2	binary	Contains the offset into the segment data where the segment's key is located.
SEGKEYSZ	2	binary	Contains the length of the segment's key.
SEGLEV1	1	binary	Contains the hierarchical level of the segment.
SEGLEV2	2	character	Contains the hierarchical level of the segment.
SEGNAME	8	character	Contains the name of the segment. Either this keyword or SEGCODE is required.
SEGRBA	4	binary	Contains the database RBA of the segment.

Important:

- You cannot duplicate keywords other than FILLER nn .

- You must specify the SEGNAME or the SEGCODE keyword. They must precede the SEGCKY, the SEGKEY, or the ROOTKEY element.
- If you use SEGKEY, SEGCKEY, or ROOTKEY, you must specify HDRLEN. It must precede the SEGKEY, the SEGCKEY, or the ROOTKEY element.

Restrictions: See [“Restrictions for reloading user-defined header format records” on page 87](#) for restrictions that apply to using the USERHDRX control statement.

USERHDRX control statement

Specifies whether IMS HP Load invokes the user header conversion exit routine.

This control statement is optional. If you do not specify this control statement, no user header conversion exit is invoked.

➤ USERHDRX= *exitname* ➤

exitname

The name of the user header conversion exit routine. The specified exit routine must reside in the program library (JOBLIB, STEPLIB, or LINKLIB).

IMS HP Load provides several exit routines, and you can specify one of them as the parameter of USERHDRX according to the format of the unloaded file, as shown in the following table.

Table 10. Exit routine names and the formats of the unloaded file

Exit routine name	Format of the unloaded file
HPSRCVA3	*A3
HPSRCVA4	*A4
HPSRCVF1	*F1
HPSRCVF2	*F2
HPSRCVF3	*F3
HPSRCVF6	*F6

Restrictions: See [“Restrictions for reloading user-defined header format records” on page 87](#) for restrictions that apply to using the USERHDRX control statement.

Related concepts

[Reloading user-defined header format records](#)

You can reload database records from an unloaded file that has user-defined header format.

WF1DSN control statement

Specifies the data set name for the DFSURWF1 data set when allocating the data set dynamically.

This control statement is optional and it does not have a default value. If you specify the DFSURWF1 DD statement, this control statement is ignored.

➤ WF1DSN= *data_set_name* ➤
 GDG_base_name .&GDG

data_set_name

Specifies the data set name for the DFSURWF1 data set. The name must be 1-44 alphanumeric or national characters (\$, #, @).

GDG_base_name.&GDG

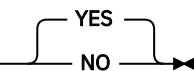
Specifies to create a DFSURWF1 data set as a generation data set. &GDG must be specified in the last position in the pattern.

GDG_base_name is used as the GDG base entry name. If the base entry does not exist and if you specify GDGBASE=YES, a new GDG base entry is created. The data set name generated must be a 1-44 alphanumeric or national characters (\$, #, @).

WF1REC control statement

Specifies whether to write WF1 records to the DFSURWF1 or in HPSRSINDX output work data set, which is used as an input to resolve logical or secondary index relationships. The WF1REC control statement is not valid for HALDBs.

This control statement is optional. If you do not specify this control statement, WF1REC=YES is used.

➤ WF1REC= 

YES

If the database has logical relationships or secondary index, the records are written to the DFSURWF1 output work data set.

NO

WF1 records are not written to the DFSURWF1 or HPSRSINDX output work data set even if secondary index or logical relationships are defined in the database.

To resolve the secondary index, you must run a database scan utility in a separate job step.

The DFSURWF1 data set is needed to run the IMS Database Prefix Resolution utility for logical relationships after this reload job step. For such non-HALDB databases, do not specify WF1REC=NO.

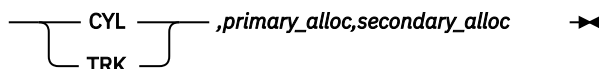
Tip: The default value of the WF1REC control statement can be changed. For details, see [Chapter 17, “Setting installation default options,”](#) on page 189.

WF1SPACE control statement

Specifies the space parameter for the DFSURWF1 data set when allocating the data set dynamically.

This specification is valid only when a WF1DSN control statement is specified. If you specify the DFSURWF1 DD statement, this control statement is ignored.

This control statement is optional and it does not have a default value. If you do not specify this control statement, IMS HP Load calculates the size based on the allocation size of the database data set.

➤ WF1SPACE= 

CYL

Specifies that space is to be allocated in cylinders.

TRK

Specifies that space is to be allocated in tracks.

primary_alloc

Specifies the primary space quantity. It must be a left-aligned decimal number in the range of 1 - 9999.

secondary_alloc

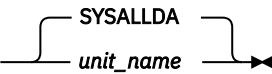
Specifies the secondary space quantity. It must be a left-aligned decimal number in the range of 1 - 9999.

WF1UNIT control statement

Specifies the device for the DFSURWF1 data set when allocating the data set dynamically.

This specification is valid only when a WF1DSN control statement is specified. If you specify the DFSURWF1 DD statement, this control statement is ignored.

This control statement is optional. If you do not specify this control statement, WF1UNIT=SYSALLDA is used.

➤ WF1UNIT= 

unit_name

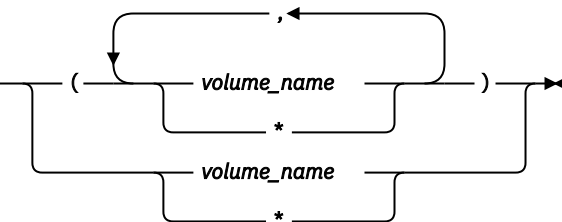
Specifies the device type or the device group name for the DFSURWF1 data set.

WF1VOL control statement

Specifies one or more volume names for the DFSURWF1 data set that is to be dynamically allocated.

This specification is valid only when a WF1DSN control statement is specified. If you specify the DFSURWF1 DD statement, this control statement is ignored.

This control statement is optional and does not have a default value.

➤ WF1VOL= 

volume_name

Specifies the volume name. You can make a nonspecific volume request by specifying an asterisk (*).

You can specify up to five volume names. Two or more volume names must be separated by commas and enclosed in parentheses. For example, WF1VOL=(VOLSR1,VOLSR2).

WFPHLQ control statement

Specifies the high-level qualifier for the WFP data sets.

This control statement is required only when you want to create WFP data sets. This control statement does not have a default value.

➤ WFPHLQ= *hlq* ➤

hlq

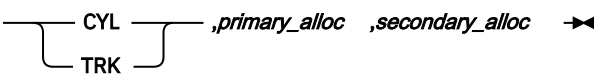
Specifies the high-level qualifier for the WFP data sets. It must be 1-32 alphanumeric or national characters (\$, #, @).

WFPSPACE control statement

Specifies the SPACE parameter for the WFP data sets when allocating WFP data sets dynamically.

This control statement is effective only when a WFPHLQ control statement is specified.

If you do not specify this control statement, IMS HP Load estimates the size based on the allocation size of the partition data set. This control statement is optional and it does not have a default value.

➤ WFPSPACE=  ➤

CYL

Specifies that space is to be allocated in cylinders.

TRK

Specifies that space is to be allocated in tracks.

primary_alloc

Specifies the primary space quantity. It must be a left-aligned decimal number in the range of 1 - 9999.

secondary_alloc


Specifies the secondary space quantity. It must be a left-aligned decimal number in the range of 1 - 9999.

WFPUNIT control statement

Specifies the device for the WFP data sets when allocating WFP data sets dynamically.

This control statement is effective only when a WFPHLQ control statement is specified.

This control statement is optional. If you do not specify this control statement, WFPUNIT=SYSALLDA is used.

➤ WFPUNIT=  ➤

unit_name

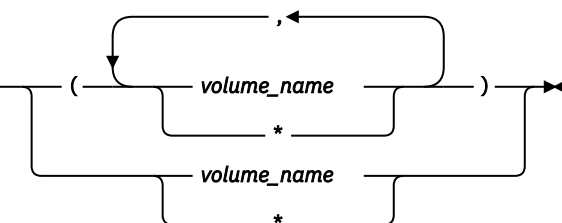
Specifies the device type or the device group name for WFP data sets.

WFPVOL control statement

Specifies the volume names for the WFP data sets when allocating WFP data sets dynamically.

This control statement is effective only when a WFPHLQ control statement is specified.

This control statement is optional and it does not have a default value.

➤ WFPVOL=  ➤

volume_name

Specifies the volume name. You can indicate nonspecific volumes by designating an asterisk (*).

You can specify up to five volume names. Two or more volume names must be separated by commas and enclosed in parentheses. For example, WFPVOL=(VOLSR1,VOLSR2).

WFPVOLCNT control statement

Specifies the volume count for the WFP data sets when allocating WFP data sets dynamically.

This control statement is effective only when a WFPHLQ control statement is specified.

This control statement is optional and it does not have a default value.

➤ WFPVOLCNT= *nnn* ➤

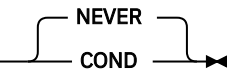
nnn

Specifies the number of allowable volumes for allocating the WFP data sets. The value is a decimal number in the range of 1 - 59 for a DASD data set.

ZIIPMODE control statement

Specifies whether IMS HP Load offloads eligible I/O workloads to zIIP processors.

This control statement is optional. If you do not specify this control statement, ZIIPMODE=NEVER is used.

➤ ZIIPMODE=  ➤

COND

Offloads VSAM I/O workloads to zIIP processors. COND is effective only when available zIIP processors are found. Otherwise, the job is run on the main CPs.

The following conditions must be satisfied to apply ZIIPMODE=COND:

- The SGLXLOAD library of IMS Tools Base is specified to the STEPLIB.
- The load module libraries of STEPLIB are APF authorized.
- The High Performance I/O Driver is activated.

If the High Performance I/O driver is inactive for some reason, even if you specify ZIIPMODE=COND, ZIIPMODE=NEVER is applied.

NEVER

Does not offload any workload to zIIP processors. NEVER is the default to avoid unexpected performance degradation.

Tip: The default value of the ZIIPMODE control statement can be changed. For details, see [Chapter 17, “Setting installation default options,”](#) on page 189.

Reports and statistics

IMS HP Load generates reports and statistics in the SYSPRINT data set, the SNAP data set, and the HPSRAMSO data set.

SYSPRINT data set

The SYSPRINT data set contains statistics reports.

The following reports are printed in this data set:

- FRRIN Control Statements
- Segment Count Summary
- Messages
- DBRC Messages
- Data Set Statistics
- Segment Statistics
- Pointer Count Summary
- Pointer Statistics
- HALDB Process Summary
- GDG Base Information

- WFP Process Summary

FRRIN Control Statements report

This report contains an echo back of the control statements you specified in the FRRIN data set. You can check the parameters used by IMS HP Load for this job step run.

The following figure shows an example of the FRRIN Control Statements report.

```

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                "FRRIN CONTROL STATEMENTS"

0.....1.....2.....3.....4.....5.....6.....7.....8
123456789012345678901234567890123456789012345678901234567890
PARTINIT=YES,LPART
LPART=PCD0002
ILDSBLD=C

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                "FRRIN CONTROL STATEMENTS"

0.....1.....2.....3.....4.....5.....6.....7.....8
123456789012345678901234567890123456789012345678901234567890

"RUN TIME OPTIONS FOR THIS EXECUTION"

DBD : RGECD000 DBORG : PHIDAM

OPTIONS FOR PROCESS CONTROL:

KEYWORD      VALUE
-----
INPUT        DFSUINPT                                (FORMAT: *HD/*PHD)
USERHDR      N/A
DBRLBUF      45
BUFFERNO     N/A
DBIOBUF      15
RECNUM       N/A
HPIO         NO
ZIIPMODE     NEVER
OADSPR       N/A
GDGBASE      NO
GDGLIMIT     N/A

COMPRESS     YES
COMPAUTH     NO
FRSPC        YES
PAD          X'00'
SEARCH       N/A
RAAFORMAT    N/A
BYTELIMIT    N/A
SEQERROR     ABEND
DATXEXIT     NO
PROGMON      0
EXTENT       120
SORT         N/A
SORTHIDAM    NO
CHKUPDT      NO
CHKTRAIL     YES,WARN
CHKEMPTYUL   YES,WARN,4
BMSETDSG     (*,*,*,*)
WF1REC       N/A
WF1DSN       N/A
WF1UNIT      N/A
WF1VOL       N/A
WF1SPACE     N/A
WFPHLQ       N/A
WFPUNIT      N/A
WFPVOL       N/A
WFPVLCNT     N/A
WFPSPACE     N/A

```

Figure 2. FRRIN Control Statements report (Part 1 of 2)

"FRRIN CONTROL STATEMENTS"

0.....1.....2.....3.....4.....5.....6.....7.....8
1234567890123456789012345678901234567890123456789012345678901234567890

ILDSBLD YES, DSPR
ILEDATAC N/A
ILESTORC N/A

LPART (PCD0002,1)
PARTSTAT YES
PARTINIT YES, LPART
REPAIRILK NO
DELOLPART N/A

RMBSEGSZ N/A

LAPIPCBNO N/A
LAPIPCB N/A
LAPIPDBD N/A

PIPEOWAIT N/A

ITKBSVR *NO
ITKBLOAD N/A

OPTIONS FOR DIAGNOSIS:

KEYWORD	VALUE
DBDSNAP	NO
TWINSTAT	NO
TRACE	NO

Figure 3. FRRIN Control Statements report (Part 2 of 2)

The control statements you specified in the FRRIN data set are listed below the scale in the report.

If a control statement turns out to be an error or needs a warning, an error message or a warning message is printed under the echo back of the control statement.

The "RUN TIME OPTIONS FOR THIS EXECUTION" part lists the options used for this utility run.

DBD

DBD name of the database.

DBORG

Database organization: HDAM, HIDAM, HISAM, SHISAM, PHDAM, PHIDAM; partitioned database or nonpartitioned database.

OPTIONS FOR PROCESS CONTROL

Options effective for process control.

OPTIONS FOR DIAGNOSIS

Options effective for diagnosis.

The date and time shown in the report heading tell when the reorganization reload was completed.

Segment Count Summary report

This report provides the balance between input and output segment occurrences of each segment type.

The following figure shows an example of the Segment Count Summary report for a PHDAM database.

All values in the report are decimal, and each line describes one segment type in the database.

"SEGMENT COUNT SUMMARY"

DBNAME = PHDV0300 PARTITIONS = 2 ORG = PHDAM ACCESS METHOD = OSAM

*** SEGMENT COUNT ACROSS ALL PARTITIONS PROCESSED ***

SEGNAME	LV	DSG	PARENT	READ	RELOADED	DELETED BY RANDOMIZER	DELETED BY USER EXIT
ROOTLEV1	01	01		2,000	2,000	0	N/A
DEP1LEV2	02	01	ROOTLEV1	2,000	2,000	0	N/A
DEP2LEV2	02	01	ROOTLEV1	2,000	2,000	0	N/A
DEP3LEV3	03	01	DEP2LEV2	4,000	4,000	0	N/A
DEP4LEV4	04	01	DEP3LEV3	8,000	8,000	0	N/A
DEP5LEV2	02	01	ROOTLEV1	2,000	2,000	0	N/A
DEP6LEV3	03	01	DEP5LEV2	4,000	4,000	0	N/A
DEP7LEV4	04	01	DEP6LEV3	8,000	8,000	0	N/A
DEP8LEV4	04	01	DEP6LEV3	8,000	8,000	0	N/A
DEP9LEV5	05	01	DEP8LEV4	16,000	16,000	0	N/A
TOTAL				56,000	56,000	0	N/A

*** SEGMENT COUNT IN HDAM OVERFLOW AREA ***

SEGNAME	OCCURRENCES	PERCENTAGE
ROOTLEV1	0	0.0
DEP1LEV2	0	0.0
DEP2LEV2	0	0.0
DEP3LEV3	2,000	50.0
DEP4LEV4	8,000	100.0
DEP5LEV2	2,000	100.0
DEP6LEV3	4,000	100.0
DEP7LEV4	8,000	100.0
DEP8LEV4	8,000	100.0
DEP9LEV5	16,000	100.0
TOTAL	48,000	

Figure 4. Segment Count Summary report (for a PHDAM database)

This report consists of two parts: the segment count in the entire database part, and the segment count in the HDAM, PHDAM, or HISAM overflow area part.

The following list describes each item in the Segment Count Summary report. The items are common to HDAM, HIDAM, HISAM, and SHISAM databases, except that the overflow area statistics items are available only for HDAM, PHDAM, and HISAM databases.

SEGNAME

The name of the segment.

LV

The hierarchical level of the segment.

DSG

The data set group number.

PARENT

The name of the parent segment.

READ

The number of segment occurrences that are read by IMS HP Load for this database.

RELOADED

The number of segment occurrences that IMS HP Load reloads for this database.

DELETED BY RANDOMIZER

The number of segment occurrences that are deleted because of a return code of 4 from the HDAM randomizer.

DELETED BY USER EXIT

The number of deleted segment occurrences due to a return code 8 or 12 from the user exit routine.

ILDS RECORDS

The number of ILE records in the ILDS for this partition.

The SEGMENT COUNT IN THE HDAM OVERFLOW AREA part contains the following items:

OCCURRENCES

The number of occurrences of the segment.

PERCENTAGE

The percentage of the occurrences in the overflow versus the entire occurrence of this segment type.

The following figure shows an example of the report for a PHIDAM database. The SEGMENT COUNT IN PHIDAM OVERFLOW AREA part is not included in this report.

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"SEGMENT COUNT SUMMARY"

DBNAME = PHIV0100 PARTITIONS = 5 ORG = PHIDAM ACCESS METHOD = ESDS

*** SEGMENT COUNT ACROSS ALL PARTITIONS PROCESSED ***

SEGNAME	LV	DSG	PARENT	READ	RELOADED	DELETED BY RANDOMIZER	DELETED BY USER EXIT
ROOTLEV1	01	01		10	10	N/A	N/A
DEP1LEV2	02	01	ROOTLEV1	10	10	N/A	N/A
DEP2LEV2	02	01	ROOTLEV1	10	10	N/A	N/A
DEP3LEV3	03	01	DEP2LEV2	20	20	N/A	N/A
DEP4LEV4	04	01	DEP3LEV3	40	40	N/A	N/A
DEP5LEV2	02	01	ROOTLEV1	10	10	N/A	N/A
DEP6LEV3	03	01	DEP5LEV2	20	20	N/A	N/A
DEP7LEV4	04	01	DEP6LEV3	40	40	N/A	N/A
DEP8LEV4	04	01	DEP6LEV3	40	40	N/A	N/A
DEP9LEV5	05	01	DEP8LEV4	80	80	N/A	N/A
TOTAL				280	280	N/A	N/A

Figure 5. Segment Count Summary report (for a PHIDAM database)

The following figure shows an example of the report when the SEQERROR control statement is specified for bypassing key sequence errors.

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"SEGMENT COUNT SUMMARY"

DBNAME = PHIV2000

PARTITIONS = 3

ORG = PHIDAM

ACCESS METHOD = ESDS

*** SEGMENT COUNT ACROSS ALL PARTITIONS PROCESSED ***

SEGNAME	LV	DSG	PARENT	READ	RELOADED	DELETED BY RANDOMIZER	DELETED BY USER EXIT
ROOTSEG	01	01		15	15	N/A	N/A
DEP1	02	01	ROOTSEG	16	16	N/A	N/A
DEP2	03	01	DEP1	16	16	N/A	N/A
DEP3	04	01	DEP2	16	16	N/A	N/A
TOTAL				63	63	N/A	N/A

*** SEGMENT COUNT IN KEY SEQUENCE ERROR ***

SEGNAME	KEY SEQERROR OCCURRENCES	ERROR PERCENTAGE	OUTPUT IN SEQERROR DS OCCURRENCES	PERCENTAGE
ROOTSEG	0	0.0	N/A	N/A
DEP1	1	6.3	N/A	N/A
DEP2	1	6.3	N/A	N/A
DEP3	1	6.3	N/A	N/A
TOTAL	3	4.8	N/A	N/A

Figure 6. Segment Count Summary report (when SEQERROR is specified)

SEGNAME

The name of the segment.

KEY SEQUENCE ERROR OCCURRENCES

The number of occurrences of key sequence errors for this segment type.

KEY SEQUENCE ERROR PERCENTAGE

The percentage of the occurrences of key sequence errors within the entire occurrences of this segment type.

OUTPUT IN SEQERROR DS OCCURRENCES

The number of segment occurrences saved in the SEQERROR data set for this segment type.

OUTPUT IN SEQERROR DS PERCENTAGE

The percentage of segment occurrences saved in the SEQERROR data set within the entire occurrences of this segment type.

Messages report

The Messages report contains messages related to key sequence.

The following figures show examples of the Messages report that contain messages HPSR0028I, HPSR0034I, and HPSR3634E.

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"MESSAGES"

```

HPSR0034I A SEQUENCE FIELD IS NOT UNIQUE SEGMENT=ROOTLEV1 FIELD=ROOTNO
HPSR0028I      2 DB RECORDS PROCESSED
HPSR0034I A SEQUENCE FIELD IS NOT UNIQUE SEGMENT=ROOTLEV1 FIELD=ROOTNO
HPSR0028I      3 DB RECORDS PROCESSED
HPSR0034I A SEQUENCE FIELD IS NOT UNIQUE SEGMENT=ROOTLEV1 FIELD=ROOTNO
HPSR0028I      4 DB RECORDS PROCESSED
HPSR0034I A SEQUENCE FIELD IS NOT UNIQUE SEGMENT=ROOTLEV1 FIELD=ROOTNO
HPSR0028I      5 DB RECORDS PROCESSED
HPSR0034I A SEQUENCE FIELD IS NOT UNIQUE SEGMENT=ROOTLEV1 FIELD=ROOTNO
HPSR0028I      6 DB RECORDS PROCESSED
HPSR0034I A SEQUENCE FIELD IS NOT UNIQUE SEGMENT=ROOTLEV1 FIELD=ROOTNO
HPSR0028I      7 DB RECORDS PROCESSED
HPSR0034I A SEQUENCE FIELD IS NOT UNIQUE SEGMENT=ROOTLEV1 FIELD=ROOTNO
HPSR0028I      8 DB RECORDS PROCESSED
HPSR0034I A SEQUENCE FIELD IS NOT UNIQUE SEGMENT=ROOTLEV1 FIELD=ROOTNO
HPSR0028I      9 DB RECORDS PROCESSED
HPSR0034I A SEQUENCE FIELD IS NOT UNIQUE SEGMENT=ROOTLEV1 FIELD=ROOTNO
HPSR0028I     10 DB RECORDS PROCESSED
HPSR0034I A SEQUENCE FIELD IS NOT UNIQUE SEGMENT=ROOTLEV1 FIELD=ROOTNO
HPSR0028I     11 DB RECORDS PROCESSED
HPSR0034I A SEQUENCE FIELD IS NOT UNIQUE SEGMENT=ROOTLEV1 FIELD=ROOTNO
HPSR0028I     12 DB RECORDS PROCESSED
HPSR0034I A SEQUENCE FIELD IS NOT UNIQUE SEGMENT=ROOTLEV1 FIELD=ROOTNO
HPSR0028I     13 DB RECORDS PROCESSED
HPSR0034I A SEQUENCE FIELD IS NOT UNIQUE SEGMENT=ROOTLEV1 FIELD=ROOTNO
HPSR0028I     14 DB RECORDS PROCESSED
HPSR0034I A SEQUENCE FIELD IS NOT UNIQUE SEGMENT=ROOTLEV1 FIELD=ROOTNO
HPSR0028I     15 DB RECORDS PROCESSED
HPSR0034I A SEQUENCE FIELD IS NOT UNIQUE SEGMENT=ROOTLEV1 FIELD=ROOTNO
HPSR0028I     16 DB RECORDS PROCESSED
HPSR0034I A SEQUENCE FIELD IS NOT UNIQUE SEGMENT=ROOTLEV1 FIELD=ROOTNO
HPSR0028I     17 DB RECORDS PROCESSED
HPSR0034I A SEQUENCE FIELD IS NOT UNIQUE SEGMENT=ROOTLEV1 FIELD=ROOTNO
HPSR0028I     18 DB RECORDS PROCESSED
HPSR0034I A SEQUENCE FIELD IS NOT UNIQUE SEGMENT=ROOTLEV1 FIELD=ROOTNO
HPSR0028I     19 DB RECORDS PROCESSED
HPSR0034I A SEQUENCE FIELD IS NOT UNIQUE SEGMENT=ROOTLEV1 FIELD=ROOTNO
HPSR0028I     20 DB RECORDS PROCESSED

```

Figure 7. Messages report (HPSR0028I and HPSR0034I)

"MESSAGES"

HPSR3634E A ROOT SEGMENT OF HIDAM/PHIDAM IS OUT OF SEQUENCE
DBD=HIVSDB10 SEGMENT=ROOTLEV1 FIELD=ROOTKEY1

000000000001
FFFFFFFFFFFF
000000000001

Figure 8. Messages report (HPSR3634E)

DBRC Messages report

This report contains DBRC messages that are issued when DBRC=Y is specified for non-HALDB.

The following figure shows an example of the DBRC Messages report.

"DBRC MESSAGES"

NOTIFY.REORG DBD(DBHD0040) DDN(DDHD0041) USID(0000000001) -
RUNTIME('2021.196 05:55:04.588217 -04:00')
DSP0203I COMMAND COMPLETED WITH CONDITION CODE 00
DSP0220I COMMAND COMPLETION TIME 21.196 05:55:04.763175
DSP0211I COMMAND PROCESSING COMPLETE
DSP0211I HIGHEST CONDITION CODE = 00
NOTIFY.REORG DBD(DBHD0040) DDN(DDHD0042) USID(0000000001) -
RUNTIME('2021.196 05:55:04.588217 -04:00')
DSP0203I COMMAND COMPLETED WITH CONDITION CODE 00
DSP0220I COMMAND COMPLETION TIME 21.196 05:55:04.981434
DSP0211I COMMAND PROCESSING COMPLETE
DSP0211I HIGHEST CONDITION CODE = 00
NOTIFY.REORG DBD(DBHD0040) DDN(DDHD0043) USID(0000000001) -
RUNTIME('2021.196 05:55:04.588217 -04:00')
DSP0203I COMMAND COMPLETED WITH CONDITION CODE 00
DSP0220I COMMAND COMPLETION TIME 21.196 05:55:05.214249
DSP0211I COMMAND PROCESSING COMPLETE
DSP0211I HIGHEST CONDITION CODE = 00

Figure 9. Messages report for DBRC messages

Data Set Statistics report

This report provides physical statistics about the database by each data set group.

The following figure shows an example of the Data Set Statistics report for an HDAM database.

"DATA SET STATISTICS"

DBNAME = DBHD0030 DS GROUPS = 3 ORG = HDAM ACCESS METHOD = ESDS
RMNAME = DFSHDC40 NBR OF RAPS = 5 MAX RBN= 500 MAX INSERT=40

DS GROUP = 001 OF 003 DDNAME = DDHD0031 BLKSIZE = 4,096 LRECL = 4,089
DISTRIBUTED FREE SPACE = (000,00) SCAN = 3
THRESHOLD OF LIMITED FREE SPACE BLOCK = 2,000 (LARGE SEGSIZE 2,000)
NUMBER OF TOTAL BLOCKS = 501
NUMBER OF BITMAP BLOCKS = 1
NUMBER OF LIMITED FREE SPACE BLOCKS = 1
NUMBER OF FULL BLOCKS = 1
NUMBER OF FREE BLOCKS = 489
AVERAGE SIZE OF FREE SPACE ELEMENT = 4062.6

NUMBER OF HDAM ROOT SYNONYM CHAINS = 0
AVERAGE NUMBER OF ROOTS / SYNONYM CHAIN = 0.0
NUMBER OF ROOTS NOT ON SYNONYM CHAINS = 10
NUMBER OF ROOTS ON SYNONYM CHAINS = 0
NUMBER OF ROOTS OUT OF RANDOMIZED BLOCK = 0
NUMBER OF HDAM RAPS USED = 10
NUMBER OF HDAM RAPS UNUSED = 2,490
NUMBER OF HDAM OVERFLOW BLOCKS = 1

NUMBER OF SEQUENTIAL WRITES = 502
NUMBER OF DIRECT READS = 1
NUMBER OF DIRECT WRITES = 1

NUMBER OF DSPB ROUTINGS = 0
HIGHEST LENGTH OF DATA IN DSPB = 0
AVERAGE LENGTH OF DATA IN DSPB = 0.0

DS GROUP = 002 OF 003 DDNAME = DDHD0032 BLKSIZE = 512 LRECL = 505
DISTRIBUTED FREE SPACE = (000,00) SCAN = 3
NUMBER OF TOTAL BLOCKS = 3
NUMBER OF BITMAP BLOCKS = 1
NUMBER OF LIMITED FREE SPACE BLOCKS = 2
NUMBER OF FULL BLOCKS = 1
NUMBER OF FREE BLOCKS = 0
AVERAGE SIZE OF FREE SPACE ELEMENT = 133.0

NUMBER OF SEQUENTIAL WRITES = 4
NUMBER OF DIRECT READS = 1
NUMBER OF DIRECT WRITES = 1

NUMBER OF DSPB ROUTINGS = 0
HIGHEST LENGTH OF DATA IN DSPB = 0
AVERAGE LENGTH OF DATA IN DSPB = 0.0
DS GROUP = 003 OF 003 DDNAME = DDHD0033 BLKSIZE = 1,024 LRECL = 1,017
DISTRIBUTED FREE SPACE = (000,00) SCAN = 3

"DATA SET STATISTICS"

NUMBER OF TOTAL BLOCKS = 5
NUMBER OF BITMAP BLOCKS = 1
NUMBER OF LIMITED FREE SPACE BLOCKS = 4
NUMBER OF FULL BLOCKS = 1
NUMBER OF FREE BLOCKS = 0
AVERAGE SIZE OF FREE SPACE ELEMENT = 161.5

NUMBER OF SEQUENTIAL WRITES = 6
NUMBER OF DIRECT READS = 1
NUMBER OF DIRECT WRITES = 1

NUMBER OF DSPB ROUTINGS = 0
HIGHEST LENGTH OF DATA IN DSPB = 0
AVERAGE LENGTH OF DATA IN DSPB = 0.0

Figure 10. Data Set Statistics report (for an HDAM database)

The report shows the following items for each data set group. These items are common to HDAM, HIDAM, HISAM, SHISAM, PHDAM, and PHIDAM databases, except for those specified.

- The first line contains database information found in the DBD, such as the database name, number of data set groups, organization type, and access method. If the organization type of the reloaded database is HISAM or SHISAM, the ddname, block size, and record length are reported in these lines.
- The second line provides information about the randomizing module. This information is provided only for HDAM and PHDAM databases.
 - RMNAME specifies the 1- to 8-character alphanumeric name of the randomizing module.
 - MAX INSERT is the maximum number of bytes of a database record that can be inserted into the root addressable area.
 - NBR OF RAPS specifies the number of root anchor points desired in each control interval or block in the root addressable area.
 - MAX RBN is the maximum relative block number value.
- The first line of each data set group indicates the data set information, such as data set group number, ddname, block size, and record length.

DISTRIBUTED FREE SPACE

The free block frequency factor (*fbff*) and the free space percentage factor (*fspf*). *fbff* can be any integer value in the range of 0 - 100 except *fbff*=1. The *fspf* specifies the minimum percentage of each control interval or block that is to be left as free space. *fspf* is in the range of 0 - 99.

THRESHOLD OF LIMITED FREE SPACE BLOCK

The threshold value used to set bitmap that indicates whether each block or CI has a free space element (FSE) that is large enough. If BMSETDSG control statement is specified, the specified value is shown instead of the size of the largest segment in the data set group.

SCAN

The number of direct-access device cylinders to be scanned when searching for available storage space during segment insertion operations.

NUMBER OF TOTAL BLOCKS

The total number of blocks or CIs written in the data set. If this data set is a VSAM data set, it does not include record 0.

NUMBER OF BITMAP BLOCKS

The total number of bitmap blocks or CIs written in the data set.

NUMBER OF LIMITED FREE SPACE BLOCKS

The number of blocks or CIs that do not have a free space element (FSE) large enough to hold the largest segment in the data set group.

NUMBER OF FULL BLOCKS

The number of blocks or CIs that do not have enough free space for an FSE. An FSE requires a minimum of 8 bytes.

NUMBER OF FREE BLOCKS

The number of blocks or CIs that do not have any segments in the data set group.

AVERAGE SIZE OF FREE SPACE ELEMENT

The average amount of free space in those blocks that are not completely full. This average includes those blocks that are completely empty.

NUMBER OF SEQUENTIAL WRITES

The number of sequential write operations to the database data set.

NUMBER OF DIRECT READS

The number of direct read operations to the database data set.

NUMBER OF DIRECT WRITES

The number of direct write operations to the database data set.

The following items are printed only for HDAM databases:

NUMBER OF HDAM ROOT SYNONYM CHAINS

The number of HDAM root anchor points (RAPs) that have more than one root segment chained off it.

AVERAGE NUMBER OF ROOTS / SYNONYM CHAINS

The average number of HDAM root segments per synonym chain.

NUMBER OF ROOTS NOT ON SYNONYM CHAINS

The number of HDAM root segments that are not on any synonym chain.

NUMBER OF ROOTS ON SYNONYM CHAINS

The number of HDAM root segments that are on one of synonym chains. A relatively high number here might have an impact on performance.

NUMBER OF ROOTS OUT OF RANDOMIZED BLOCK

The number of root segments that were randomized to given blocks, but there was not enough space in the blocks to insert the segments. Those root segments that cannot be inserted in the root addressable area are placed in the overflow area. A relatively high number here might have an impact on performance.

NUMBER OF HDAM RAPS USED/UNUSED

The number of total RAPS that are used or not used. The number of RAPS used versus the number of root segments is one indication of the efficiency of the randomizing routine. Comparison of the number of root segments with the number of RAPS used and unused gives you one indication of how well your HDAM randomizer is working. It does not indicate how uniformly the roots are distributed.

NUMBER OF HDAM OVERFLOW BLOCKS

The number of blocks or CIs in the overflow area.

The following items are printed only for HISAM databases that have more than one hierarchical segment level.

NUMBER OF RECORDS WITH OVERFLOW CHAINS

The number of roots with overflow chains.

MAX NUMBER OF OVERFLOW CHAINS

The maximum number of VSAM ESDS roots chained off from one VSAM KSDS root.

MIN NUMBER OF OVERFLOW CHAINS

The minimum nonzero number of VSAM ESDS roots chained off from one VSAM KSDS root.

AVERAGE NUMBER OF OVERFLOW CHAINS

The average number of VSAM ESDS roots chained off from one VSAM KSDS root.

NUMBER OF RECORDS WITH NO OVERFLOW CHAINS

The number of roots without dependent chains.

LONGEST DB RECORD LENGTH

The largest database record (in bytes) that has no overflow chains.

SHORTEST DB RECORD LENGTH

The shortest database record (in bytes) that has no overflow chains.

AVERAGE DB RECORD LENGTH

Average database record length (in bytes) that has no overflow chains.

NUMBER OF DSPB ROUTINGS

The number of times that data is written to and from the data space buffer (DSPB).

HIGHEST LENGTH OF DATA IN DSPB

The maximum length of the data in DSPB.

AVERAGE LENGTH OF DATA IN DSPB

The average length of the data written into DSPB.

Segment Statistics report

This report provides various information about all the segments in the database.

The following figure shows an example of the Segment Statistics report for an HDAM database.

All values in the report are decimal and each line describes one segment type in the database.

This report consists of two parts:

- SEGMENT STATISTICS part contains statistics on all segments
- VARIABLE LENGTH SEGMENT STATISTICS part contains variable-length segment statistics

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"SEGMENT STATISTICS"

SEGNAME	LVL	DSG	LENGTH OF PRFX DATA	OCCURRENCES	NONFREE SPACE(%)	AVERAGE RCD SIZE	AVERAGE PER PRNT	OCCURRENCES PER ROOT
ROOTLEV1	01	01	22 20	10	8.6	42	1.00	1.00
DEP1LEV2	02	01	10 21*	10	6.6	32	1.00	1.00
DEP2LEV2	02	02	14 20	11	7.7	37	1.10	1.10
DEP3LEV3	03	02	10 30	9	7.4	36	0.82	0.90
DEP4LEV2	02	03	18 77V	11	21.5	105	1.10	1.10
DEP5LEV3	03	03	6 128V	9	24.8	121	0.82	0.90
DEP6LEV3	03	03	10 94V	11	23.5	114	1.00	1.10
TOTAL				71		486		

VARIABLE LENGTH SEGMENT STATISTICS

SEGNAME	LENGTH OF MIN MAX	OCCURRENCES (VERSUS MIN) LESS EQUAL GREATER	COMPRESSION ROUTINE FACTOR
DEP4LEV2	50 100	0 1 10	N/A
DEP5LEV3	100 200	4 1 4	N/A
DEP6LEV3	70 140	0 1 10	N/A

Figure 11. Segment Statistics report (for an HDAM database)

The following figure shows another example of the Segment Statistics report. This example is for a HALDB partition.

The report contains the SEGMENT STATISTICS part and the VARIABLE LENGTH SEGMENT STATISTICS part. When TWINSTAT=YES is specified, the report also contains the TWIN SEGMENT STATISTICS part, which shows statistics about twin chained segments.

"SEGMENT STATISTICS"

PARTNAME = PHD001A PART ID = 00001

SEGNAME	LV	DSG	LENGTH OF PRFX	DATA	OCCURRENCES	NONFREE SPACE(%)	AVERAGE RCD SIZE	AVERAGE PER PRNT	OCCURRENCES PER ROOT
ROOTLEV1	01	01	42	15*	100	0.2	58	1.00	1.00
DEP1LEV2	02	01	26	23V	2,000	4.2	980	20.00	20.00
DEP2LEV3	03	01	18	32V	40,000	84.9	20,000	20.00	400.00
DEP3LEV2	02	01	18	40V	2,000	4.9	1,160	20.00	20.00
DEP4LEV2	02	01	18	50	2,000	5.8	1,360	20.00	20.00
TOTAL					46,100		23,558		

VARIABLE LENGTH SEGMENT STATISTICS

SEGNAME	LENGTH OF MIN	MAX	OCCURRENCES LESS	(VERSUS MIN) EQUAL	GREATER	COMPRESSION ROUTINE	FACTOR
DEP1LEV2	4	30	0	0	2,000	DFSCMPX0	- 6.5
DEP2LEV3	32	100	0	40,000	0		N/A
DEP3LEV2	40	100	2,000	0	0	DFSCMPX0	+ 53.8

TWIN SEGMENT STATISTICS

SEGNAME	NUMBER OF CHAINS	MAX CHAIN LENGTH	AVG CHAIN LENGTH
ROOTLEV1	N/A		
DEP1LEV2	100	20	20.0
DEP2LEV3	2,000	20	20.0
DEP3LEV2	100	20	20.0
DEP4LEV2	100	20	20.0

Figure 12. Segment Statistics report (for a HALDB partition)

The following list describes each item in the Segment Statistics report. The items are common to both HDAM and HIDAM databases.

SEGNAME

The name of the segment.

LVL/LV

The hierarchical level of the segment.

DSG

The data set group number.

LENGTH OF PRFX

The length of the segment prefix.

LENGTH OF DATA

The length of the segment data. The letter V following the number indicates that the segment has a variable length and that this data has the average data length of those occurrences found in the database. An asterisk (*) following the number indicates that the segment is padded with 1 byte to make it an even length in the database. IMS does not write odd-length segments in HD-type databases.

OCCURRENCES

The number of segment occurrences in the database. The number on the row TOTAL indicates the total number of segments in the database.

NONFREE SPACE (%)

This field indicates what percentage of the total number of bytes occupied by the database segments (prefix and data) is occupied by the segments of this type. This percentage should total 100%, but it might not because of rounding.

AVERAGE RCD SIZE

This field indicates the contribution to the average database record size by this segment type. This value is the product of the segment length (length of prefix and data) by the average occurrences per root segment. The total number in this column shows the average length of the whole database record. Since the value of this column is rounded off, the total value of each line might not be equal to the number shown by TOTAL.

$$\text{AVERAGE RCD SIZE} = \frac{\{(\text{LENGTH OF PRFX}) + (\text{LENGTH OF DATA})\}}{\text{X AVERAGE OCCURRENCES PER ROOT}}$$

AVERAGE OCCURRENCES PER PRNT

The average number of occurrences of this segment type per immediate parent. It is also the average number of twin chain occurrences.

AVERAGE OCCURRENCES PER ROOT

The average number of occurrences of this segment type per root segment (LVL=01). It is also the average number of occurrences in a database record.

The VARIABLE-LENGH SEGMENT STATISTICS part provides further information about each variable-length segment with the following items:

SEGNAME

The name of the variable-length segment.

LENGTH OF MIN

The minimum data length of the segment occurrences.

LENGTH OF MAX

The maximum data length of the segment occurrences.

OCCURRENCES (VERSUS MIN) LESS

The number of occurrences of the segments that have a length less than the minimum data length of the segment. These segments might not have the data portion separated from the segments.

OCCURRENCES (VERSUS MIN) EQUAL

The number of occurrences of the segments that have a length equal to the minimum data length of the segment.

OCCURRENCES (VERSUS MIN) GREATER

The number of occurrences of the segments that have a length greater than the minimum data length of the segment.

COMPRESSION ROUTINE

The name of segment edit/compression routine, if specified for the segment. This field is blank if no segment edit/compression routine is specified for the segment.

COMPRESSION FACTOR

The compression factor shown as a percentage. The compression factor is calculated by the following formula:

$$\text{Compression factor} = \frac{\text{Bytes after expansion} - \text{Bytes before expansion}}{\text{Bytes after expansion}}$$

where "Bytes after expansion" is the sum of segment lengths after expansion. "Bytes before expansion" is the sum of segment lengths before expansion.

"0.0" is shown if the segment has no occurrence.

"N/A" is shown if no segment edit/compression routine is specified for the segment.

The twin chain statistics part provides further information about twin chained segments with the following items:

SEGNAME

The name of the segment.

NUMBER OF CHAINS

The total number of twin chain occurrences for the segment type.

N/A is shown if a twin pointer is not defined for the segment.

MAX CHAIN LENGTH

The maximum length of the twin chains.

AVG CHAIN LENGTH

The average length of the twin chains.

Pointer Count Summary report

This report contains a list of all the pointers to a user-specified target, and various totals for each segment pointer type.

The following figure shows an example of the Pointer Count Summary report for an HDAM database.

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"POINTER COUNT SUMMARY"

SOURCE SEGMENT	TARGET SEGMENT	PTR TYPE	NBR OF SOURCE ZERO PTR	SEGMENTS WITH PTR
ROOTLEV1	ROOTLEV1	PTF	10	0
	ROOTLEV1	PTB	10	0
	DEP1LEV2	PCF	2	8
	DEP2LEV2	PCF	2	8
	DEP4LEV2	PCF	2	8
DEP1LEV2	DEP1LEV2	PTF	8	2
	DEP1LEV2	PTB	8	2
DEP2LEV2	DEP2LEV2	PTF	8	3
	DEP3LEV3	PCF	3	8
	DEP3LEV3	PCL	3	8
DEP3LEV3	DEP3LEV3	PTF	8	1
	DEP3LEV3	PTB	8	1
DEP4LEV2	DEP4LEV2	PTF	8	3
	DEP4LEV2	PTB	8	3
	DEP5LEV3	PCF	3	8
	DEP6LEV3	PCF	3	8
DEP5LEV3	DEP5LEV3	PTF	8	1
DEP6LEV3	DEP6LEV3	PTF	8	3
	DEP6LEV3	PTB	8	3

Figure 13. Pointer Count Summary report (for an HDAM database)

The following list describes the fields in the Pointer Count Summary report. All values in the report are decimal.

SOURCE SEGMENT

The segment name that has one or more pointers in its prefix.

TARGET SEGMENT

The segment name that is pointed by the source segment.

PTR TYPE

The type of pointer used. For each pointer in a prefix, a line of information is printed. If the pointer type is HF or HB, the TARGET SEGMENT field contains an asterisk (*).

NBR OF SOURCE SEGMENTS ZERO PTR

The number of occurrences of the source segment for which this pointer is zero.

NBR OF SOURCE SEGMENTS WITH PTR

The number of occurrences of the source segment for which this pointer has an RBA. If the pointer type is PCF, this number indicates the number of physical twin chains in the database for the target segment type.

Note: If hierarchical pointers are used, the target segment name is not printed because hierarchical pointers can point to different segment types.

The Pointer Count Summary report also provides the following information:

- If the given segment type has PTF pointers, you can obtain the number of twin chains for a given segment type by looking in the SOURCE SEGMENT field and the NBR OF SOURCE SEGMENTS ZERO PTR field for the given segment type. If the given segment type has hierarchical pointers, but its parent has a PCF pointer pointing to the given segment type, you can also obtain this number by looking in the TARGET SEGMENT, PTR TYPE, and NBR OF SOURCE SEGMENTS WITH PTR fields.
- You can obtain the average number of twin chain occurrences for a given segment type by using the number of twin chains just described. After determining the number of twin chains, divide that number into the total number of source segments (ZERO PTR + WITH PTR) for the segment type.

Pointer Statistics report

This report contains a list of all the pointers to a user-specified target, and various totals and ratios for each segment pointer type.

The following figure shows an example of the Pointer Statistics report for an HDAM database.

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"POINTER STATISTICS"

SOURCE SEGMENT	TARGET SEGMENT	PTR TYPE	NBR OF PTRS (POINT TO) SAME BLOCK	DIFF BLOCK	ONE BLOCK AWAY	AVERAGE BLOCKS AWAY	I/O PROB
ROOTLEV1	R00TLEV1	PTF	0	0	0	0.0	.000
	R00TLEV1	PTB	0	0	0	0.0	.000
	DEP1LEV2	PCF	0	8	0	269.4	1.000
	DEP2LEV2	PCF					1.000
	DEP4LEV2	PCF					1.000
DEP1LEV2	DEP1LEV2	PTF	2	0	0	0.0	.000
	DEP1LEV2	PTB	2	0	0	0.0	.000
DEP2LEV2	DEP2LEV2	PTF	3	0	0	0.0	.000
	DEP3LEV3	PCF	8	0	0	0.0	.000
	DEP3LEV3	PCL	7	1	1	1.0	.125
DEP3LEV3	DEP3LEV3	PTF	0	1	1	1.0	1.000
	DEP3LEV3	PTB	0	1	1	1.0	1.000
DEP4LEV2	DEP4LEV2	PTF	0	0	0	0.0	.000
	DEP4LEV2	PTB	0	0	0	0.0	.000
	DEP5LEV3	PCF	0	0	0	0.0	.000
	DEP6LEV3	PCF	0	0	0	0.0	.000
DEP5LEV3	DEP5LEV3	PTF	0	0	0	0.0	.000
DEP6LEV3	DEP6LEV3	PTF	0	0	0	0.0	.000
	DEP6LEV3	PTB	0	0	0	0.0	.000

Figure 14. Pointer Statistics report

The following list describes the fields in the Pointer Statistics report. All values in the report are decimal.

SOURCE SEGMENT

The segment name that has one or more pointers in its prefix.

TARGET SEGMENT

The segment name that is pointed to by the source segment.

PTR TYPE

The type of pointer used. For each pointer in a prefix, a line of information is printed. If the pointer type is HF or HB, the TARGET SEGMENT field contains an asterisk (*).

NBR OF PTRS (POINT TO) SAME BLOCK

The number of pointers of the given type that point to segments in the same physical block or CI.

NBR OF PTRS (POINT TO) DIFF BLOCK

The number of pointers of the given type that point to segments in a different block or CI.

NBR OF PTRS (POINT TO) ONE BLOCK AWAY

A refinement of the NBR OF PTRS (POINT TO) DIFF BLOCK data. For those pointers that point to segments in different blocks, this is the number of pointers that point to the next or previous block or CI.

AVERAGE BLOCKS AWAY

A refinement of the NBR OF PTRS (POINT TO) DIFF BLOCK data. For those pointers that point to segments in different blocks, this is the average number of blocks away. You can manually translate this number into tracks and cylinders by knowing the number of blocks or CIs per track. This data can be used to estimate how far apart the source and target segments are. The larger this number is, the longer the seeks will be.

I/O PROB

The probability of doing I/O in going from the source segment to the target segment using the indicated pointer type. This factor is very important in doing database performance analysis. You can use the I/O PROB information to estimate the number of I/Os needed to retrieve a given segment or sequence of segments.

Notes:

- If the source and target segments are in different data set groups, the columns associated with NBR OF PTRS and AVERAGE BLOCKS AWAY are left blank because the data would be meaningless.
- If hierarchical pointers are used, the target segment name is not printed because hierarchical pointers can point to different segment types.

HALDB Process Summary report

This report contains status information of each partition, which is identified by its high key value.

As an example, the following figure shows a HALDB Process Summary report for a PHDAM database.

```
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                "HALDB PROCESS SUMMARY REPORT"

*** DBDNAME: PHD00300 ***
DBDNAME..... PHD00300
DATABASE ORGANIZATION..... PHDAM
ACCESS METHOD..... OSAM
NUMBER OF PARTITIONS DEFINED..... 5
NUMBER OF PARTITIONS PROCESSED.... 5
PARTITION SELECTION EXIT..... N/A

*** PARTITIONS LISTED IN ORDER OF HIGH KEY ***

 P SEQ   NAME          ID  PARTITION HIGH KEY
-----
R 0001  PHD003A        1  X'1FFFFFFFFFFFFFFF'
R 0002  PHD003B        2  X'3FFFFFFFFFFFFFFF'
R 0003  PHD003C        3  X'5FFFFFFFFFFFFFFF'
R 0004  PHD003D        4  X'7FFFFFFFFFFFFFFF'
R 0005  PHD003E        5  X'FFFFFFFFFFFFFFF'
```

Figure 15. HALDB Process Summary report

DBDNAME

The DBD name of the database.

DATABASE ORGANIZATION

Database organization of the processed database. PHDAM or PHIDAM.

ACCESS METHOD

Access method of the database.

NUMBER OF PARTITIONS DEFINED

The number of partitions that is defined in the HALDB.

NUMBER OF PARTITIONS PROCESSED

The number of partitions that is processed in the HALDB.

PARTITION SELECTION EXIT

The name of the partition selection exit, if used. When the high key selection is used, this field shows "N/A".

P

Partition status after reload, which can be one of the following characters:

I

Initialized

R

Reloaded

Blank

Not processed

SEQ

Sequence number

NAME

The partition name that is defined by the IMS HALDB Partition Definition utility.

ID

The partition ID.

PARTITION HIGH KEY

Value of the high key. This field is not shown when the partition selection exit is used.

PARTITION SELECTION STRING

Value of the partition selection string. This field is not shown when the high key selection is used.

GDG Base Information report

This report contains the messages that were issued while creating a GDG base entry.

The following figure shows an example of the GDG Base Information report.

```
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                        "GDG BASE INFORMATION"

*** GDG BASE CREATION FOR DFSURWF1 ***

      DEFINE GDG (NAME(TEMPDS.GDGTSTM) -
                LIM(5))
      IDC0001I FUNCTION COMPLETED, HIGHEST CONDITION CODE WAS 0
      IDC0002I IDCAMS PROCESSING COMPLETE. MAXIMUM CONDITION CODE WAS 0
```

Figure 16. GDG Base Information report

WFP Process Summary report

This report summarizes information about the WFP data sets that are created in the job.

The following figure shows an example of the WFP Process Summary report.

"WFP PROCESS SUMMARY"

WFP DATA SETS INFORMATION

P	PARTITION	DDNAME	DSNAME
L	PHDV01A	HPSRP001	RSTEST.TFMFR521.A.PHDV01A.WFP
L	PHDV01C	HPSRP002	RSTEST.TFMFR521.A.PHDV01C.WFP
I	PHDV01B	HPSRP003	RSTEST.TFMFR521.A.PHDV01B.WFP

INDEX ENTRIES SUMMARY

PARTITION	PSINDEX	INDEX ENTRIES	- SUPRESSED ENTRIES -			
			NULLVAL	MAINT	EXIT	VL SHORT
PHDV01A	PSIDX01	999	N/A		N/A	N/A
	PSIDX02	999	N/A		N/A	N/A
	PSIDX03	1,998	0		N/A	0
	PSIDX06	1,998	N/A		N/A	0
PHDV01C	PSIDX01	1,200	N/A		N/A	N/A
	PSIDX02	1,200	N/A		N/A	N/A
	PSIDX03	2,400	0		N/A	0
	PSIDX06	2,400	N/A		N/A	0

Figure 17. WFP Process Summary report

The following list describes each item in the WFP Process Summary report:

P

The status of the WFP data sets. Either I (initialized) or L (loaded) is shown.

PARTITION

The partition name of the database.

DDNAME

The DD name of the WFP data set.

DSNAME

The name of the WFP data set.

PSINDEX

The name of the partition secondary index database.

INDEX ENTRIES

The number of index pointer segment entries in the WFP data set.

NULLVAL

The number of index pointer segments that were suppressed from being created by the NULLVAL option. If the NULLVAL option is not specified, N/A is displayed.

MAINT EXIT

The number of index pointer segments that were suppressed from being created by the index maintenance exit routine. If the EXTRTN option is not specified, N/A is displayed.

VL SHORT

The number of index pointer segments that were suppressed from being created because the search field exceeded the end of the variable-length segment. For fixed-length segments, N/A is displayed.

SNAP data set

The SNAP data set contains the DBD Snap Dump report.

DBD Snap Dump report

The DBD Snap Dump report contains a snapshot of the DBD when the DBDSNAP=YES statement is specified in the FRRIN data set.

When a snap is taken, the DBD and some of the IMS HP Load control blocks are provided. The snap gives the virtual storage addresses of the data traced on the right. There might be multiple lines, each showing up to 32 bytes of data in the hexadecimal and EBCDIC format.

The following figure shows an example of the DBD Snap Dump report.

```
IMS HIGH PERFORMANCE LOAD                                "DBD SNAP DUMP"                                PAGE: 1
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DBD MEMBER FOLLOWS ON SNAP

JOB ORFF2133      STEP HPLD      TIME 181814  DATE 18239   ID = 119   CPUID = FF0122029672  PAGE 00000001
  PSW AT ENTRY TO SNAP    078D1000  800C73F2  ILC  02  INTC  0033
-STORAGE
00012DE0          30012E18 00012E6C 00012EFC 00012F9C *          .....%.....*
00012E00 00012F8C 00012FB8 00012FC8 00012FBC 00000000 00012FC8 C4C2C8C4 F1F0F7F0 *.....H.....HDBHD1070*
00012E20 00020003 0E010001 40404040 40404040 00010000 00000000 FFFFFFFF C4C4C8C4 *.....DDHD*
00012E40 F1F0F7F0 40404040 01030003 0026001A 00080008 07F90800 07F90800 40404040 *1070 .....9...9...*
00012E60 40404040 00000000 FFFFFFFF 01010001 01020014 00000000 D9D6D6E3 D3C5E5F1 * .....ROOTLEV1*
00012E80 60EF0002 00000000 0000FFFF 00000000 00120000 00000000 00000000 01020102 * .....*
00012EA0 00020015 00000000 C4C5D7F1 D3C5E5F2 60EF0000 FFFFFFFF 0000FFFF 00000030 *.....DEP1LEV2.....*
00012EC0 000A0000 00000000 00000000 01030102 00020014 00000000 C4C5D7F2 D3C5E5F2 * .....DEP2LEV2*
00012EE0 40EF0000 FFFFFFFF 0000FFFF 00000060 00060000 00000000 00000000 D9D6D6E3 * .....ROOT*
00012F00 D5D64040 00004307 40404040 40404040 00000000 D9D6D6E3 D5C1D4C5 0008830B *NO .....ROOTNAME..C.*
00012F20 40404040 40404040 00000000 C4C5D7F1 D5D64040 00000307 40404040 40404040 * .....DEP1NO .....*
00012F40 00000030 C4C5D7F1 D5C1D4C5 0008830C 40404040 40404040 00000030 C4C5D7F2 *...DEP1NAME..C. ....DEP2*
```

Figure 18. DBD Snap Dump report

HPSRAMSO data set

This data set contains the Result of Database Data Set Allocation report.

Result of Database Data Set Allocation report

This report contains results from the IDCAMS commands that were issued to allocate database data sets.

The following figure shows an example of the Result of Database Data Set Allocation report.

*** MEMBER NAME: PHIV01AA ***

```
DELETE (DBSAMP01.RELOAD.DATA1.A00001) PURGE CLUSTER
IDC0550I ENTRY (D) DBSAMP01.RELOAD.DATA1.A00001.DATA DELETED
IDC0550I ENTRY (C) DBSAMP01.RELOAD.DATA1.A00001 DELETED
IDC0001I FUNCTION COMPLETED, HIGHEST CONDITION CODE WAS 0

IF LASTCC<=8 THEN SET MAXCC=0

DEFINE CLUSTER (NAME(DBSAMP01.RELOAD.DATA1.A00001) -
VOL(*) NONINDEXED REUSE SHR(3 3) -
TRK(1 1) CISZ(4096) RECSZ(4089 4089))
IDC0508I DATA ALLOCATION STATUS FOR VOLUME TST057 IS 0
IDC0512I NAME GENERATED-(D) DBSAMP01.RELOAD.DATA1.A00001.DATA
IDC0181I STORAGECLASS USED IS SCIPRMV
IDC0001I FUNCTION COMPLETED, HIGHEST CONDITION CODE WAS 0

IDC0002I IDCAMS PROCESSING COMPLETE. MAXIMUM CONDITION CODE WAS 0
```

*** MEMBER NAME: PHIV01AL ***

```
DELETE (DBSAMP01.RELOAD.DATA1.L00001) PURGE CLUSTER
IDC0550I ENTRY (D) DBSAMP01.RELOAD.DATA1.L00001.DATA DELETED
IDC0550I ENTRY (I) DBSAMP01.RELOAD.DATA1.L00001.INDEX DELETED
IDC0550I ENTRY (C) DBSAMP01.RELOAD.DATA1.L00001 DELETED
IDC0001I FUNCTION COMPLETED, HIGHEST CONDITION CODE WAS 0

SET MAXCC=0

DEFINE CLUSTER (NAME(DBSAMP01.RELOAD.DATA1.L00001) -
VOL(*) INDEXED SHR(3 3) -
KEYS(9,0) -
TRK(1 1) CISZ(512) RECSZ(50 50))
IDC0508I DATA ALLOCATION STATUS FOR VOLUME TST064 IS 0
IDC0509I INDEX ALLOCATION STATUS FOR VOLUME TST064 IS 0
IDC0512I NAME GENERATED-(D) DBSAMP01.RELOAD.DATA1.L00001.DATA
IDC0512I NAME GENERATED-(I) DBSAMP01.RELOAD.DATA1.L00001.INDEX
IDC0181I STORAGECLASS USED IS SCIPRMV
IDC0001I FUNCTION COMPLETED, HIGHEST CONDITION CODE WAS 0

IDC0002I IDCAMS PROCESSING COMPLETE. MAXIMUM CONDITION CODE WAS 0
```

*** MEMBER NAME: PHIV01AX ***

```
DELETE (DBSAMP01.RELOAD.DATA1.X00001) PURGE CLUSTER
IDC0550I ENTRY (D) DBSAMP01.RELOAD.DATA1.X00001.DATA DELETED
IDC0550I ENTRY (I) DBSAMP01.RELOAD.DATA1.X00001.INDEX DELETED
IDC0550I ENTRY (C) DBSAMP01.RELOAD.DATA1.X00001 DELETED
IDC0001I FUNCTION COMPLETED, HIGHEST CONDITION CODE WAS 0

SET MAXCC=0

DEFINE CLUSTER (NAME(DBSAMP01.RELOAD.DATA1.X00001) -
VOL(*) INDEXED SHR(3 3) -
KEYS(8,5) REUSE -
TRK(1 1) CISZ(512) RECSZ(14 14))
IDC0508I DATA ALLOCATION STATUS FOR VOLUME TST062 IS 0
IDC0509I INDEX ALLOCATION STATUS FOR VOLUME TST062 IS 0
IDC0512I NAME GENERATED-(D) DBSAMP01.RELOAD.DATA1.X00001.DATA
IDC0512I NAME GENERATED-(I) DBSAMP01.RELOAD.DATA1.X00001.INDEX
IDC0181I STORAGECLASS USED IS SCIPRMV
IDC0001I FUNCTION COMPLETED, HIGHEST CONDITION CODE WAS 0

IDC0002I IDCAMS PROCESSING COMPLETE. MAXIMUM CONDITION CODE WAS 0
```

Figure 19. Result of Database Data Set Allocation report

Chapter 4. Reorganizing a HALDB database

To reorganize a HALDB database, you must run several programs. Reorganizing a HALDB database, however, is simpler than reorganizing a non-HALDB database because neither complicated job steps for logical relationships nor secondary indexes are required for HALDB databases.

Topics:

- [“Scenario: Reorganizing a HALDB database” on page 85](#)
- [“Tips for reorganizing partitions individually” on page 86](#)

Scenario: Reorganizing a HALDB database

This scenario demonstrates how to reorganize a HALDB database.

About this task

The following procedure introduces a typical job stream for reorganizing a HALDB database. Some steps are optional.

Tip: If you use IMS HP Unload to unload the database and IMS HP Load to reload the database, you can omit some of the steps in this scenario. For the steps you can omit and for JCL examples to run IMS HP Unload and IMS HP Load, see [“Example 3: Reorganizing a HALDB database by using IMS HP Unload and IMS HP Load” on page 101](#).

Procedure

1. Optional: Back up the partitions you are reorganizing.

The IMS Database Image Copy utility (DFSUDMP0) or IMS High Performance Image Copy creates a copy of each data set group of the old partitions. This is the backup copy of your database. It can be used when something goes wrong during the reorganization process.

Recommendation: This step is not mandatory, however, it is recommended that you always include this step in your reorganization job.

2. Unload the partitions.

The IMS HD Reorganization Unload utility (DFSURGU0) or IMS High Performance Unload creates a sequential data set that contains the old unloaded partitions. You can choose to unload a single partition, a sequence of partitions, or all of the partitions in your database.

3. Optional: Run DBDGEN.

This IMS procedure creates the DBDs for the reorganized database. If you want to change the parameters in your DBD that affect all partitions, you must reorganize all of the partitions of your database.

4. Optional: Change partition definitions.

IMS HALDB Partition Definition utility (DFSHALDB) changes the HALDB partition definitions stored in the DBRC RECON data sets.

5. Optional: Delete then define the partition data sets.

IDCAMS deletes and allocates the partition data sets. For VSAM, you must use the REUSE parameter in the original CLUSTER definition to make this step optional. To switch to the VSAM load mode to improve the performance of the ILDS rebuilding process, specify the REUSE parameter in your ILDS CLUSTER definition, and specify ILDSBLD=YES.

6. Optional: Mark partitions as needing initialization.

The DBRC CHANGE.DB command marks a partition as needing initialization. If you are sure that every partition you are reorganizing will be populated by segments after reload, you can skip this step. If not, mark all partitions you are reorganizing as needing initialization.

7. Run the Physical Sequence Sort for Reload utility.

If you change the partition boundaries during the reorganization, this step is mandatory. Physical Sequence Sort for Reload sorts the unloaded database records so that the partitions are in the order that is required for the subsequent IMS HP Load run.

8. Run IMS HP Load.

If you mark the partitions as needing initialization, specify PARTINIT=YES in your IMS HP Load job.

9. Rebuild the indirect list data set (ILDS).

Rebuild the ILDS by using the IMS HALDB Index/ILDS Rebuild utility (DFSPRECO). This utility creates the ILDS from the HALDB partition data.

If the ILDS is already rebuilt in the IMS HP Load step, you can omit this step.

10. Back up the partitions you have reorganized.

This step creates the first backup copy of the new partitions.

Tips for reorganizing partitions individually

If you choose to reorganize the partitions individually, you can achieve a degree of parallelism in your reorganization process because all of the partition reorganization jobs can run simultaneously. You can reduce the overall reorganization time by running your jobs simultaneously.

In this case, however, you cannot use the partition initialization function during the reload processing that is done by IMS HP Load because other partitions might be being reorganized simultaneously. You need to initialize the partition before the reload processing, and specify PARTINIT=NO in each IMS HP Load job. For the partition initialization processing, you can use IMS HP Load job by specifying a dummy DFSUINPT DD in place of the IMS Database Prereorganization utility (DFSURPRO).

Chapter 5. Reloading user-defined header format records

You can reload database records from an unloaded file that has user-defined header format.

IMS HP Load provides the following two methods to reload such records:

Specifying each element of the header portion

You can specify parameters on the USERHDR control statement according to the contents in the user-defined header format records of the unloaded file.

Using a header conversion routine

You can provide a user header conversion exit routine, convert the user header record to the IMS HD format, and specify the name of the exit routine in the USERHDRX control statement.

The user header conversion routine is intended to be used mainly by system programmers who have good knowledge of IMS database, IMS HP Load, and IMS HP Unload.

Topics:

- [“Restrictions for reloading user-defined header format records” on page 87](#)
- [“Programming interface of user header conversion routine” on page 88](#)

Related reference

[USERHDR control statement](#)

Specifies the name of the element of the header portion of the unloaded record to read the customized unload file.

[USERHDRX control statement](#)

Specifies whether IMS HP Load invokes the user header conversion exit routine.

Restrictions for reloading user-defined header format records

Certain restrictions apply when you reload records that have user-defined header format.

- If you specify the USERHDRX control statement and the SORT control statement at the same time, you must specify one of the following exit routine names on the USERHDRX control statement.

Table 11. Exit routine names and the formats of the unloaded file

Exit routine name	Format of the unloaded file
HPSRCVA3	*A3
HPSRCVA4	*A4
HPSRCVF1	*F1
HPSRCVF2	*F2
HPSRCVF3	*F3
HPSRCVF6	*F6

- If the segment data of unloaded file is in compressed form, you must specify COMPRESS=NO.
- HALDB is not supported.
- Logical relationships are not supported.

Important: If the database has logical relationships, you must use USERHDRX at your own risk.

Requirement: If the unload data set has logical child segments, the unload header, which is generated by the user header conversion exit, must include enough information to resolve logical relationships.

- If the USERHDR control statement is specified, a header or a trailer record must not reside in the unloaded file.
- The Load API is not supported.

Programming interface of user header conversion routine

Use this reference information to create a user header conversion routine.

This topic describes the interface of the IMS HP Load facilities available to system programmers. It is a product-sensitive programming interface. See [“Programming interface information” on page 300](#) to understand the restrictions that are associated with this type of material.

PSPI

The user exit routine is invoked after every reading of segment data from the unloaded data set that has a user-defined header. You should use the user header conversion exit routine to convert a user header record to the IMS HD format.

When the user header conversion routine is specified, IMS HP Load calls the exit routine before reading the first record from the unloaded data set (INIT call). The user header conversion exit must set the length of the user header at the INIT call.

When IMS HP Load starts to read the record from the unloaded data set, the exit routine is invoked after every reading of segment data.

The user exit routine must be coded in Assembler.

The user exit routine must not change the value of the key record.

The user exit routine must be AMODE=31 or RMODE=24.

The library in which the user exit routine is stored must be concatenated to the STEPLIB, JOBLIB, or LINKLIB DD statement.

Subsections:

- [“Register contents upon entry to the user exit” on page 88](#)
- [“Register contents returned from the user header conversion exit” on page 89](#)

Register contents upon entry to the user exit

The following table lists register contents upon entry into a user header conversion exit.

Table 12. Register contents upon entry into a user header conversion exit

Register	Content
1	Parameter list pointer
13	Address of Save Area
14	Return address
15	Entry point address of the user exit

The following table summarizes parameter list pointed to by register 1 upon entry into a user header conversion exit.

Table 13. Parameter list pointed to by register 1 upon entry into a user header conversion exit

Word	Content
1	Address of DBD name (Note)
2	Address of DBD (Note)

Table 13. Parameter list pointed to by register 1 upon entry into a user header conversion exit (continued)

Word	Content
3	Address of user header field (Note)
4	Address of HD record header field (Note)
5	User header information Byte 1–2: Length of user header Byte 3–4: Flag that indicates whether data is compressed or not

Note: The address is NULL when the user exit is called for the first time (INIT call).

A(DBD name)

Address of an 8-byte area that contains the DBD name of the database to be processed. When the INIT is called, this field is null.

A(DBD)

Address of an 8-byte area that contains the DBD name of the database to be processed. When the INIT is called, this field is null.

A(User header field)

Address of a starting point of user header field. When the INIT is called, this field is null.

A(HD record header field)

Address of a starting point of HD record header field. When the INIT is called, this field is null.

User header information

Byte 1–2

This 2–byte field contains the length of the user header. The RDW length is excluded.

Byte 3–4

This 2–byte field contains the following flags:

X'8000'

The data is compressed.

X'4000'

Unload data set has a header or a trailer record.

X'0000'

The data is not compressed.

Register contents returned from the user header conversion exit

The following table shows register contents returned from the user exit routine:

Table 14. Register contents returned from a user exit

Register	Content
15	Return code

At the exit point of the user header conversion exit routine, register 15 must contain one of the return codes shown in the following table.

Table 15. Return codes from the user header conversion exit

Return code	Meaning
0	Successful completion. IMS HP Load uses the segment data pointed to by the second word of the parameter list.

Table 15. Return codes from the user header conversion exit (continued)

Return code	Meaning
4	Skip the header or the trailer record. When the user header conversion exit gets the header or the trailer record, a return code of 4 should be returned.
Others	Force to terminate the Load process. When IMS HP Load gets a nonzero return code from the user header conversion routine, IMS HP Load ends with abend U3717.



Chapter 6. Reloading a corrupted database

You can use IMS High Performance Unload and IMS High Performance Load to unload and reload only the correct segments from a corrupted database.

By using IMS High Performance Unload for z/OS (5655-E06) with the SKIPERROR and the DIAGG options, you can unload a corrupted database by skipping incorrect pointers.

For details about unloading a corrupted database, see the topic about unloading corrupted databases in the *IMS High Performance Unload User's Guide*.

When reloading a database by using an unloaded data set that is created from a corrupted database, you might get a user abend from your IMS HP Load job because duplicated keys remain in the unloaded data set. The following subsections describe how to avoid the user abend in such a case.

Subsections:

- [“Specifying SORTOUTD DD for Physical Sequence Sort for Reload” on page 91](#)
- [“Specifying SEQERROR=SAVE parameter for IMS HP Load” on page 91](#)

Specifying SORTOUTD DD for Physical Sequence Sort for Reload

You can use the Physical Sequence Sort for Reload utility (PSSR) to check the duplication of keys in HDAM root segments. When the SORTOUTD DD is specified in your PSSR job, database records with root key duplication are placed in the SORTOUTD data set. You can review the stored database records to determine which database record to use for the subsequent reload job.

For more information, see the explanation of SORTOUTD DD in [“PSSR JCL requirements” on page 131](#).

Specifying SEQERROR=SAVE parameter for IMS HP Load

You can use the SEQERROR=SAVE parameter and the SEQERROR DD for your IMS HP Load job to check the duplication of keys in all dependent segments and HIDAM root segments. When this parameter is specified, segments with a key duplication and their dependent segments are all placed in the SEQERROR DD data set, and the reload processing continues.

For more information, see [“SEQERROR control statement” on page 56](#).

Chapter 7. User exit interface

By providing a user exit routine, you can perform additional processing or editing of segments during the database reload process.

This topic describes the interface of the IMS HP Load facilities available to system programmers. It is a product-sensitive programming interface. See [“Programming interface information” on page 300](#) to understand the restrictions that are associated with this type of material.

PSPI

If you want to perform additional processing or editing of segments during the database reload, you can provide your own user exit routine. You can code these routines in Assembler, COBOL, or PL/I language. The routine must be link-edited with the REUSE option.

The user exit routine is invoked after every reading of segment data from the HD unloaded data set. You can use the user exit routine to check, modify, delete, and control the placement of segments.

If the segment data is compressed with the DECOMPRESS=NO option specification in the IMS HP Unload job, IMS HP Load calls the segment edit/compression exit routine to decompress the segment data before calling the user exit routine, and calls the segment edit/compression exit routine to compress the segment data after calling the user exit routine. This decompression and compression are performed even if COMPRESS=NO is specified in the FRRIN data set.

If the user exit is written in COBOL or PL/I, it must be run in the Language Environment (LE). You must specify "L" on the INPUT control statement in the FRRIN data set so that IMS HP Load establishes the LE environment by using the preinitialization services. The user exit is invoked by the CEEPIPI *call_sub* function.

The user exit routine can be either AMODE=24 or 31. For the Load API process, the exit routine must be AMODE=31.

The library in which the user exit routine is stored must be concatenated to the STEPLIB DD statement.

Sample user exits

The following sample user exits are available in the HPS.SHPSSAMP data set:

HPSRXAAO

A sample user exit that is written in Assembler language.

HPSRXCC1

A sample user exit that is written in Enterprise COBOL for z/OS.

HPSRXPP1

A sample user exit that is written in Enterprise PL/I for z/OS.

PSPI

Topics:

- [“Parameters for the user exit interface” on page 94](#)
- [“Interface of Assembler user exit routine” on page 96](#)
- [“Interface of Enterprise COBOL for z/OS program user exit routine” on page 96](#)
- [“Interface of Enterprise PL/I for z/OS user exit routine” on page 96](#)

Parameters for the user exit interface

The following information describes the parameters for the user exit interface and register contents upon entry and return from the user exit.

This topic describes the interface of the IMS HP Load facilities available to system programmers. It is a product-sensitive programming interface. See [“Programming interface information” on page 300](#) to understand the restrictions that are associated with this type of material.

PSPI

Subsections:

- [“Register contents upon entry to the user exit” on page 94](#)
- [“Register contents returned from the user exit” on page 95](#)

Register contents upon entry to the user exit

The following tables show register contents upon entry to the user exit routine:

Table 16. Register contents upon entry to a user exit

Register	Content
1	Parameter list pointer
13	Register save area pointer
14	Return address
15	Entry point address of the user exit

Table 17. Parameter list pointed to by register 1 upon entry to a user exit

Word	Content
1	Address of segment name
2	Address of segment data
3	Address of work area
4	Address of DBD name

A(segment name)

Address of a 9-byte area that contains an 8-byte segment name and a 1-byted segment code in hexadecimal. At the end of the user exit routine, the first 8 bytes of the area contain blanks.

A(segment data)

Address of the segment data read from the HD unloaded data set. IMS HP Load always decompresses compressed data before presenting it to the user exit routine.

A(work area)

Address of a segment work area that is large enough to hold the largest possible segment defined in the DBD being used. If a segment length change is required, this area must be used.

The size must be larger than the maximum segment length and smaller than the maximum segment length plus 1024 bytes.

For variable length segments, you must change the segment length (LL field) by the user exit routine to an appropriate size of the segment being modified. The segment length must not exceed the maximum segment length defined in the DBD being used. The amount of segment data moved into the database data set is controlled by the LL field.

For fixed-length segments, the amount of segment data moved into the database data set is controlled by the segment length defined in the DBD. It is your responsibility to initialize the expanded portion of the segment by the user exit routine if the segment length in the DBD has been expanded. If a return code of zero is returned from the user exit routine, IMS HP Load moves unchanged segment data into the database data set, and automatically initializes the expanded portion of the segment with binary zeros.

When changing the value of the sequence field by using a user exit, the sequence of the field itself cannot be changed.

A(DBD name)

Address of an 8-byte area that contains the DBD name of the database to be processed.

Register contents returned from the user exit

The following table shows register contents returned from the user exit routine:

Table 18. Register contents upon return from a user exit

Register	Content
15	Return code

At the exit point of the user exit routine, register 15 must contain the return code so that IMS HP Load can determine the correct process of the segment data. The return code must be one of the codes shown in the following table:

Table 19. Return codes from the user exit

Return code	Meaning
0	Indicates that no segments are to be modified. IMS HP Load uses the segment data pointed to by the second word of the parameter list.
4	Indicates that segments are to be modified. IMS HP Load uses the segment data pointed to by the third word of the parameter list.
8	A segment has been deleted. IMS HP Load skips the data for this segment data. The user exit routine must return the return code 8 for all dependent segments of this segment.
12	A segment and all subsequent segments, have been deleted. IMS HP Load skips this segment and data for all subsequent segments in the same database record.
16	Indicates a request to put an HDAM segment into the overflow area. IMS HP Load puts the segment data into the HDAM overflow area. For the root segment, IMS HP Load puts that root segment and all its subsequent segments in the HDAM overflow area.
20	Indicates a request to put an HIDAM segment into a new block. IMS HP Load puts the segment data into a new block.
100–999	Indicates termination. IMS HP Load ends the loading process and passes this return code back as the job return code. The available return code value is in the range of 100 - 999.



Interface of Assembler user exit routine

When you use an Assembler user exit routine, ensure that the exit routine meets the following requirements.

This topic contains product-sensitive programming interface information. See “Programming interface information” on page 300 to understand the restrictions that are associated with this type of material.

PSPI

- Letter L must not be specified after the user exit name in the FRRIN data set.
- The Assembler user exit routine is simply called by IMS HP Load. The Language Environment is not established.

A sample of this user exit is HPSRXAA0 in the HPS.SHPSSAMP data set.

PSPI

Interface of Enterprise COBOL for z/OS program user exit routine

When you use an Enterprise COBOL for z/OS program user exit routine, ensure that the exit routine meets the following requirements.

This topic contains product-sensitive programming interface information. See “Programming interface information” on page 300 to understand the restrictions that are associated with this type of material.

PSPI

- Letter L must be specified after the user exit name in the FRRIN data set.
- The user exit routine is called in the Language Environment (LE). LE libraries need to be used as follows:
 - SCEERUN is needed during compiling the user exit and running IMS HP Load.
 - SCEELKED is needed during the linkage-edit process of the user exit.
- The return code must be set in RETURN-CODE.
- STOP RUN cannot be used in the program.

A sample of this user exit is HPSRXCC1 in the HPS.SHPSSAMP data set.

PSPI

Interface of Enterprise PL/I for z/OS user exit routine

When you use an Enterprise PL/I for z/OS user exit routine, ensure that the exit routine meets the following requirements.

This topic contains product-sensitive programming interface information. See “Programming interface information” on page 300 to understand the restrictions that are associated with this type of material.

PSPI

- Letter L must be specified after the user exit name in the FRRIN data set.
- The user exit routine is called in the Language Environment (LE). LE libraries need to be used as follows:
 - SCEERUN is needed during compiling the user exit and running IMS HP Load.
 - SCEELKED is needed during the linkage-edit process of the user exit.
- The PL/I user exit routine is loaded dynamically and called by IMS HP Load as a subprogram. It needs to be specified as OPTIONS(FETCHABLE) on the procedure statement in the program. OPTIONS(MAIN) cannot be specified.
- The parameters in the PL/I routine must be declared as pointer variables.

- The PL/I built-in function PLIRETC or LE callable service CEE3SRC can be used to set the return code.
- POSIX(ON) cannot be specified for the LE runtime option.
- Nested or multiple enclaves are not supported. For more information about the nested enclave, see the topic "Using Nested Enclaves" in the *Language Environment Programming Guide*.

A sample of this user exit is HPSRXPP1 in the HPS.SHPSSAMP data set.



Chapter 8. Examples

The following examples present typical effective uses of IMS HP Load.

Topics:

- [“Example 1: As a part of the reorganization process” on page 99](#)
- [“Example 2: Creating an empty database” on page 100](#)
- [“Example 3: Reorganizing a HALDB database by using IMS HP Unload and IMS HP Load” on page 101](#)
- [“Example 4: Creating WFP work data sets to rebuild PSINDEXes” on page 102](#)
- [“Example 5: Reloading an HDAM database in an IMS-managed ACBs environment” on page 103](#)

Example 1: As a part of the reorganization process

The HDAM or HIDAM database reorganization process with no logical relationship consists of three steps. The execution of IMS HP Load is included in one of these steps.

Subsections:

1. [“Database unload step” on page 99](#)
2. [“Allocation step” on page 99](#)
3. [“Database reload step \(using IMS HP Load\)” on page 100](#)

Note: In these steps, DBRC is not used.

Database unload step

The following JCL example is for unloading a VSAM HDAM database.

```
//*-----*
//*      IMS HD REORGANIZATION UNLOAD UTILITY      *
//*-----*
//UNLOAD  EXEC  PGM=DFSRR00,PARM='ULU,DFSURGU0,DBSAMP01,,,,,,,,,N,N'
//STEPLIB DD DSN=IMSESA.RESLIB,DISP=SHR
//DFSRESLB DD DSN=IMSESA.RESLIB,DISP=SHR
//IMS     DD DSN=IMSESA.DBDLIB,DISP=SHR
//DFSURGU1 DD DSN=DBSAMP01.UNLOAD,DISP=(NEW,PASS),
//          SPACE=(CLY,(20,10))
//SYSPRINT DD SYSOUT=A
//SYSUDUMP DD SYSOUT=A
//DBSAMP01 DD DSN=DBSAMP01.DATA1,DISP=OLD
//DFSVSAMP DD *
1024,10
2048,10
4096,10
/*
```

Figure 20. JCL example for unloading an HDAM database

Allocation step

The following JCL example is for allocating a new VSAM database data set.

```

/*-----*
/*      ALLOCATE NEW DATABASE      (DATA : VSAM ESDS)      *
/*-----*
//ALLOC   EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=A
//SYSIN   DD *
DELETE (DBSAMP01.RELOAD.DATA1) CLUSTER
DEFINE CLUSTER -
      (NAME(DBSAMP01.RELOAD.DATA1) NONINDEXED -
      VOL(*) -
      RECORDSIZE (2041,2041) -
      CONTROLINTERVALSIZE (2048) -
      SPEED -
      CYL(20 10))
/*

```

Figure 21. JCL example for allocating a new database data set

Database reload step (using IMS HP Load)

The following JCL example is for reloading a VSAM HDAM database. This reload step also prints statistical reports.

```

/*-----*
/*      IMS HIGH PERFORMANCE LOAD      *
/*-----*
//RELOAD   EXEC PGM=HPSRRC00, PARM='ULU,DFSURGL0,DBSAMP01,,,,,,,,,N,N'
//STEPLIB  DD DSN=HPS.SHPSLMD0,DISP=SHR
//          DD DSN=IMSESA.RESLIB,DISP=SHR
//IMS      DD DSN=IMSESA.DBDLIB,DISP=SHR
//DFSUINPT DD DSN=DBSAMP01.UNLOAD,DISP=(OLD,PASS)
//SYSPRINT DD SYSOUT=A
//SYSUDUMP DD SYSOUT=A
//DBSAMP01 DD DSN=DBSAMP01.DATA1,DISP=OLD
//DFSVSAMP DD *
VSRBF=32768,10
IOBF=(32K,10)
/*
//FRRIN    DD *
SEARCH=-10
/*

```

Figure 22. JCL example for reloading an HDAM database

Example 2: Creating an empty database

There are occasions when you need an empty database, particularly in the online environment. For example, IMS does not allow you to create an HD-type database online. To circumvent this restriction, you create a database offline by inserting one root segment and then deleting it. This method *initializes* the database so that it can be used online.

You can have IMS HP Load perform this *initialization* function by simply modifying JCL statements. Insertion of the following JCL statement creates a usable empty database:

```

//DFSUINPT DD DUMMY

```

If this is an HDAM database, the entire root addressable area is preformatted. This improves online performance when segments are inserted to this database.

If this is an HIDAM database, the database contains a root segment with a key of all X'FF'.

Example 3: Reorganizing a HALDB database by using IMS HP Unload and IMS HP Load

By using IMS HP Unload and IMS HP Load, you can simplify the steps for reorganizing HALDB databases.

A typical scenario for reorganizing a HALDB database is described in [Chapter 4, “Reorganizing a HALDB database,”](#) on [page 85](#). If you use IMS HP Unload and IMS HP Load to reorganize a HALDB database, you can omit some of the steps that are introduced in that scenario.

Use the following JCL example to reorganize a PHDAM database that has some PSINDEXes.

```
//*-----*
/* IMS HIGH PERFORMANCE UNLOAD (FABHURG1)
/*-----*
//HPUL      EXEC  FABHULU,MBR=FABHURG1,DBD=DBSAMP01,DBRC=Y,
//          DBTLMDB=HPS.SHPSLMD0
//SYSPRINT DD  SYSOUT=*
//RECON1    DD  DISP=SHR,DSN=IMSESA.RECON1
//RECON2    DD  DISP=SHR,DSN=IMSESA.RECON2
//RECON3    DD  DISP=SHR,DSN=IMSESA.RECON3
//SYSUT2    DD  DISP=OLD,DSN=DBSAMP01.DATA1
//SYSIN     DD  *
CHECKREC YES
/*
/*-----*
/* DELETE/DEFINE DBDS AND ILDS
/*-----*
//DEFDB     EXEC  PGM=IDCAMS
//SYSPRINT DD  DUMMY
//SYSIN     DD  *
DELETE (DBSAMP01.RELOAD.A00001) CLUSTER
DELETE (DBSAMP01.RELOAD.L00001) CLUSTER
DELETE (DBSAMP01.RELOAD.A00002) CLUSTER
DELETE (DBSAMP01.RELOAD.L00002) CLUSTER

DEFINE CLUSTER (NAME(DBSAMP01.RELOAD.A00001) -
REUSE SPEED NONINDEXED SHR(3 3) -
CISZ(4096) RECSZ(4089 4089) -
VOL(*) CYL(100 100))
DEFINE CLUSTER (NAME(DBSAMP01.RELOAD.L00001) -
REUSE INDEXED KEYS(9,0) SHR(3 3) -
CISZ(4096) RECSZ(50 50) -
VOL(*) CYL(10 10))
DEFINE CLUSTER (NAME(DBSAMP01.RELOAD.A00002) -
REUSE SPEED NONINDEXED SHR(3 3) -
CISZ(4096) RECSZ(4089 4089) -
VOL(*) CYL(100 100))
DEFINE CLUSTER (NAME(DBSAMP01.RELOAD.L00002) -
REUSE INDEXED KEYS(9,0) SHR(3 3) -
CISZ(4096) RECSZ(50 50) -
VOL(*) CYL(10 10))
/*
```

Figure 23. JCL example for reorganizing a PHDAM database by using IMS HP Unload and IMS HP Load (Part 1 of 2)

```

/*-----*
/* IMS HIGH PERFORMANCE LOAD
/*-----*
//HPLOAD EXEC PGM=HPSRRC00,
//          PARM=(ULU,DFSURGL0,DBSAMP01,,,,,,,,,Y)
//STEPLIB DD DISP=SHR,DSN=HPS.SHPSLMD0
//          DD DISP=SHR,DSN=IMSESA.RESLIB
//          DD DISP=SHR,DSN=IMSESA.PGMLIB
//DFSRESLB DD DISP=SHR,DSN=IMSESA.RESLIB
//IMS      DD DISP=SHR,DSN=IMSESA.DBDLIB
//RECON1   DD DISP=SHR,DSN=IMSESA.RECON1
//RECON2   DD DISP=SHR,DSN=IMSESA.RECON2
//RECON3   DD DISP=SHR,DSN=IMSESA.RECON3
//DFSUINPT DD DISP=SHR,DSN=DBSAMP01.DATA1
//SYSPRINT DD SYSOUT=*
//FRRIN    DD *
PARTINIT=YES,UNLOAD
SORT=YES
ILDSBLD=YES,DSPR
/*
//DFSVSAMP DD *
VSRBF=32768,8
IOBF=(32000,8)
//

```

Figure 24. JCL example for reorganizing a PHDAM database by using IMS HP Unload and IMS HP Load (Part 2 of 2)

In this example:

- The CHECKREC YES option is specified for the IMS HP Unload job step. Also, the PARTINIT=YES,UNLOAD option is specified for the IMS HP Load job step. When these two options are specified, you do not need to issue DBRC CHANGE.DB commands for empty partitions (corresponds to Step “6” on page 85 in “Scenario: Reorganizing a HALDB database” on page 85).
- The SORT=YES option is specified for the IMS HP Load job step. When this option is specified, you can omit the Physical Sequence Sort for Reload step (corresponds to Step “7” on page 86 in “Scenario: Reorganizing a HALDB database” on page 85).
- The ILDSBLD=YES,DSPR option is specified for the IMS HP Load job step. When this option is specified, you do not need to rebuild the ILDS after the reorganization (corresponds to Step “9” on page 86 in “Scenario: Reorganizing a HALDB database” on page 85).

Example 4: Creating WFP work data sets to rebuild PSINDEXes

While reloading HALDB databases with IMS HP Load, you can create WFP data sets, which are work data sets for rebuilding PSINDEXes with IMS Index Builder. By using the WFP data sets as input to IMS Index Builder, you can rebuild PSINDEXes without scanning the database.

If the WFPHLQ control statement is specified on the FRRIN DD statement, IMS HP Load generates one WFP data set for each HALDB partition.

The names of the WFP data sets are determined by the parameter that is specified on the WFPHLQ control statement and by the partition names. For example, if you specify WFPHLQ=IMSTOOLS.WORK.HMPORDP1 and if the partition names are PART001 and PART002, the following WFP data sets are created:

```

IMSTOOLS.WORK.HMPORDP1.PART001.WFP
IMSTOOLS.WORK.HMPORDP1.PART002.WFP

```

Use the following JCL example to create WFP data sets.


```

/*-----*
/*      IMS HIGH PERFORMANCE LOAD      *
/*-----*
//RELOAD EXEC PGM=HPSRRC00,
//      PARM='ULU,DFSURGL0,HMPORDP1,,,,,,,,,Y,N'
//STEPLIB DD DISP=SHR,DSN=HPS.SHPSLMD0
//      DD DISP=SHR,DSN=IMSESA.RESLIB
//IMS DD DISP=SHR,DSN=IMSESA.DBDLIB
//IMSDALIB DD DISP=SHR,DSN=IMSESA.MDALIB
//DFSUINPT DD DISP=(OLD,PASS),DSN=DBSAMP01.UNLOAD
//SYSPRINT DD SYSOUT=A
//SYSUDUMP DD SYSOUT=A
//DFSVSAMP DD *
VSRBF=32768,10
IOBF=(32K,10)
/*
//FRRIN DD *
      WPHLQ=IMSTOOLS.WORK.HMPORDP1
      WFPVOLCNT=5
      PARTINIT=YES,UNLOAD
/*

```

Figure 25. JCL example for creating WFP data sets

In this example, the WFP data sets are allocated dynamically. Therefore, HPSRP nnn DD statements, which define the names of the WFP data sets, are not specified.

The WFPVOLCNT control statement is optional. You can specify an appropriate value depending on the availability of the volumes.

Requirements:

- If you are not sure whether the HALDB database contains empty partitions, use the unloaded data set that is created by IMS HP Unload with the CHECKREC=YES option. Otherwise, WFP data sets are not created for empty partitions.
- When you rebuild PSINDEXes with IMS Index Builder, specify the same HLQ value on the WPHLQ statement of IIUIN DD.

Example 5: Reloading an HDAM database in an IMS-managed ACBs environment

When the IMS management of ACBs is enabled, you can reload a database without specifying the DBD library on the IMS DD statement.

Use the following JCL example to reload a database in an IMS-managed ACBs environment.

```

// *-----*
// *      IMS HIGH PERFORMANCE LOAD      *
// *-----*
// RELOAD EXEC PGM=HPSRRC00,PARM=(ULU,DFSURGL0,DBSAMP01,,,,,,,,,Y,N,
//          'DFSDF=CAT')
// STEPLIB DD DISP=SHR,DSN=HPS.SHPSLMD0
//          DD DISP=SHR,DSN=ITKBHLQ.SGLXLOAD
//          DD DISP=SHR,DSN=IMSESA.RESLIB
// PROCLIB DD DISP=SHR,DSN=IMSESA.PROCLIB
// RECON1 DD DISP=SHR,DSN=IMSESA.RECON1
// RECON2 DD DISP=SHR,DSN=IMSESA.RECON2
// RECON3 DD DISP=SHR,DSN=IMSESA.RECON3
// DFSUINPT DD DISP=(OLD,PASS),DSN=DBSAMP01.UNLOAD
// SYSPRINT DD SYSOUT=A
// SYSUDUMP DD SYSOUT=A
// DBSAMP01 DD DISP=OLD,DSN=DBSAMP01.DATA1
// DFSACBPD DD *
// STAGING
// DFSVSAMP DD *
// VSRBF=32768,10
// IOBF=(32K,10)
// *
// FRRIN DD *
// SEARCH=-10
//

```

Figure 26. JCL example for reloading an HDAM database in an IMS-managed ACBs environment

In this example:

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

If all of the following conditions are met, the catalog database must be registered to the RECON data sets:

- DBRC=YES
- Database is a non-HALDB
- IMS DD is not specified

Part 3. Application programming interface for IMS High Performance Load

IMS High Performance Load provides an application programming interface that improves the performance of load processing of your application programs.

Topics:

- [Chapter 9, “Introduction to the Load API,” on page 107](#)
- [Chapter 10, “Operating instructions for using the Load API,” on page 109](#)

Chapter 9. Introduction to the Load API

IMS HP Load provides the Load API (application programming interface). You can use your application program as input to the Load API for initial load processing. The Load API runs initial load processing much faster than that of IMS DL/I.

Typical benefits

The use of the Load API, might benefit an installation by:

- Reducing the time and cost for the initial load process.
- The load API function runs the initial load process much faster than that of IMS DL/I.
- Being also applicable to HALDB.
- Calls that use the Application Interface Block (AIB) are supported.
- The call interface of EXEC DLI is supported.
- You can skip the pre-reorganization job step in the case of a HALDB.
- Having flexible control statements.
- Supporting trace output report.

Chapter 10. Operating instructions for using the Load API

Use the following topics to learn how to use the Load API.

Prerequisite: Before you use the Load API, ensure that your environment is configured for the Load API. For more information, see [“Configuring the environment to use the Load API” on page 19](#).

Topics:

- [“Supported language and environment for Load API” on page 109](#)
- [“Load API restrictions” on page 109](#)
- [“Load API data flow” on page 110](#)
- [“Load API JCL requirements” on page 111](#)
- [“Load API control statements” on page 113](#)
- [“Load API output” on page 115](#)

Supported language and environment for Load API

To use the Load API, the language and the environment must meet the requirements of the Load API.

The following languages are supported for the Load API function:

- Assembler Language
- Enterprise COBOL for z/OS
- Enterprise PL/I for z/OS

The following requirements apply to the Load API environment:

- The library of the application must be specified in the STEPLIB DD statement, and its execution environment must be the Language Environment.
- AMODE=24 and 31, RMODE 24 and ANY are supported.

Prerequisite: Before you use the Load API, ensure that your environment is configured for the Load API. For more information, see [“Configuring the environment to use the Load API” on page 19](#).

Load API restrictions

Certain restrictions apply to using the Load API.

- The load program must specify a PCB with PROCOPT=L or LS.
- The Load API processes only ISRT calls.
- You can insert only one database which has a secondary index per job step.
- It is processed only in the DL/I region.
- It does not support the field level sensitivity.
- If an HDAM database does not define a unique sequence field and the insert rules are 'FIRST' or 'HERE', IMS chains duplicate segments in the reverse order, that is *last in first out*.
- Only command codes D and Null are supported. The V command code can be coded but is ignored.
- The status code does not return in the following cases:
 - I/O error
 - Open error
 - HDAM/PHDAM root key duplication error

- When the randomizer issues RC=04
- Does not support application programs that run under UCF.
- The SEQERROR control statement is ignored. In that case, SEQERROR=ABEND is assumed.
- Specification of USERHDR and USERHDRX are ignored.
- You cannot specify SORTHIDAM=YES.
- If HALDB has a secondary index, the process of Index Builder is required after loading to rebuild the secondary index.
- A logical child of HALDB cannot be inserted.
- The Load API does not support IMS Tools Knowledge Base. You cannot store IMS HP Load reports in the output repository of IMS Tools Knowledge Base when the Load API is used.

Load API data flow

The Load API uses the application program as input. The control statements for the Load API process can be specified in the FRRIN data set.

The following figure shows the data flow of the Load API function.

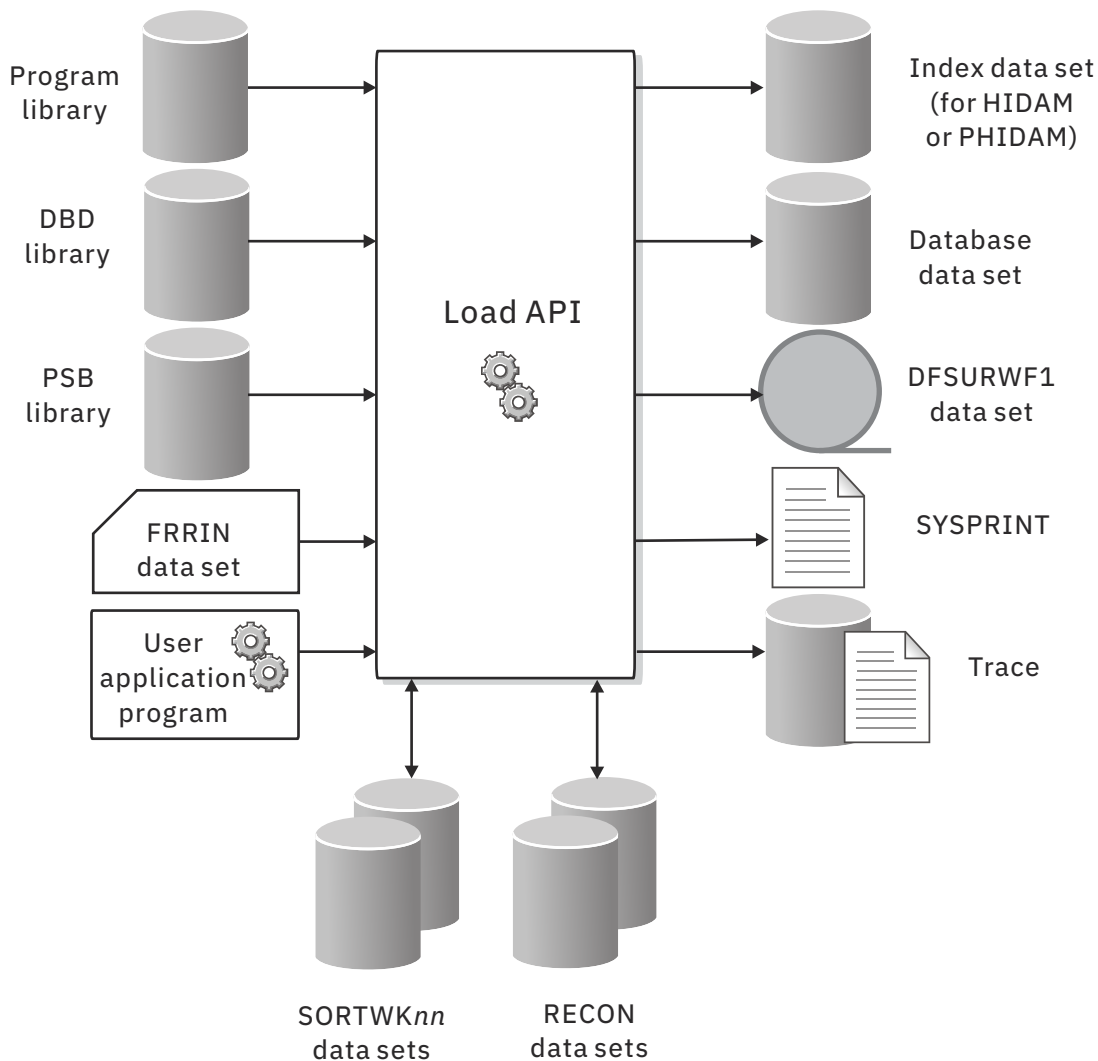


Figure 27. General data flow for the Load API function of IMS HP Load

Load API JCL requirements

To use the Load API, code the EXEC statement and DD statements that satisfy the Load API JCL requirements.

Subsections:

- “EXEC statement and DD statements” on page 111
- “JCL example” on page 113

EXEC statement and DD statements

JCL requirements for running the Load API are shown in the following table.

Table 20. DD Statement for the Load API processing of IMS HP Load

DDNAME	Use	Format	Need
STEPLIB	Input		Required
IMS	Input		Optional
PROCLIB	Input		Optional
DFSACBPD	Input	LRECL=80	Optional
DFSRESLB	Input		Optional
DFSVSAMP	Input		Optional
FRRIN	Input	LRECL=80	Required
SYSPRINT	Output	LRECL=81	Required
SYSOUT	Output	LRECL=121	Optional
HPSRTRAC	Output	LRECL=133	Optional
SORTWKnn	work data set		Optional (Note)

Note: You can specify this data set and adjust the size of work space for the sort process when the SORT=Y control statement is specified.

EXEC

Must be specified in the following format:

```
PGM=HPSRRC00, PARM='DLI,loadpgm,loadpsb'
```

To load a database in an IMS-managed ACBs environment, either modify the EXEC statement or the STEPLIB DD statement as follows:

- Specify an additional EXEC parameter, DFSDF, as shown in the following example:

```
//name EXEC PGM=HPSRRC00, PARM=(DLI,loadpgm,loadpsb,  
//          ,,,,,,,,,Y,N,,,,,,,,,DFSDF=CAT')
```

Replace the 3-character suffix CAT with the suffix of the DFSDFxxx member that enables IMS-managed ACBs.

- Place the IMS Catalog Definition exit routine (DFS3CDX0) in the STEPLIB DD concatenation.

With either method, you must allocate the catalog partition definition data set when reloading a database with DBRC=NO. To do so, add the DFSHDBSC DD statement or the DFSMDA member with the TYPE=CATDBDEF statement.

loadpgm

The name of the application.

loadpsb

The name of the PSB.

You can specify program DFSRRC00 if you do not use functions that require authorization for the STEPLIB DD, such as HPIO or COMPAUTH.

STEPLIB DD

To use the Load API, the names of the libraries that contain the load modules of IMS HP Load, IMS, and the application must be specified. The name of the library that contains the load module of IMS HP Load must be specified before that of IMS.

If you specify HPIO=YES or COMPAUTH=YES, the load module libraries that are specified on the STEPLIB DD must be APF-authorized.

To use the Load API in an IMS-managed ACBs environment, the name of the SGLXLOAD library of IMS Tools Base must also be specified on the STEPLIB DD statement.

IMS DD

To use the Load API, the names of the libraries of DBD and PSB that contain DBD and PSB must be specified.

If the IMS management of ACBs is enabled, the IMS DD statement is ignored.

PROCLIB DD

Points to the IMS.PROCLIB data set. If you specify DFSDF=xxx in the EXEC statement, you must also specify this DD statement and the DFSDFxxx member must exist in the IMS.PROCLIB data set.

DFSACBPD DD

Defines the control statement data set to be used in an IMS-managed ACBs environment. This DD statement is optional. STAGING is the only valid keyword.

When the IMS management of ACBs is enabled, by default, the Load API obtains the active database definition from the IMS catalog directory. To override the default behavior and obtain pending ACBs from the staging data set in the IMS catalog, specify the keyword STAGING on the DFSACBPD DD statement.

If the IMS management of ACBs is not enabled, the DFSACBPD DD statement is ignored.

DFSRESLB DD

Points to an authorized library that contains IMS SVC modules. For an IMS HP Load job, IMSESA.RESLIB and any data set that is concatenated to the DFSRESLB DD statement must be authorized through the Authorized Program Facility (APF). If you do not specify IMSESA.RESLIB in the STEPLIB DD statement or a library that is concatenated to the STEPLIB DD statement is not APF-authorized, the DFSRESLB DD statement is required.

For more information, see *IMS System Definition*.

DFSVSAMP DD

Describes the data set that contains the buffer pool information that is required by the IMS DL/I buffer handler. This statement is optional. For more information about the control statement format, see *IMS Database Administration*.

Note: If the DFSVSAMP DD card is omitted, the DL/I Buffer Pool is not allocated. It is necessary in the case of the HALDB initial load.

SYSPRINT DD

Defines the statistics output data set. This statement is required.

SYSOUT DD

Defines the data set for output messages of the sort function. If this DD statement is not coded, it is dynamically allocated to the SYSOUT stream of the output class that is specified by the MSGCLASS parameter on the JOB statement. This statement is optional.

FRRIN DD

Defines a required data set that contains control statements that specify the functions of IMS HP Load. To use the Load API, one of the following control statements is required:

- LAIPCB
- LAIPCBNO
- LAIPDBD

Control statements USERHDER, USERHDERX, and SEQERROR are ignored in Load API processing.

HPSRTRAC DD

Defines an optional output data set to which trace data is written. This data set contains 133-bytes fixed-length records.

For details, see “TRACE control statement” on page 115.

SORTWKnn DD

These DD statements are for the intermediate storage data sets used by DFSORT. If SORT=YES is specified, you can define these data sets and adjust the size of work space that is used for the sort process. You can specify multiple data sets, *nn* showing its serial number. This specification is optional. If you do not specify the statement, DFSORT allocates the data sets dynamically with the sizes that are estimated based on the size of RAA. If the size of RAA is extremely large or extremely small, specify the SORTWKnn DD explicitly.

For more information about how to code SORTWKnn DD statements, see the *DFSORT Application Programming Guide*.

JCL example

The following figure shows a JCL example for the Load API.

```
//LOADAPI EXEC PGM=DFSRR00,PARM='DLI,loadpgm,loadpsb,REGION=4096K
//STEPLIB DD DISP=SHR,DSN=HPS.SHPSLMD0
// DD DISP=SHR,DSN=IMS.SDFSRESL
// DD DISP=SHR,DSN=HPS.APPLLIB
//DFSRESLB DD DISP=SHR,DSN=IMS.SDFSRESL
//IMS DD DISP=SHR,DSN=PSBLIB
// DD DISP=SHR,DSN=DBDLIB
//PROCLIB DD DSN=PROCLIB,DISP=SHR
//IEFRDER DD DSN=&&IMSLOG,DISP=(,DELETE,DELETE),
// UNIT=SYSDA,SPACE=(TRK,(1,1)),
// DCB=(RECFM=VB,BLKSIZE=4096,
// LRECL=4092,BUFNO=2)
//SYSUDUMP DD DUMMY
//IMSMON DD DUMMY
//SYSPRINT DD SYSOUT=*
//FRRIN DD *
//LAIPCB=TGTPCB
//SORT=YES
/*
```

Figure 28. JCL example to use the Load API

Load API control statements

You can specify the control statements for the Load API in the FRRIN data set in the same manner as are specified in the reload processing.

The control statements in the following table are supported for the Load API.

Table 21. Load API control statements for process control			
Keyword	Accepted values	Default	Description
LAIPCB	<i>pcbname</i>	(none)	Specifies the PCB name that is used for the Load API

Table 21. Load API control statements for process control (continued)

Keyword	Accepted values	Default	Description
LAPIPCBNO	<i>nnnn</i>	(none)	Specifies the PCB number that is used for the Load API
LAPIPDBD	<i>dbdname</i>	(none)	Specifies the DBD name that is used for the Load API
PIPEOWAIT	<i>time</i>	30	Specifies the time limit for waiting the pipe that is being established
TRACE	YES YES, <i>startnumber</i> YES, <i>startnumber</i> ,SNAP YES,,SNAP NO NO,SNAP	NO	Specifies whether to write the trace record

LAPIPCB control statement

Specifies the PCB name that is used for the Load API.

This control statement is optional.

➤ LAPIPCB= *pcbname* ➤

pcbname

Specify the name of the PCB in the PSB that is specified on the EXEC statement. PCB name is the label field or the name that is specified in the PCB statement at PSBGEN.

This control statement is mutually exclusive with LAPIPCBNO and LAPIPDBD control statements.

LAPIPCBNO control statement

Specifies the PCB number that is used for the Load API.

This control statement is optional.

➤ LAPIPCBNO= *nnnn* ➤

nnnn

Specify the number of the PCB in the PSB that is specified on the EXEC statement. The number refers to the order of the DBPCBs, and does not contain I/O PCB or the alternate PCB.

The DBPCB with LIST=NO specification is also counted as a number.

This control statement is mutually exclusive with LAPIPCB and LAPIPDBD control statements.

LAPIPDBD control statement

Specifies the DBD name that is used for the Load API.

This control statement is optional.

➤ LAPIPDBD= *dbdname* ➤

dbdname

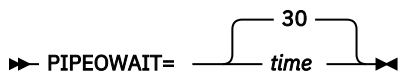
Specify the name of the DBD to which the PCB used for the Load API refers.

If there are multiple PCBs that refer to the same DBD, the PCB specified in the higher position in the PCB list is used.

This control statement is mutually exclusive with LAPIPCB and LAPIPCBNO control statements.

PIPEOWAIT control statement

Specifies the time limit, in which the pipe manager stays in a wait state until the session of the pipe connection is established completely. If it exceeds the limit, IMS HP Load ends abnormally.



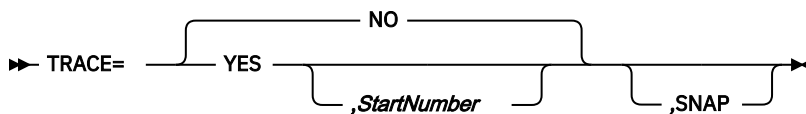
time

Specify the time limit by seconds, in which the pipe manager is in a wait state. You can specify a value in the range of 30 - 3600 (1 hour). If you do not specify this control statement, PIPEOWAIT=30 is used.

TRACE control statement

Specify where to write the trace data.

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



YES

Writes the trace records.

StartNumber

Specifies the starting number of the calls to be traced. If you specify 100, the trace records of the calls from 100th to the last are displayed.

NO

Does not write the trace records.

SNAP

Displays information of function code, I/O area, and SSAs about the last function that was processed in the application program. They are displayed in the Application Abend Snap report when the application ends abnormally.

To define the output location for the trace record, specify HPSRTRAC DD. To write the trace on the output stream, specify as follows:

```
//HPSRTRAC DD SYSOUT=*
```

To write it on the data set that is specified in HPSRTRAC DD, specify as follows:

```
//HPSRTRAC DD DISP=(NEW,CATLG),DSN=HPLD.SAMPLE01.TRACE,  
// UNIT=SYSDA,SPACE=(CYL,(1,1)),VOL=SER=VOL001,  
// DCB=(DSORG=PS,RECFM=FBA,LRECL=133,BLKSIZE=133)
```

The required size for the data set depends on the number of calls.

Load API output

The output from the Load API includes status codes, the Trace Output report, and the Application Abend Snap report.

Status codes

The Load API returns status code to user application program for each ISRT call.

The following table shows the status codes that are generated by the Load API for ISRT calls. The status codes are similar to the status codes of IMS.

Table 22. Status codes of the Load API

Status code	Description
AC	The specification of segment is incorrect in SSAs. It is not in a hierarchical sequence.
AH	Required SSA is missing.
AJ	One of the following errors occurred: <ul style="list-style-type: none">• Unsupported command code is specified in the PCB• Incorrect SSA format was encountered• The I/O area length in AIB is incorrect
AK	Incorrect field name is specified in SSA.
AM	Only ISRT can be called. The call function is not compatible with the processing option, segment sensitivity, transaction code, definition, or the program type.
FM	The target partition is not found. The key that is supplied on a DL/I call to a HALDB was greater than the high key value for the last partition, or the user's partition selection exit returned RC=04 after having been passed a key value with which to select a partition. This status code is not returned if the randomizer returns RC=04.
LB	Segment being loaded already exists in the database.
LC	The key field of segments is out of sequence.
LD	No parent for this segment has been loaded.
LE	The hierarchical sequence is not the same as the DBD sequence.
LF	An attempt was made to load a logical child segment in either a HALDB PHDAM or a PHIDAM database.
TI	Incorrect system DIB (command-level only). This status code is returned only when the EXEC DLI is used.
TP	Incorrect number for PCB or incorrect processing option (command-level only). This status code is returned only when the EXEC DLI is used.
V1	Segment length exceeds the limits of DBDGEN.
V2	Segment length is not valid (command-level only). This status code is returned only when the EXEC DLI is used.
V4	Length of variable-length segment is not valid (command-level only). This status code is returned only when the EXEC DLI is used.
\$1	Too many parameters are detected in the call.
bb	The call was successful.

Trace Output report

If you specify TRACE=YES in the FRRIN data set and run, the trace information is produced in the HPSRTRAC DD.

The following figure shows an example of the Trace Output report.

IMS HIGH PERFORMANCE LOAD										"TRACE OUTPUT"										PAGE: 1	
5655-M26																				10/01/2020 22.00.35	
*** SEGMENT COUNT= 1,000,001 ***																					
DBD = PHD00100 PCB = PCB001 PARTITION = PHD001A SEGMENT NAME = DEP2LEV3 SEGMENT CODE = 003																					
SEGM-DATA 09425C32 0020F0F0 F0F0F0F0 F0F2C4C5 D7F2F0F0 F0F0F0F0 F0F20000 00000000 5CC5D5C4										*										00000002DEP200000002 *END*	
*** SEGMENT COUNT= 1,000,002 ***																					
DBD = PHD00100 PCB = PCB001 PARTITION = PHD001A SEGMENT NAME = DEP3LEV2 SEGMENT CODE = 004																					
SEGM-DATA 09425C8F 0064F0F0 F0F0F0F0 F0F1C4C5 D7F3F0F0 F0F0F0F0 F0F10000 00000000 F0F0F0F0										*										00000001DEP300000001 0000*	
09425CAF 00000000 00000000 00000000 0000F0F0 F0F00000 00000000 00000000 00000000										*										0000 *	
09425CCF 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000										*										*	
09425CEF 5CC5D5C4																				**END *	
*** SEGMENT COUNT= 1,000,003 ***																					
DBD = PHD00100 PCB = PCB001 PARTITION = PHD001A SEGMENT NAME = DEP3LEV2 SEGMENT CODE = 004																					
SEGM-DATA 09425D30 0064F0F0 F0F0F0F0 F0F2C4C5 D7F3F0F0 F0F0F0F0 F0F20000 00000000 F0F0F0F0										*										00000002DEP300000002 0000*	
09425D50 00000000 00000000 00000000 0000F0F0 F0F00000 00000000 00000000 00000000										*										0000 *	
09425D70 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000										*										*	
09425D90 5CC5D5C4																				**END *	
*** SEGMENT COUNT= 1,000,004 ***																					
DBD = PHD00100 PCB = PCB001 PARTITION = PHD001A SEGMENT NAME = DEP4LEV2 SEGMENT CODE = 005																					
SEGM-DATA 09425D01 F0F0F0F0 F0F0F0F1 C4C5D7F4 F0F0F0F0 F0F0F0F1 F0F20000 00000000 F0F0F0F0										*										00000001DEP40000000102 0000*	
09425DF1 00000000 00000000 00000000 00005CC5 D5C4																				*END *	

Figure 29. Trace Output report

SEGMENT COUNT

The number of the segment which IMS HP Load processed.

DBD

The DBD name of the database referred to by the PCB.

PCB

The PCB name.

PARTITION

The partition name. (printed only for HALDB)

SEGMENT NAME

The segment name.

SEGMENT CODE

The segment code.

SEGM-DATA

Data that is returned in the I/O area. This data gives the virtual storage addresses of the data that is traced on the right. The data might consist of multiple lines, each showing 32 bytes of data in hexadecimal and EBCDIC format.

KEYFEEDB

Data that is returned in the key feedback area. This data gives the virtual storage addresses of the data that is traced on the right. There might be multiple lines, each showing up to 32 bytes of data in hexadecimal and EBCDIC format.

Application Abend Snap report

This report contains information for problem determination of the application program. When the application ends abnormally, this report is produced in the HPSRTRAC DD. It displays information about the last function that was processed in the application program.

The following figure shows an example of the Application Abend Snap report.

STATUS CODE = LC										
APPL-PCB	00097C68	C8C9C4D4	D6E2F1F0	F0F2D3C3	D3E24040	00097C30	C4C5D7F1	D3C5E5F2	0000000C	*HIDM501002LCLS @ DEP1LEV2 *
	00097C88	00000005	F0F0F0F0	F0F0F0F1	F0F0F1F0					* 000000010010 *
FUNCTION CODE = ISRT										
I/O AREA	RETRIEVED	LENGTH (HEX) = 0000001E								
I/O AREA	0017FADC	001EF0F0	F1F0C4C5	D7F1D3C5	E5000000	00000000	00000000	00000000	0000	* 0010DEP1LEV *
SSA-01	0017FB06	E2404040	40404040	5C604DD9	F0F0D2C5	E84040C5	D8F0F0F0	F0F0F0F0	F15D	*S *(R00KEY EQ00000001) *
SSA-02	0017FB30	E2404040	D7F1D3C5	D3C5E5F2	40					*DEP1LEV2 *

Figure 30. Application Abend Snap report

This report includes the following information:

STATUS CODE

The status code that is returned in the PCB.

APPL-PCB

The PCB that is used by the application program.

FUNCTION CODE

The function code that is passed from the application program.

I/O AREA RETRIEVED LENGTH (HEX)

The length of the I/O area that is retrieved by IMS HP Load, in hexadecimal format.

I/O AREA

The I/O area that is passed from the application program. If the length of the I/O area is longer than 32 KB, the first 32 KB of data is displayed.

SSA-*nn*

The SSAs that are passed from the application program.

Notes:

- FUNCTION CODE, I/O AREA, and SSA-*nn* are displayed only when the SNAP option is specified on the TRACE control statement.
- If the application program abends by a parameter list error (status AH or \$1), or a functional incompatibility (status AM), the Load API function does not display the information about the I/O area or the SSAs.

Part 4. Physical Sequence Sort for Reload

The Physical Sequence Sort for Reload (PSSR) utility sorts an unloaded database data set to reduce the elapsed time that is required to reload the database.

Topics:

- [Chapter 11, “Introduction to Physical Sequence Sort for Reload,” on page 121](#)
- [Chapter 12, “Sorting an unloaded database data set with PSSR,” on page 125](#)
- [Chapter 13, “PSSR user exit,” on page 159](#)
- [Chapter 14, “PSSR usage examples,” on page 165](#)

Chapter 11. Introduction to Physical Sequence Sort for Reload

The Physical Sequence Sort for Reload utility (PSSR) sorts an unloaded database data set created from an HDAM, PHDAM, HIDAM, PHIDAM, HISAM, or a SHISAM database. The utility helps preventing cascading for an HDAM or a PHDAM database and produces reports about database sizes and randomizer performance.

Considerations before using PSSR

The following considerations apply due to the changes made to IMS High Performance Load 2.1.

If you reload an HDAM or a PHDAM database by using IMS High Performance Load 2.1 or later, the input data must be in the order of hexadecimal value *bbbbbbrr* that represents the result of randomizing module conversion. *bbbbbb* is the block number and *rr* is the RAP number.

This change was made because direct I/O during the reload process was eliminated to improve performance in IMS High Performance Load 2.1. In order to eliminate direct I/O, data must be sorted in sequence before loading occurs. You can specify the SORT control statement in the FRRIN data set to sort the unloaded data in the reload step. Instead of using the SORT control statement, you can run PSSR before reloading. For details about the SORT control statement, see [“SORT control statement” on page 57](#).

The SORTOUT2 data set cannot be used to prevent cascading. The data set cannot be used, by IMS High Performance Load 2.1 or later, as an input for reload. To prevent cascading and avoid degradation of performance in reloading, it is recommended that you use the SORT=YES and the SEARCH=-nnn parameter instead of using PSSR. If you reload an HDAM or a PHDAM by using the IMS HD Reorganization Reload utility, you can use the SORTOUT2 data set to prevent cascading.

The following topics provide information about Physical Sequence Sort for Reload.

Topics:

- [“Program functions of PSSR” on page 121](#)
- [“Typical benefits of PSSR” on page 123](#)

Program functions of PSSR

PSSR sorts an unloaded database data set to prevent cascading and generates reports that summarize database sizes and randomizer performance. The utility also provides support for HALDBs.

Subsections:

- [“Sorting an unloaded database data set” on page 121](#)
- [“Preventing cascading” on page 122](#)
- [“Providing reports for tuning analysis” on page 122](#)
- [“Providing support for HALDB” on page 122](#)

Sorting an unloaded database data set

PSSR is used to sort an unloaded database data set that is produced by any one of the following unload utilities:

- IMS HD Reorganization Unload utility (DFSURGU0)
- Unload utilities of IMS High Performance Unload
- IPR Unload utility of IMS Database Reorganization Expert

The resulting output data set is in physical sequence. The output data set is used as input to the following reload utilities:

- IMS HD Reorganization Reload utility (DFSURGL0)
- IMS HP Load utility of IMS High Performance Load
- IPR Reload utility of IMS Database Reorganization Expert
- IMS System Utilities/Data Base Tools (DBT) Version 2 Fast Reorganization Reload (FRR)

When this output data set is used as input, disk arm movement during the reload process is minimized, which can significantly reduce the elapsed time that is required to reorganize a database. Such a reduction in reload time can often offset the cost of running PSSR, especially when the unloaded database data set is not in physical sequence. (If you change any randomization parameters during the reorganization process, the unloaded database will not be in physical sequence.)

Preventing cascading

PSSR can also be used to help prevent *cascading*. Cascading might occur when an HDAM database is loaded in physical hierarchical sequence. A database on which cascading has occurred has many database records stored in blocks that are near (but not equal to) their home blocks. Accessing a root segment that is not stored in its home block might require multiple physical input/output operations, which can sometimes cause a degradation of database performance.

When IMS loads a database record (a root segment plus all its dependents), it attempts to put the entire record into its home block. If the home block becomes filled, the remaining segments in that record will *spill* into nearby blocks. Other records that randomize to a filled block will also spill into nearby blocks.

Loading records in physical sequence can propagate this effect, causing blocks to be filled with records that randomized to previous blocks. As each database record being loaded finds its home block full, it can spill to a higher block. This can cause the higher block to get full before any of its own root segments are loaded. Such a situation can cascade throughout the loading process.

Whether cascading occurs or not depends on the particular data that is in your database. It can, for example, be caused by a relatively small number of long database records that happen to randomize to the same block.

PSSR helps to avoid the cascading of root segments during reorganization. It does so by loading some database records at the end of the reload, instead of loading them in their normal physical sequence.

Important: If you reload a database by using IMS High Performance Load for z/OS 2.1, you cannot use PSSR to prevent cascading. To prevent cascading and avoid degradation of performance in reloading, it is recommended that you use the SORT=YES and the SEARCH=-nnn parameter instead of using PSSR. When the non-zero byte limit value is specified for your database, you must specify 'NO' in columns 51-52 of your control statement. Otherwise, IMS HP Load 2.1 ends abnormally with message HPSR3630E. For more information, see [“FABSPSSR CTL data set” on page 139](#) or [“FABSPSSI CTL data set” on page 143](#).

Providing reports for tuning analysis

PSSR produces several reports that describe database record sizes and randomizer performance. These reports can help you conduct performance and tuning analysis.

Providing support for HALDB

Beside the basic functions for non-HALDB databases, PSSR provides the following functions for HALDBs:

Sorting an unloaded database data set of HALDB

You can apply the sorting function to the entire or selected partitions of database data sets unloaded from a PHDAM or a PHIDAM database. The database data sets are unloaded by the IMS HD Reorganization Unload utility (DFSURGU0) or the unload utilities of IMS High Performance Unload.

By the use of PSSR, the contents of unloaded database data sets are sorted in the sequence of the partition selections and in physical sequence within a partition. The sequence of partition selection

is the sequence in partition high key or another sequence specified by the user-supplied partition selection exit.

By using the unloaded database data set after it is sorted, you can avoid the waste that otherwise occurs while IMS HP Load is reloading the HALDB.

Preventing cascading in each partition of HALDB

PSSR helps preventing cascading within a partition. After sorting as many records into the home block as will fit there, PSSR puts the remaining records to the output data set.

Important: If you reload a database by using IMS High Performance Load 2.1, you cannot use PSSR to prevent cascading. To prevent cascading and avoid degradation of performance in reloading, it is recommended that you use the SORT=YES and the SEARCH=-nnn parameter instead of using PSSR. When the non-zero byte limit value is specified for your database, you must specify 'NO' in columns 51-52 of your control statement. Otherwise, IMS HP Load 2.1 ends abnormally with message HPSR3630E. For more information, see [“FABSPSSR CTL data set” on page 139](#) or [“FABSPSSI CTL data set” on page 143](#).

Providing reports of each partition of HALDB

For each partition, PSSR generates not only the usual by-database reports, but also the by-partition reports which include:

- Record Size Distribution report
- Assigned Roots per Block report
- Assigned Roots per RAP report

PSSR also produces a HALDB process summary report, a summary of information about the partition processed.

Typical benefits of PSSR

Physical Sequence Sort for Reload sorts an unloaded database data set that is produced for an HDAM database to reduce the elapsed time that is required to reload the database. It also generates reports that help you conduct performance and tuning analysis.

The PSSR utility offers the following benefits:

Reduces elapsed time to reload a database

- Converting database organization to HDAM-type
 - Non-HDAM to HDAM
 - Non-PHDAM to PHDAM
- Converting database organization to HIDAM-type
 - Non-HIDAM to HIDAM
 - Non-PHIDAM to PHIDAM
- Converting database organization to HISAM-type
 - Non-HISAM to HISAM
 - Non-SHISAM to SHISAM
- Changing HDAM randomization parameters (HDAM/PHDAM)
- Changing partition selection exit or High key of HALDB
- Adding or deleting partitions of HALDB

Helps prevent cascading

PSSR helps to avoid the cascading of root segments during reorganization. It does so by loading some database records at the end of the reload, instead of loading them in their normal physical sequence.

Important: If you reload a database by using IMS High Performance Load 2.1, you cannot use PSSR to prevent cascading. To prevent cascading and avoid degradation of performance in reloading, it is recommended that you use the SORT=YES and the SEARCH=-nnn parameter instead of using PSSR.

Helps conduct performance and tuning analysis

PSSR helps you conduct performance and tuning analysis by generating the following reports:

- Reports about database record sizes
- Reports about DBD parameters
- Reports about randomization

Chapter 12. Sorting an unloaded database data set with PSSR

You can run PSSR to sort an unloaded database data set in the order of physical sequence.

Topics:

- [“Restrictions of PSSR” on page 125](#)
- [“Program structure and data flow of PSSR” on page 125](#)
- [“Reorganizing a database and using PSSR to sort the unloaded data set” on page 127](#)
- [“PSSR JCL requirements” on page 131](#)
- [“PSSR FABSPSSR input” on page 136](#)
- [“PSSR FABSPSSI input” on page 141](#)
- [“PSSR output” on page 148](#)

Restrictions of PSSR

Certain restrictions apply to using the PSSR utility.

- PSSR can process an HDAM, HIDAM, HISAM, SHISAM, PHDAM, and a PHIDAM database.
- The user exit function and the IMS/ESA Year 2000 Exit Tool are supported only when PSSR runs in IMS.
- PSSR does not support any randomizer that refers to IMS control blocks, when it runs in non-IMS batch.
- PSSR does not support the segment whose key is edited by a Segment Edit/Compression exit.
- If the format of the unloaded file is *CS, PSSR does not support DBD whose segment name is different from DBD used by unload.

Program structure and data flow of PSSR

PSSR runs in a batch environment; either IMS batch environment or non-IMS batch environment.

Non-IMS batch environment

In a non-IMS batch environment, the following two DFSORT exit routines are used:

- FABSRT15 is an E15 exit routine that receives control once for each input record before the record is handled by DFSORT. It appends a block number and a root anchor point (RAP) number to each record in the unloaded database data set.
- FABSRT35 is an E35 exit routine that receives control once for each output record after the record is handled by DFSORT. It removes the block number and RAP number (that were appended by FABSRT15) from each record in the sorted unloaded database data set.

PSSR is executed by adding a DFSORT step between the unload and reload steps in a normal database reorganization job.

The following figure shows the general data flow for PSSR in a non-IMS batch environment. In addition to supplying input through the SYSIN and CTL (user's requests) data sets, use also the DBDs to control the operation of FABSRT15 and FABSRT35.

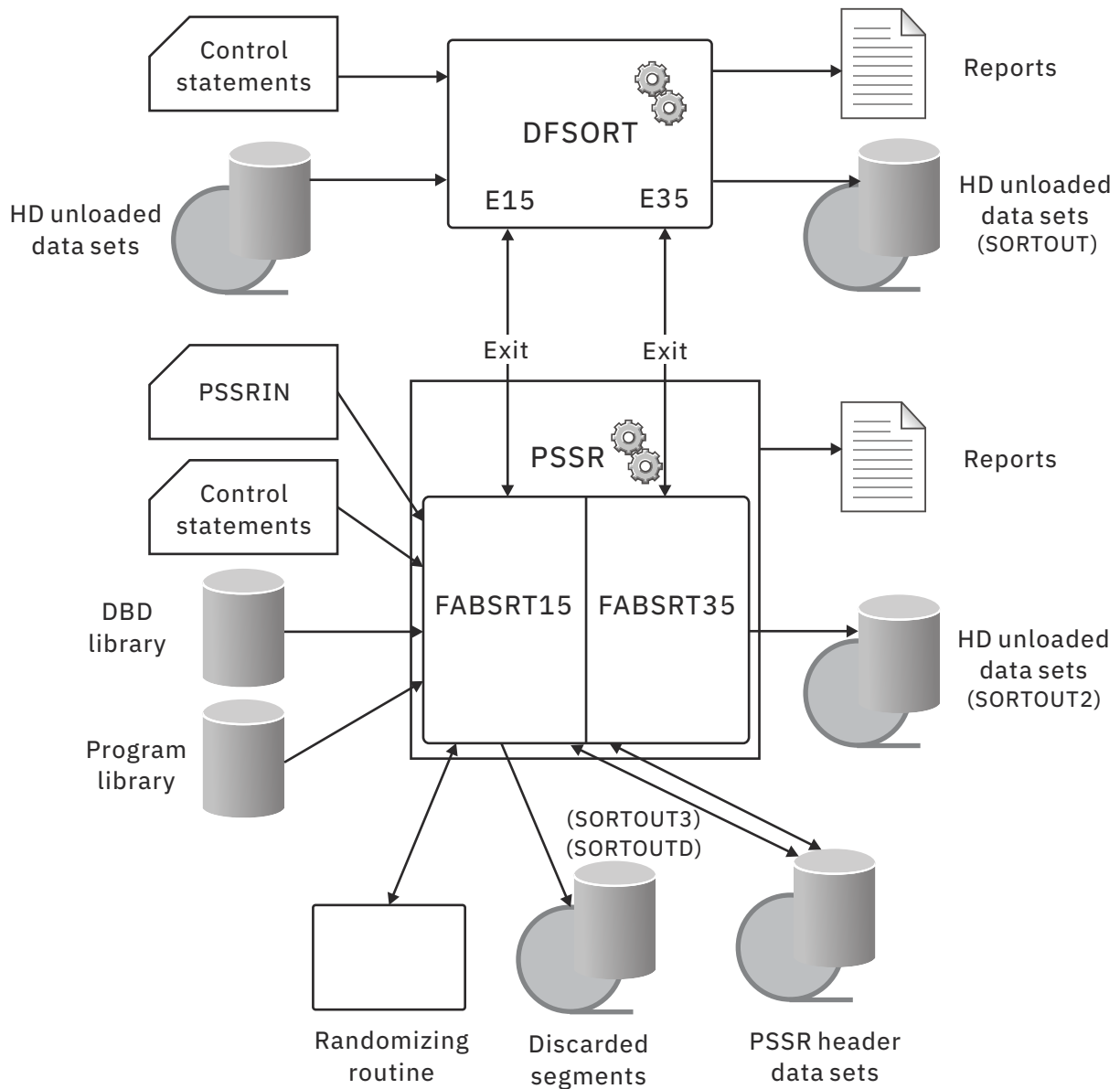


Figure 31. Data flow for PSSR in non-IMS batch environment

IMS batch environment

In an IMS batch environment, the PSSR main module FABSMAIN is specified in the PGM parameter in the EXEC statement. FABSMAIN invokes the DL/I region controller DFSRRC00 and DFSORT program with PSSR sort exit routines.

The following figure shows the general data flow for PSSR in the IMS batch environment.

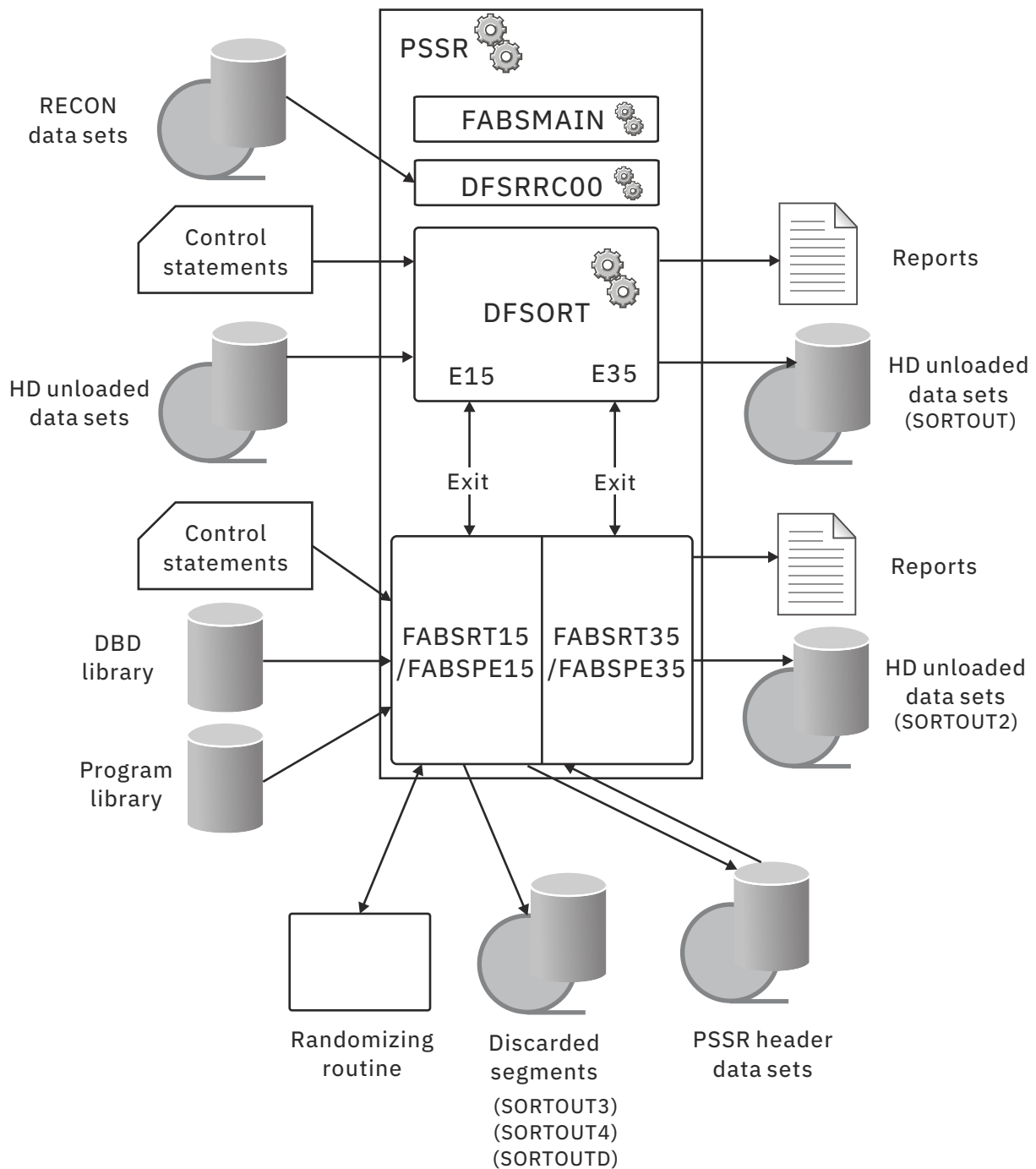


Figure 32. Data flow for PSSR in IMS batch environment

Reorganizing a database and using PSSR to sort the unloaded data set

You can include a PSSR job step in your reorganization job to sort the unloaded data set during the reorganization process.

Before you begin

Several considerations apply to using the output of PSSR as an input to IMS High Performance Load for z/OS 2.1 or later. For details, see [“Considerations before using PSSR” on page 121](#).

Procedure

To use PSSR, you must run several programs. These programs can be run in either a single job or in several jobs. A typical PSSR job stream contains some or all of the following steps:

Recommendation: Always include steps “1” on page 128 and “13” on page 129 in the PSSR job that actually performs a database reorganization. Use of other steps depends on the logical relationships involved.

Note: For information about using IMS utilities, see *IMS Database Utilities*.

1. Run the IMS Database Image Copy utility (DFSUDMP0) to create a copy of each old database before reorganization.

These image copies are the backup copies of your databases. These backup copies can be used if something goes wrong in the reorganization process.

2. Run the IMS Database Prereorganization utility (DFSURPRO) to create a control data set (DFSURCDS).

This control data set is used by other IMS logical relationship resolution utilities. The DFSURPRO utility also indicates which databases and segments (if any) need to be scanned by the IMS Database Scan utility.

3. Run the IMS Database Scan utility (DFSURGS0) to scan any databases not being loaded or reorganized for segments that contain logical relationships that are affected by loading or reorganizing other databases.

For each segment of this type, the utility generates one or more output records, depending upon the relationships in which that segment is involved. It generates an output work data set that will be used by the IMS Database Prefix Resolution utility.

4. Run the IMS HD Reorganization Unload utility (DFSURGU0) or an equivalent program such as unload utilities of IMS High Performance Unload to create a sequential data set that contains old unloaded databases.
5. Run the DBDGEN procedure.

This IMS procedure creates DBDs for the new reorganized databases. You must assemble and link-edit the new DBDs.

6. Run the PSSR utility.

When PSSR is run in either an IMS environment or a non-IMS environment, it sorts the unloaded database data set in physical sequence.

Note: The only difference between a standard database reorganization job and a database reorganization job that is done by PSSR is the addition of this step.

Running a PSSR job includes the following tasks:

- a) Select the IBM supplied cataloged procedure to use, or prepare a similar procedure of your own.

There are two ways to run PSSR, and the following two catalog procedures are provided:

FABSPSSR

Use the FABSPSSR procedure if you want to run the PSSR job as a standard (non-IMS) MVS batch job.

FABSPSSI

Use the FABSPSSI procedure if you want to run the PSSR job as a batch job using the IMS environment.

For the contents of these cataloged procedures, see [“FABSPSSR and FABSPSSI JCL procedures” on page 129](#).

- b) Code the JCL for the PSSR step.
- c) Code the input data for the PSSR programs.
- d) Run the PSSR job.
- e) Interpret the output reports to verify that the process completed successfully.

7. Run the IDCAMS program to delete old database data sets and allocate new database data sets.
8. Run the IMS HD Reorganization Reload utility (DFSURGL0) or an equivalent program such as IMS HP Load to reload the database from the sequential data set that is created by the IMS HD Reorganization Unload utility or an equivalent utility.

This step also creates work data sets that are used as input to logical relationship resolution utilities.

9. Run the IMS Database Prefix Resolution utility (DFSURG10) to accumulate the information that is generated in work data sets (DFSURCDS and DFSURWF1).

It produces an output data set (DFSURWF3) that contains the prefix information that is needed to complete the logical relationships defined for the databases. It also produces an output data set (DFSURIDX) that contains information that is needed to create secondary index databases.

10. Run the IMS HISAM Reorganization Unload utility (DFSURUL0) to format the index work data set (DFSURIDX) to a form that can be used by the IMS HISAM Reorganization Reload utility.
11. Run the IMS HISAM Reorganization Reload utility (DFSURRL0) to create the secondary index databases from the reorganized output data sets provided by the IMS HISAM Reorganization Unload utility.
12. Run the IMS Database Prefix Update utility (DFSURGP0) to update the prefix of each segment of which prefix information is affected by the reload process.

The utility uses the output (DFSURWF3) from the IMS Database Prefix Resolution utility to update the prefix of each segment.

13. Run the IMS Database Image Copy utility (DFSUDMP0) to create a copy of each new database.

These copies are the first backup copies of the new databases.

FABSPSSR and FABSPSSI JCL procedures

The following two figures show the contents of the FABSPSSR JCL procedure and the FABSPSSI JCL procedure.

```

//          PROC CYL=1,                                00010000
//          DBDLIB='IMSVS.DBDLIB',                      <<-----< 00020000
//          DBTLIB='HPS.SHPSLMD0',                      00030000
//          RNDLIB='IMSVS.RESLIB',                      <<-----< 00040000
//          SRTLIB='SYS1.SORTLIB',                      00050000
//          UNIT=SYSDA,                                00060000
//          SVOL=XXXXXX,                                <<-----< 00070000
//          SUNT=SYSDA,                                00080000
//          IMSHDUN='UNLOAD.FILE'                      00090000
//*----- 00100000
//*  IMS HIGH PERFORMANCE LOAD VERSION 2 (5655-M26)    00110000
//*  PHYSICAL SEQUENCE SORT FOR RELOAD                00120000
//*----- 00130000
//STEPHD EXEC PGM=SORT,REGION=2048K                  00140000
//STEPLIB DD DSN=DSNAME=&SRTLIB,DISP=SHR              00150000
//IMS DD DSN=DSNAME=&DBDLIB,DISP=SHR                  DBD LOAD MODULE 00160000
//IMS2 DD DSN=DSNAME=&RNDLIB,DISP=SHR                  HDAM RANDOMIZING ROUTINE 00170000
// DD DSN=DSNAME=&DBTLIB,DISP=SHR                      HPS PSSR EXIT ROUTINES 00180000
//SORTIN DD DSN=DSNAME=&IMSHDUN,DISP=(OLD,PASS) INPUT UNLOADED DATA BASE 00190000
//SORTOUT DD DSN=DSNAME=&&UNLSRT,                      OUTPUT UNLOADED DATA BASE 00200000
//          DISP=(NEW,PASS,DELETE),                      PART 1 OF 2 00210000
//          SPACE=(CYL,(&CYL)),                          00220000
//          UNIT=&SUNT,VOLUME=SER=&SVOL                  00230000
//SORTOUT2 DD DSN=DSNAME=&&UNLSRT2,                      OUTPUT UNLOADED DATA BASE 00240000
//          DISP=(NEW,PASS,DELETE),                      PART 2 OF 2 00250000
//          SPACE=(CYL,(&CYL)),                          00260000
//          UNIT=&SUNT,VOLUME=SER=&SVOL,DCB=&IMSHDUN      00270000
//SYSOUT DD SYSOUT=*                                  SORT MESSAGES 00280000
//PR8 DD SYSOUT=*                                    FABSR15 REPORTS 00290000
//PR9 DD SYSOUT=*                                    FABSR35 REPORT 00300000
//PR9X DD SYSOUT=*                                    FABSR35 REPORT 00310000
//SYSUDUMP DD SYSOUT=*                                00320000
//SORTWK01 DD UNIT=&UNIT,SPACE=(CYL,(&CYL))             WORKFILE FOR DFSORT 00330000
//SORTWK02 DD UNIT=&UNIT,SPACE=(CYL,(&CYL))             WORKFILE FOR DFSORT 00340000
//SORTWK03 DD UNIT=&UNIT,SPACE=(CYL,(&CYL))             WORKFILE FOR DFSORT 00350000
//SORTWK04 DD UNIT=&UNIT,SPACE=(CYL,(&CYL))             WORKFILE FOR DFSORT 00360000
//SORTWK05 DD UNIT=&UNIT,SPACE=(CYL,(&CYL))             WORKFILE FOR DFSORT 00370000
//SORTWK06 DD UNIT=&UNIT,SPACE=(CYL,(&CYL))             WORKFILE FOR DFSORT 00380000
//HDHEADER DD DSN=&&HEADER,                              WORKFILE FOR HPS PSSR 00390000
//          DISP=(NEW,PASS,DELETE),                      00400000
//          UNIT=SYSDA,SPACE=(TRK,(1)),DCB=BLKSIZE=60    00410000
//*----- 00420000
//*  THIS PROC REQUIRES THE USER TO SUPPLY 2 ADDITIONAL DD STATEMENTS: 00430000
//*  SYSIN ... CONTAINS 3 OR 4 DFSORT CONTROL STATEMENTS 00440000
//*  CTL ..... CONTAINS 1 HPS CONTROL STATEMENT         00450000
//*----- 00460000

```

Figure 33. FABSPSSR JCL procedure

```

//FABSPSSI PROC CYL=1,                                00010000
//      DBDLIB='IMSVS.DBDLIB',                        00020000
//      DBTLIB='HPS.SHPSLMD0',                        00030000
//      RESLIB='IMSVS.RESLIB',                        00040000
//      RNDLIB='IMSVS.RESLIB',                        00050000
//      SRTLIB='SYS1.SORTLIB',                        00060000
//      UNIT=SYSDA,                                    00070000
//      SVOL=XXXXXX,                                    00080000
//      SUNT=3390,                                      00090000
//      IMSHDUN='UNLOAD.FILE'                        00100000
//*-----
//*  IMS HIGH PERFORMANCE LOAD VERSION 2 (5655-M26)    00110000
//*  PHYSICAL SEQUENCE SORT FOR RELOAD                00130000
//*-----
//STEPHD EXEC PGM=FABSMAN,REGION=4096K                00140000
//STEPLIB DD DSN=&SRTLIB,DISP=SHR                     00150000
//      DD DSN=&RESLIB,DISP=SHR                       00160000
//      DD DSN=&DBTLIB,DISP=SHR                       00170000
//IMS      DD DSN=&DBDLIB,DISP=SHR                     DBD LOAD MODULE 00180000
//IMS2     DD DSN=&RNDLIB,DISP=SHR                     00190000
//DFSRESLB DD DSN=&RESLIB,DISP=SHR                     00200000
//SORTIN   DD DSN=&IMSHDUN,DISP=(OLD,PASS) INPUT UNLOADED DATA BASE 00210000
//SORTOUT  DD DSN=&UNLSRT,                             OUTPUT UNLOADED DATA BASE 00220000
//      DISP=(NEW,PASS,DELETE),                        PART 1 OF 2 00230000
//      SPACE=(CYL,(&CYL)),                            00240000
//      UNIT=&SUNT,VOLUME=SER=&SVOL                     00250000
//SORTOUT2 DD DSN=&UNLSRT2,                             OUTPUT UNLOADED DATA BASE 00260000
//      DISP=(NEW,PASS,DELETE),                        PART 2 OF 2 00270000
//      SPACE=(CYL,(&CYL)),                            00280000
//      UNIT=&SUNT,VOLUME=SER=&SVOL                     00290000
//      DCB=&IMSHDUN                                    00300000
//SYSOUT   DD SYSOUT=A                                00310000
//PR8      DD SYSOUT=A                                SORT MESSAGES 00320000
//PR9      DD SYSOUT=A                                FABSR15 REPORTS 00330000
//PR9X     DD SYSOUT=A                                FABSR35 REPORT 00340000
//PR10     DD SYSOUT=A                                FABSR35 REPORT 00350000
//SYSPRINT DD SYSOUT=A                                FABSR35 REPORT 00360000
//SYSUDUMP DD SYSOUT=A                                IMS MESSAGES 00370000
//SORTWK01 DD UNIT=&UNIT,SPACE=(CYL,(&CYL))            WORKFILE FOR DFSORT 00380000
//SORTWK02 DD UNIT=&UNIT,SPACE=(CYL,(&CYL))            WORKFILE FOR DFSORT 00390000
//SORTWK03 DD UNIT=&UNIT,SPACE=(CYL,(&CYL))            WORKFILE FOR DFSORT 00400000
//SORTWK04 DD UNIT=&UNIT,SPACE=(CYL,(&CYL))            WORKFILE FOR DFSORT 00410000
//SORTWK05 DD UNIT=&UNIT,SPACE=(CYL,(&CYL))            WORKFILE FOR DFSORT 00420000
//SORTWK06 DD UNIT=&UNIT,SPACE=(CYL,(&CYL))            WORKFILE FOR DFSORT 00430000
//HDHEADER DD DSN=&HEADER,                             WORKFILE FOR HPS PSSR 00440000
//      DISP=(NEW,PASS,DELETE),                        00450000
//      UNIT=SYSDA,SPACE=(TRK,(1)),DCB=BLKSIZE=60     00460000
//*-----
//*  THIS PROC REQUIRES THE USER TO SUPPLY 1 ADDITIONAL DD STATEMENT: 00470000
//*  CTL... .. CONTAINS AT LEAST 1 HPS CONTROL STATEMENT 00480000
//*-----
//* 00490000
//* 00500000
//* 00510000
//* 00520000

```

Figure 34. FABSPSSI JCL procedure

Related reference

PSSR usage examples

There are many ways to use PSSR. The examples that are given here represent some of the typical tasks that PSSR can perform. By studying and understanding these examples, you can learn the techniques to use and to reorganize your own databases with PSSR.

PSSR JCL requirements

To run a PSSR job, code the EXEC statement and DD statements that satisfy PSSR JCL requirements.

There are two ways to run PSSR:

- As a standard (non-IMS) MVS batch job (FABSPSSR procedure)
- As a batch job using the IMS environment (FABSPSSI procedure)

These two procedures require different JCL.

The following table lists the DD statements. Explanations of the JCL parameters follow the table.

Table 23. DD statements for PSSR

DDNAME	Use	Format	Needed in MVS Batch?	Needed in IMS environment?
STEPLIB	Input	PDS	Required	Required
SORTIN	Input	RECFM=VB	Required	Required
SORTCNTL	Input	LRECL=80	Not Applicable	Optional
SYSIN	Input	LRECL=80	Required	Not Applicable
CTL	Input	LRECL=80	Required	Required
PSSRIN	Input	LRECL=80	Optional	Optional
IMS	Input	PDS	Required	Optional
IMS2	Input	PDS	Required	Required
PROCLIB	Input	PDS	Not applicable	Optional
DFSACBPD	Input	LRECL=80	Not applicable	Optional
SORTOUT	Output		Required	Required
SORTOUT2	Output		Optional	Optional
SORTOUT3	Output		Optional	Optional
SORTOUT4	Output		Not Applicable	Optional
SORTOUTD	Output		Optional	Optional
<i>Output partition data set</i>	Output		Not Applicable	Optional
SYSOUT	Output	SYSOUT	Required	Required
PR8	Output	LRECL=133	Required	Required
PR9	Output	LRECL=133	Required	Required
PR9X	Output	LRECL=133	Required	Required
PR10	Output	LRECL=133	Not Applicable	Optional
SYSUDUMP	Output	SYSOUT	Optional	Optional
SORTWKnn	Work data set		Required	Required
HDHEADER	Work data set	BLKSIZE=60	Required	Required
RECONx	Input/Output		Not Applicable	Optional
DFSRESLB	Input	PDS	Not Applicable	Optional
SYSPRINT	Output	SYSOUT	Not Applicable	Optional

EXEC

This statement must be in one of the following forms:

- For an MVS batch

```
// EXEC PGM=SORT,REGION=xxxxK
```

- For an IMS environment batch

```
//      EXEC  PGM=FABSMMAIN,REGION=xxxxK,
           PARM=(DBRC=x,IMSPLEX=IMSpIex_name,DBRCGRP=ccc,DFSDF=xxx)
```

Specify FABSMMAIN as the program name. The name is mandatory for the IMS environment. The PARM parameter is optional, and its keyword are:

DBRC=Y | N

Specifies whether the PSSR uses DBRC.

Y

DBRC is used.

N

DBRC is not used unless the DBRC=FORCE option is specified during IMS system generation.

If you run the PSSR in an IMS-managed ACBs environment, this parameter must be specified.

If this parameter is not specified when processing a HALDB, PSSR uses DBRC.

IMSPLEX=IMSpIex_name

Specifies the 1- to 5-character IMSplex name that is used by IMS DBRC SCI Registration.

DBRCGRP=ccc

Specifies the 3-character DBRC group identifier that is used by IMS DBRC SCI Registration.

DFSDF=xxx

Specifies the suffix of the DFSDFxxx member that enables IMS-managed ACBs.

For HALDB processing, an IMS environment batch is required.

STEPLIB DD

This statement defines the data set that contains PSSR, DFSORT, and IMS program modules.

If you specify the use of DATXEXIT or a segment edit/compression exit for PSSR, you must include it in this data set.

If the input database is a HALDB that uses a partition selection exit, you must include the partition selection exit routine in the input RECON definitions in this data set.

To use the PSSR in an IMS-managed ACBs environment, the name of the SGLXLOAD library of IMS Tools Base must also be specified on the STEPLIB DD statement.

SORTIN DD

This input data set is the sequential data set that contains the unloaded database. It is created by the IMS HD Reorganization Unload utilities or an equivalent program. The acceptable format of unloaded database data set is HD, *SH format, or the communication industry standard format (*CS). *CS or *SH format data set is created by the unload utilities of IMS High Performance Unload. The record format must be VB no matter whether the data is fixed or variable in length.

Restriction: The *CS format is not supported if the input DBD is defined as a HALDB.

SYSIN DD

This input data set is required only for MVS batch. This input data set contains DFSORT control statements. It is not needed in the IMS environment.

SORTCNTL DD

This input data set is optional in the IMS environment. It contains DFSORT control statements. It is not needed for MVS batch.

CTL DD

This input data set contains your specification of the processing to be done by PSSR. It specifies the databases that will be reloaded, and it can contain requests you want to make for the database or partitions of HALDB.

PSSRIN DD

This input data set contains your specification for an unloaded file format, a user exit, and a DATXEXIT for PSSR.

User exit and DATXEXIT are not applicable to MVS batch.

IMS DD

This input data set is a library that contains your DBD load modules. It must contain the DBD of the database being reloaded.

If the IMS management of ACBs is enabled, the IMS DD statement is ignored.

IMS2 DD

This input data set is a library that contains the PSSR routines, user-supplied HDAM randomizing routines, user-supplied partition selection exit routines that are specified in the CTL control statement, and user-supplied user exit routines.

If the PSSR job runs under the MVS batch environment, FABSRT15, FABSRT35, and other PSSR modules must be included in the IMS2 data set.

Requirement: If you specify any of the partition selection parameters in a PSSR CTL statement, you must include the partition selection exit routine in the IMS2 data set.

PROCLIB DD

Points to the IMS.PROCLIB data set. If you specify DFSDF=xxx in the EXEC statement, you must also specify this DD statement and the DFSDFxxx member must exist in the IMS.PROCLIB data set.

DFSACBPD DD

Defines the control statement data set to be used in an IMS-managed ACBs environment. This DD statement is optional. STAGING is the only valid keyword.

If the IMS management of ACBs is enabled, by default, PSSR obtains the active database definition from the IMS catalog directory. To override the default behavior and obtain the pending ACBs from the staging data sets in IMS catalog, specify the keyword STAGING on the DFSACBPD DD statement.

If the IMS management of ACBs is not enabled, the DFSACBPD DD statement is ignored.

SORTOUT DD

This output data set is a sequential data set that contains most (or all) of the unloaded database records. Its format must be identical to that of the SORTIN data set. It contains all of the database segments that are intended to be completely loaded into the root addressable area. These database records are sorted into their physical sequence (as it will be after the database is reloaded).

For HALDB, this output data set contains all of the segment records that are not put into output partition data sets. The records are stored in groups of partitions in the order of the partition selection sequence.

The records are stored in a partition in the order of physical sequence.

The partition selection sequence is in high key sequence or in another sequence that is specified by the user-supplied partition selection exit.

SORTOUT2 DD

This output data set is the sequential data set that contains all of the unloaded database records that are not in the SORTOUT data set. These records must be in the same format as they were on the SORTIN data set.

For HDAM, this data set cannot be used as an input for the reload processing that is done by IMS High Performance Load for z/OS 2.1 or later. For details, see [“Considerations before using PSSR” on page 121](#).

For PHDAM, this data set is used as a work data set for PSSR. You must not reload the segments in this data set. Rather, define this data set as a temporary data set in your PSSR job step when you process HALDB.

For HIDAM or PHIDAM, no data is contained in this data set.

If the SORTOUT3 data set is specified, the database records whose root segment received a return code 4 from the randomizing routine are written into the SORTOUT3 data set instead of this data set.

SORTOUT3 DD

This optional data set is a sequential data set that contains database records whose root segment received a return code 4 from the randomizing routine. These records must be in the same format as they were in the SORTIN data set.

Following is an example of this statement for the IBM supplied cataloged procedure that is shown in Figure 33 on page 130.

```
//SORTOUT3 DD DSNAME=&&UNLSRT3,DISP=(NEW,PASS,DELETE),  
//          SPACE=(CYL,(&CYL)),UNIT=&SUNIT,  
//          VOLUME=SER=&SVOL,DCB=&IMSHDUN
```

SORTOUT4 DD

This optional output data set is unique to HALDB. It is a sequential data set that contains database records of root segments that received a nonzero return code from the partition selection. These records must have the same format as in the SORTIN data set.

SORTOUTD DD

This output data set is optional. If it is specified and the root key is defined as unique in the DBD, PSSR checks the root key duplications and stores the duplicated database records into this data set. These records must have the same format as in the SORTIN data set.

Output partition data set DD

This output data set is optional and unique to HALDB. It is a sequential data set that contains all the segment records that must be reloaded into a partition. The name of DD is the partition name that is defined in RECON data sets.

By specifying the DD names for all partitions of your HALDB, you can split your unloaded database data set into a set of partition data sets.

SYSOUT DD

This output data set contains the messages that are produced by DFSORT.

PR8 DD

This output data set contains the reports that are produced by PSSR. The partition information is printed for HALDB. If BLKSIZE is coded on the DD statement, it must be a multiple of 133.

PR9 DD

This output data set contains reports that are produced by PSSR. The partition information is printed for HALDB. If BLKSIZE is coded on the DD statement, it must be a multiple of 133.

PR9X DD

This output data set contains reports that are produced by PSSR. The partition information is printed for HALDB. If BLKSIZE is coded on the DD statement, it must be a multiple of 133.

PR10 DD

This output data set is optional and unique to HALDB. It contains the reports that are produced by PSSR. If BLKSIZE is coded on the DD statement, it must be a multiple of 133.

SYSUDUMP DD (or SYSABEND)

This DD statement defines output from a system abend dump routine. The statement is used only for debugging, when a dump is required.

SORTWKnn DD

These DD statements are for intermediate storage data sets used by DFSORT. See the *DFSORT Application Programming Guide* for more information about how to code SORTWKnn DD statements.

HDHEADER DD

This DD statement is for an intermediate data set that is created by module FABSRT15 or FABSPE15, and used by module FABSRT35 or FABSPE35. If BLKSIZE is coded on the DD statement, it must be a multiple of 60.

RECON1 DD, RECON2 DD, RECON3 DD

These DD statements are for the RECON data sets. The DD statements are required when PSSR processes HALDB and when RECON data sets are not allocated dynamically.

DFSRESLB DD

This input data set is required in the IMS environment. It contains the IMS load modules.

SYSPRINT DD

This output data set is required in the IMS environment. It contains the messages that are issued by IMS.

PSSR FABSPSSR input

The input data sets differ by the two cataloged procedures. Use the following topics to locate the control statement information for the MVS batch environment (FABSPSSR procedure).

The following input data sets are used in the MVS batch environment, typically by the FABSPSSR procedure:

- SYSIN data set
- CTL data set
- PSSRIN data set

FABSPSSR SYSIN data set

The SYSIN data set contains DFSORT program control statements. These control statements define the type of sort operation to be performed and the sort control fields to be used.

Subsections:

- [“Format” on page 136](#)
- [“SORT control statement” on page 137](#)
- [“MODS control statement” on page 137](#)
- [“END control statement” on page 137](#)
- [“RECORD control statement” on page 137](#)

Format

This control data set usually resides in the input stream. However, it can be defined as a sequential data set or as a member of a partitioned data set. It usually contains 80-byte fixed-length records. This data set must not be defined as RECFM=U.

The SYSIN data set can be coded as shown in the following example. Three control statements (SORT, MODS, and END) are required. You can also add a RECORD control statement to optimize performance.

Important: Do not change the values underlined in this example.

```
//SYSIN      DD *  
SORT FIELDS=(5,20,BI,A),FILSZ=En  
MODS E15=(FABSRT15,50000,IMS2,N),E35=(FABSRT35,50000,IMS2,N)  
END  
/*
```

Figure 35. SYSIN data set format

For a HIDAM, HISAM, or SHISAM database, specify a SYSIN data set as shown in the following example.

Important: Do not change the values underlined in this example.

```
//SYSIN      DD  
SORT FIELDS=(5,XXX,BI,A),FILSZ=En  
MODS E15=(FABSRT15,50000,IMS2,N),E35=(FABSRT35,50000,IMS2,N)  
END  
/
```

Figure 36. SYSIN data set format for HIDAM, HISAM, and SHISAM databases

Where XXX is KEYLEN + 10.

SORT control statement

Describes the control fields (in the input records) on which the program will sort.

The SORT control statement is a required control statement, and must conform to the following rules:

- The FIELDS=(5,20,BI,A) operand is required. It must be coded as shown in [Figure 35 on page 136](#).
- The FIELDS=(5,20,BI,A) operand is required for an HDAM database. For a HIDAM, HISAM, or SHISAM database, the FIELDS operand must be:

```
FIELDS=(5,XXX,BI,A)
```

Where XXX is KEYLEN + 10.

It must be coded as in [Figure 36 on page 136](#).

- The FILSZ=En operand is optional. It helps optimize DFSORT main storage and intermediate storage allocation/use. n is the estimated number of records to be sorted.

MODS control statement

Associates the PSSR program modules with specific exits (E15 and E35) in the DFSORT program.

The MODS control statement is a required control statement.

Code as shown in [Figure 35 on page 136](#).

END control statement

The END control statement causes DFSORT to discontinue reading the SYSIN data set.

The END control statement is a required control statement.

RECORD control statement

The RECORD control statement provides record length and type information.

The RECORD control statement is an optional control statement.

- The TYPE=V operand is optional. It indicates that the records to be sorted are EBCDIC variable-length. It must be coded as shown in the following figure.
- Because the records being sorted are variable-length, the optional LENGTH operand can be used to optimize performance. See the *DFSORT Application Programming Guide* for more information about how to code the parameters l1, l2, l3, l4, and l5 on the LENGTH operand.

```
//SYSIN      DD *
SORT        FIELDS=(5,20,BI,A),FILSZ=En
RECORD      TYPE=V,LENGTH=(11,12,13,14,15)
MODS        E15=(FABSRT15,50000,IMS2,N),E35=(FABSRT35,50000,IMS2,N)
END
/*
```

Figure 37. SYSIN data set format (RECORD control statement)

FABSPSSR PSSRIN data set

The PSSRIN control data set contains your specifications for a data compression of *CS format unloaded data set and checking trailer for PSSR.

Subsections:

- [“Format” on page 138](#)
- [“COMPRESSED control statement” on page 138](#)

- [“CHKTRAIL control statement” on page 138](#)

Format

PSSRIN usually resides in the input stream. However, it can be defined either as a sequential data set or as a member of a partitioned data set. It must contain exactly one 80-byte fixed-length record. BLKSIZE, if coded, must be a multiple of 80. The PSSRIN data set can be coded as shown in the following example.

```
//PSSRIN DD
COMPRESSED=YES
CHKTRAIL=NO
/
```

Figure 38. PSSRIN data set format

COMPRESSED control statement

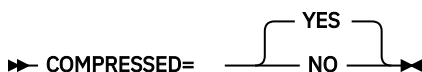
Specifies whether the input unloaded records in *CS format are to be compressed by a segment edit/compression exit or not.

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

This control statement is effective only when all of the following conditions are met:

- The format of the unloaded database data set is *CS.
- Data compression is specified in the DBD.
- The DBD is defined as a non-HALDB.

If the listed conditions do not apply, then this statement is ignored.



YES

Specifies that the input unloaded data set is in *CS format and the data is compressed. PSSR assumes the input unloaded records as compressed.

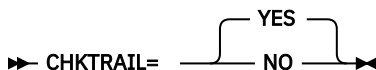
NO

Specifies that the input unloaded data set is in *CS format and the data is not compressed.

CHKTRAIL control statement

Specifies whether to check if a trailer record exists in *HD or *SH format of the unload data set.

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



YES

Specifies that the existence of the trailer record is checked. Segment count in the trailer record is also checked.

NO

Specifies that the existence of trailer record is not checked.

FABSPSSR CTL data set

The CTL data set contains the control statements which describe the processing to be done by PSSR. It includes the name of the database to be reloaded, along with any optional user requests.

Subsections:

- “Format” on page 139
- “Record format” on page 139

Format

This data set usually resides in the input stream. However, it can be defined either as a sequential data set or as a member of a partitioned data set. It must contain exactly one 80-byte fixed-length record. BLKSIZE, if coded, must be a multiple of 80. The CTL data set can be coded as shown in the following figure.

```
//CTL DD *
PARTSDBD
/*
```

Figure 39. CTL data set format

Record format

There is only one record type in the CTL data set.

```

1-----11-----20-----29---34---41---46---51-----58-62-65-----80
dbdname    mod      rbn      anch blk    kstr klen  bytes  rng -  num
                                NO      0    ALL

```

Position

Description

1

This required 8-character field contains the (left-aligned) name of the DBD for the database to be reloaded.

11

This optional 8-character field contains the (left-aligned) name of a user-supplied randomizing module that is used to store and access segments in this HDAM database. It is used to override the (default) DBD value. The randomizing module must have the capability of AMODE=31.

Module FABSRT15 does not establish an IMS environment because it is a sort exit. Consequently, when control is passed to the user-supplied randomizing module, registers 0 and 7 do not point to the IMS control blocks. Each points to a dummy block of 100 bytes, which are initialized to binary zeros. The other interface registers, 1, 9, 13, 14, and 15, are used in PSSR as they are used in IMS.

20

This optional 7-digit field contains the maximum relative block number value that a randomizing module might produce for this database. This value determines the number of control intervals or blocks in the root addressable area of an HDAM database. It must be an unsigned decimal integer. (Use leading zeros, if necessary.) This field is used to override the (default) DBD value.

29

This optional 3-digit field contains the number of RAPs desired in each control interval or block in the root addressable area of an HDAM database. It must be an unsigned decimal integer. (Use leading zeros, if necessary.) This field is used to override the (default) DBD value.

34

This optional 5-digit field contains the database block size (or control interval size). It must be an unsigned decimal integer. (Use leading zeros, if necessary.) This field is used to override the (default) DBD value.

41

This optional 3-digit field lists the starting position of the key field in terms of bytes relative to the beginning of the segment. It must be an unsigned decimal integer. (Use leading zeros, if necessary.) The starting position for the first byte of a fixed-length segment is 001. This field is used to override the (default) DBD value.

46

This optional 3-digit field lists the length of the root segment's key field in bytes. It must be an unsigned decimal integer. (Use leading zeros, if necessary.) This field is used to override the (default) DBD value.

51

This optional field is used to override the (default) DBD value and prevent cascading.

If the non-zero byte limit value is specified for your database and you are going to reload the database by IMS HP Load 2.1, you must specify 'NO' in this field. Otherwise, IMS HP Load 2.1 ends abnormally with message HPSR3630E. To prevent cascading and avoid degradation of performance in reloading, it is recommended that you use the SORT=YES and the SEARCH=-nnn parameter instead of using PSSR. (For more information about preventing cascading, see [“Example 2: Preventing cascading” on page 167.](#))

The following entries can be made:

5-digit number

The maximum number of bytes of a database record that can be stored into the root addressable area in a series of inserts unbroken by a call to another database record. If you reload a database without using IMS HP Load 2.1, cascading can be prevented when you specify the number of bytes which is less or equal to the available space. The number must be an unsigned decimal integer. (Use leading zeros, if necessary.)

NO

There is no limit on the maximum number of bytes of a database record that can be inserted into this database's root segment addressable area. No attempt to prevent cascading is made. (This entry must be left-aligned.)

58

This optional 3-digit field lists the range size to be used for the histogram in the Record Size Distribution report. It must be an unsigned decimal integer. (Use leading zeros, if necessary.) The default is 050.

62

This optional entry can contain any of the following codes:

-

The Record Sizes report or the Record Size Distribution report is not printed.

0

No data is to be sorted. (The run only prints the reports.)

Blank

The Record Size Distribution report is printed.

65

This optional entry is the maximum number of database record sizes that can be printed in the Record Sizes report. It is used to control the size of the report. The following entries can be made:

number

This number must be a 6-digit unsigned decimal integer. (Use leading zeros, if necessary.)

Blank

The Record Sizes report is not printed.

ALL

All database record sizes are printed on the Record Sizes report.

The parameters at positions 34 and 51 are not effective for HIDAM, HISAM, and SHISAM databases.

PSSR FABSPSSI input

The input data sets differ by the two cataloged procedures. Use the following topics to locate the control statement information for the IMS environment (FABSPSSI procedure).

The following input data sets are used in the IMS environment, typically by the FABSPSSI procedure:

- SORTCNTL data set
- CTL data set
- PSSRIN data set

FABSPSSI SORTCNTL data set

Use this data set only when you want to specify your own values of sort control statement in DFSORT.

The SORTCNTL data set is used only in an IMS environment.

If you do not specify SORTCNTL, PSSR sets default values for DFSORT as follows:

Important: Do not change the values underlined in these examples.

HDAM

```
SORT FIELDS=(5,20,BI,A),FILSZ=E9400000  
MODS E15=(FABSRT15,50000,,N),E35=(FABSRT35,50000,,N)
```

HIDAM, HISAM, or SHISAM:

```
SORT FIELDS=(5,nnn,BI,A),FILSZ=E9400000  
MODS E15=(FABSRT15,50000,,N),E35=(FABSRT35,50000,,N)
```

PHDAM

```
SORT FIELDS=(25,2,BI,A,5,20,BI,A),FILSZ=E9400000  
MODS E15=(FABSPE15,50000,,N),E35=(FABSPE35,50000,,N)
```

PHIDAM

```
SORT FIELDS=(5,nnn,BI,A),FILSZ=E9400000  
MODS E15=(FABSPE15,50000,,N),E35=(FABSPE35,50000,,N)
```

Where *nnn* is the length of the root key plus 10.

Format

This control data set usually resides in the input stream. It can, however, be defined as a sequential data set or as a member of a partitioned data set. It usually contains 80-byte fixed-length records. Do not specify RECFM=U.

The format is as follows:

```
//SORTCNTL DD *  
SORT FIELDS=(25,2,BI,A,5,20,BI,A),FILSZ=En  
MODS E15=(FABSPE15,50000,,N),E35=(FABSPE15,50000,,N)  
END  
/*
```

FABSPSSI PSSRIN data set

The PSSRIN control data set contains your specifications for a user exit, DATXEXIT, data compression of *CS format, and checking trailer for PSSR.

These specifications are effective when PSSR runs in the IMS environment.

Subsections:

- [“Format” on page 142](#)
- [“USEREXIT control statement” on page 142](#)
- [“DATXEXIT control statement” on page 142](#)
- [“COMPRESSED control statement” on page 143](#)
- [“CHKTRAIL control statement” on page 143](#)

Format

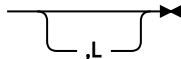
PSSRIN usually resides in the input stream. However, it can be defined either as a sequential data set or as a member of a partitioned data set. It must contain exactly one 80-byte fixed-length record. BLKSIZE, if coded, must be a multiple of 80. The PSSRIN data set can be coded as follows:

```
//PSSRIN DD *
USEREXIT=UEXPGMA,L
DATXEXIT=YES
COMPRESSED=YES
/*
```

USEREXIT control statement

Specifies whether PSSR invokes a user exit routine.

This control statement is optional. If you do not specify this control statement, no user exit routine is invoked.

➤ USEREXIT= — *exitname* 

exitname

The name of a user exit routine. Specify this operand if you use the exit interface of PSSR. The specified exit routine must reside in the IMS2 DD data set.

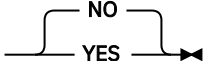
L

Specify this operand only if the user exit routine is to be run under an environment of LE (Language Environment). This option is effective when the user exit routine is written in Enterprise COBOL for z/OS or Enterprise PL/I for z/OS. This option is not effective for Assembler.

DATXEXIT control statement

Specifies whether PSSR invokes a data conversion exit routine.

This control statement is optional. If you do not specify this control statement, PSSR does not activate the data conversion exit.

➤ DATXEXIT= 

YES

Activates the data conversion exit.

NO

Deactivates the data conversion exit.

The conjunction of the DATXEXIT using of unload utilities of IMS High Performance Unload, PSSR, and IMS HP Load must be one of the following:

Reorganization in the stored form

Specify NO for all three jobs.

Reorganization in the application view form

Specify YES for all three jobs.

COMPRESSED control statement

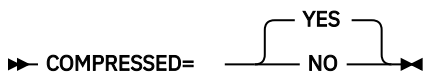
Specifies whether the input unloaded records in *CS format are to be compressed by a segment edit/compression exit or not.

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

This control statement is effective only when all of the following conditions are met:

- The format of the unloaded database data set is *CS.
- Data compression is specified in the DBD.
- The DBD is defined as a non-HALDB.

If the listed conditions do not apply, then this statement is ignored.



YES

Specifies that the input unloaded data set is in *CS format and the data is compressed. PSSR assumes the input unloaded records as compressed.

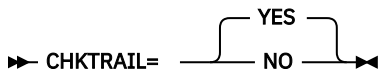
NO

Specifies that the input unloaded data set is in *CS format and the data is not compressed.

CHKTRAIL control statement

Specifies whether to check if a trailer record exists in *HD or *SH format of the unload data set.

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



YES

Specifies that the existence of the trailer record is checked. Segment count in the trailer record is also checked.

NO

Specifies that the existence of trailer record is not checked.

FABSPSSI CTL data set

The CTL data set contains the control statements which describe the processing to be done by PSSR.

Two types of statements are used in the CTL data set: the DB statement and the PART statement.

A DB statement is used for HALDB or non-HALDB. It includes the name of the database to be processed, along with any optional user requests. If HALDB, these user requests are applied to all partitions.

A PART statement is used for HALDB. It includes the name of the partition to be processed, along with any optional user requests. These user requests are applied to the partition, and the user requests by PART statement have priority over the user requests by DB statements.

Subsections:

- [“Format” on page 144](#)
- [“DB statement record format: Line 1” on page 144](#)
- [“DB statement record format: Line 2” on page 146](#)
- [“PART statement record format: Line 1” on page 146](#)
- [“PART statement record format: Line 2 and after” on page 148](#)

Format

This data set usually resides in the input stream. However, it can be defined either as a sequential data set or as a member of a partitioned data set. It must contain exactly one 80-byte fixed-length record. BLKSIZE, if coded, must be a multiple of 80.

DB statement record format: Line 1

1-----11-----20-----29---34-----41---46---51-----58--62-65-----72-----80											
<i>dbdname</i> <i>mod</i> <i>rbn</i> <i>anch</i> <i>blksz</i> <i>kst</i> <i>kln</i> <i>bytes</i> <i>rng</i> --- <i>num</i> <i>S</i>											
							NO			OPSALL	H
										P	

Position

Description

1

Required. Left-aligned. The name of the DBD for the database to be processed.

11

Optional. 1- to 8-character, left-aligned. This field contains the name of a user-supplied randomizing module for HDAM or PHDAM database. Use this field to override the (default) DBD value.¹ The randomizing module must have the capability for AMODE=31.

20

Optional. Used to override the (default) DBD value. It must contain the maximum relative block number that you want to allow a randomizing module to produce for this database. This value determines the number of control intervals or blocks in the root addressable area of an HDAM database or in each partition of PHDAM. It must be a 7-digit, unsigned decimal integer (with leading zeros, if necessary).¹

29

Optional. Used to override the (default) DBD value. It contains the number of RAPs desired in each control interval or block in the root addressable area of an HDAM database or in each partition of PHDAM. It must be a 3-digit, unsigned decimal integer (with leading zeros, if necessary).¹

34

Optional. Used to override the (default) DBD value. It contains the size of the database block (or control interval) of an HDAM database or in each partition PHDAM. It must be a 5-digit, unsigned decimal integer (with leading zeros, if necessary).

41

Optional. Used to override the (default) DBD value. This value must be the starting position of the key field in bytes relative to the beginning of the segment. It must be a 3-digit, unsigned decimal integer (with leading zeros, if necessary). The starting position for the first byte of a fixed-length segment is 001.

46

Optional. Used to override the (default) DBD value. This value must be the length of the root segment's key field in bytes. It must be a 3-digit, unsigned decimal integer (with leading zeros, if necessary).¹

51

Optional. Used to override the (default) DBD value.¹ It contains the byte limit parameter of an HDAM database or in each partition of PHDAM.

If the non-zero byte limit value is specified for your database and you are going to reload the database by IMS High Performance Load for z/OS 2.1, you must specify 'NO' in this field. Otherwise, IMS HP Load 2.1 ends abnormally with message HPSR3630E. To prevent cascading and avoid degradation of performance in reloading, it is recommended that you use the SORT=YES and the SEARCH=-*nnn* parameter instead of using PSSR. (For more information about preventing cascading, see [“Example 2: Preventing cascading”](#) on page 167.)

¹ The override value applies to all partitions except those otherwise specified by the PART statement.

It can contain either of the following two kinds of strings:

5-digit number

This is the maximum number of bytes of a database record that can be stored in the root addressable area in a series of inserts unbroken by a call to another database record. If you reload a database without using IMS High Performance Load for z/OS 2.1, cascading can be prevented when you specify the number of bytes which is less or equal to the available space. It must be a 5-digit, unsigned decimal integer (with leading zeros, if necessary).

NO

Means that there is no limit for the maximum number of bytes of a database record that can be inserted into this database's root segment addressable area. No attempts to prevent cascading is made. (This entry must be left-aligned.)

58

Optional. This 3-digit field specifies the range of the size to be used for the histogram in the Record Size Distribution report. It must be an unsigned decimal integer (with leading zeros, if necessary). The default is 050.

62

Optional. Can contain any one of the following codes:

-

Requests that the Record Size report and the Record Size Distribution report are not printed.

0

Requests that no data be sorted. The run only prints the reports.

P

Requests that the Record Size Distribution report include information about each partition. The partitions that do not include any records are not printed. This option is effective for HALDB.

Blank

Requests that the Record Size Distribution report is printed. For HALDB, the Record Size Distribution report for each partition is not printed.

63

Optional. Can contain one of following three codes:

-

Requests that the DBD Parameters and Overrides reports are not printed.

P

Requests that the DBD Parameters and Overrides reports are printed with all partition override information.

Blank

Requests that the DBD Parameters and Overrides reports are printed without the partition information. Blank is the default.

64

Optional. Can contain one of the following three codes:

-

Requests that the HALDB Process Summary report is not printed.

S

Requests that the HALDB Process Summary report is printed with all partition information.

Blank

Requests that the HALDB Process Summary report is printed with the processed partition information.

65

Optional. This entry is the maximum number of database record sizes that can be printed in the Record Sizes report. It is used to control the size of the report. It can contain one of three codes:

6-digit number

This number must be a 6-digit unsigned decimal integer (with leading zeros, if necessary).

Blank

The Record Sizes report is not printed.

ALL

All database record sizes are printed on the Record Sizes report.

72

Optional. Can contain one of the following three codes:

S

Requests that the module name of the partition selection exit be changed, or that the partition selection method be replaced with the partition selection exit. The module name for the new partition selection exit has to be defined on the second line of the DB statement.

H

Requests that the method for partition selection be replaced with the high key method.

Blank

Requests not to replace the method for partition selection.

DB statement record format: Line 2

```
-----11-----80
      pselectnm
```

Position**Description****11**

Optional. Give the 1-to-8 character left-aligned, name of a user-supplied partition selection exit module. It is used to override the (default) DBD value. If "S" is specified in column 72 of the preceding DB statement, this field is required.

Requirement: If this field is specified, you must put the partition selection exit module in the IMS2 data set of the PSSR JCL, and put the partition selection exit module that is defined in the RECON data set, in the STEPLIB data set of the PSSR JCL.

PART statement record format: Line 1

```
-2-----11-----20-----29---34---41---46---51-----63-----72-----80
dbdname  mod      rbn      anch blksize fbf  fs  bytes  -      +
                               NO
```

Position**Description****2**

Required. The name of the partition to be processed: 1- to 7-characters, left-aligned.

11

Optional. The name of a user-supplied randomizing module for this partition: 1- to 7-characters, left-aligned. You can use it to override the (default) DBD value. This option is effective only for PHDAM.

20

Optional. The maximum relative block number that you want to allow a randomizing module to produce. This value determines the number of control intervals or blocks in the root addressable area of the partition. It must be a 7-digit, unsigned decimal integer (with leading zeros, if necessary). You can use it to override the (default) DBD value. This option is effective only for PHDAM.

29

Optional. The number of RAPs desired in each control interval or block in the root addressable area of the partition. It must be a 3-digit, unsigned decimal integer (with leading zeros, if necessary). You can use it to override the (default) DBD value. This option is effective only for PHDAM.

34

Optional. The database block size (or the control interval size). It must be a 5-digit, unsigned decimal integer (with leading zeros, if necessary). You can use it to override the (default) DBD value. This option is effective only for PHDAM.

41

Optional. The free block frequency factor. It must be a 3-digit, unsigned decimal integer (with leading zeros, if necessary). You can use it to override the (default) DBD value. This option is effective only for PHDAM.

46

Optional. The free space frequency factor. It must be a 2-digit, unsigned decimal integer (with leading zeros, if necessary). You can use it to override the (default) DBD value. This option is effective only for PHDAM.

51

Optional. The maximum number of bytes of a database record that can be stored into the root addressable area in a series of inserts unbroken by a call to another database record.

If the non-zero byte limit value is specified for your database and you are going to reload the database by IMS High Performance Load for z/OS 2.1, you must specify 'NO' in this field. Otherwise, IMS HP Load 2.1 ends abnormally with message HPSR3630E. To prevent cascading and avoid degradation of performance in reloading, it is recommended that you use the SORT=YES and the SEARCH=-nnn parameter instead of using PSSR. (For more information about preventing cascading, see [“Example 2: Preventing cascading”](#) on page 167.)

It can contain either of the following two kinds of strings:

5-digit number

This is the maximum number of bytes of a database record that can be stored in the root addressable area in a series of inserts unbroken by a call to another database record. If you reload a database without using IMS High Performance Load for z/OS 2.1, cascading can be prevented when you specify the number of bytes which is less or equal to the available space. It must be a 5-digit, unsigned decimal integer (with leading zeros, if necessary).

NO

Means that there is no limit for the maximum number of bytes of a database record that can be inserted into this database's root segment addressable area. No attempts to prevent cascading is made. (This entry must be left-aligned.)

You can use it to override the (default) DBD value. This option is effective only for PHDAM.

63

Optional. Can contain one of the following three codes:

-

Requests that the partition information of DBD Parameters and Overrides reports for this partition are not printed.

Blank

Requests that the partition information of DBD Parameters and Overrides reports for this partition are printed. Blank is the default.

72

Optional. Can contain one of the following two codes:

+

The partition selection string or the partition high key is coded on the next line.

Blank

The partition selection string and the partition high key is not coded on the next line.

```
-2-----72----80
X'xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx'+
C'ccccccccccccccccccccccccccccccccccccccccccccccccccccccccc'+
```

PSSR output

The unloaded database records are contained in the following data sets:

Contains segment records sorted in partition sequence and, in each partition, sorted in physical sequence. Any segment record whose root segment does not fit into its home block (according to the PSSR algorithm) are placed at the end in each partition.

Output partition data set

Contains all the segment records that need to be reloaded into one partition.

Unlike non-HALDB databases, the SORTOUT2 data set is used as a work data set for PSSR. You must not reload the segments that are contained in this data set.

If the randomizing routine returns a return code of 4 for a root segment, the database record that contains that root segment is put into the SORTOUT3 data set, if it is specified in the JCL. This data set must not be used as an input for the previously mentioned reload utilities.

If the DL/I partition selection returns a nonzero return code for HALDB processing, and if SORTOUT4 is specified in the JCL, the database record that contains the root segment is put into the SORTOUT4 data set. This data set must not be used as an input for the previously mentioned reload utilities.

If the SORTOUTD DD is specified, the database record that contains the duplicate root key segment is put into the SORTOUTD data set. You must determine whether this data set is to be used or not as an input for the previously mentioned reload utilities.

The PSSR reports are generated in the following five data sets:

- SYSOUT: produced by DFSORT
- PR8: produced by PSSR
- PR9: produced by PSSR
- PR9X: produced by PSSR
- PR10: produced by PSSR

SORTOUT data set for non-HALDB processing

The SORTOUT data set is the primary PSSR output data set. It is the sorted output from the DFSORT program. This data set contains most or all of the database segments, sorted in the physical (hierarchical) sequence for HDAM, or sorted into root key sequence for HIDAM, HISAM, or SHISAM.

Format

The SORTOUT data set, when concatenated with the SORTOUT2 data set, is in exactly the same format as the unloaded database produced by the Unload utility. If the record length is changed by a user exit routine, the format of the SORTOUT data set needs to be changed equally. It contains a *table* record, followed by records that contain database segments.

PSSR uses the bytes parameter (from the control statement of the CTL data set or from the DBD) to determine whether each root segment is likely to be placed in its home block (that is, the block to which that root segment is assigned by the randomizing routine) for HDAM processing. Every database record whose root segment will fit into its home block (according to the PSSR algorithm) is placed in the SORTOUT data set. All database records are placed in the SORTOUT data set for HIDAM, HISAM, or SHISAM processing.

SORTOUT is a sequential data set that can be on a tape or disk.

SORTOUT2 data set for non-HALDB processing

The SORTOUT2 data set is produced by module FABSR35. It contains all of the database segments that are not written to the SORTOUT data set.

The database records put into SORTOUT2 are not in the SORTOUT data set. If the database is a HIDAM, HISAM, or SHISAM database, no data is contained.

Important: If you reload an HDAM database by using IMS HP Load 2.1 or later, the SORTOUT2 data set cannot be used as an input for reload. For the details, see [“Considerations before using PSSR” on page 121](#).

Format

The SORTOUT2 data set, when concatenated after the SORTOUT data set, is in exactly the same format as the unloaded database produced by the IMS HD Reorganization Unload utility. It contains records containing database segments, followed by a *table* record.

PSSR uses the bytes parameter (from the control statement of the CTL data set or from the DBD) to determine if each root segment is likely to be placed in its home block (that is, the block to which that root segment is assigned by the randomizing routine). All database records of which root segment will *not* fit into its home block (according to the PSSR algorithm) are placed in the SORTOUT2 data set.

SORTOUT2 is a sequential data set that can be on tape or disk.

SORTOUT data set for HALDB processing

This data set is a required output data set. Segment records that should be reloaded and not put into an output partition data set are all placed in this data set.

The records in this data set are sorted in physical sequence within each partition; the partitions are sorted in the order in which they are selected. The segment records whose root segment does not fit into home block (according to the PSSR algorithm) are placed at the end of each partition.

Format

The SORTOUT data set is a sequential data set. Basically, it has exactly the same format as the unloaded database data set that is produced by the Unload utility. If the record length is changed by a user exit routine, the format of the SORTOUT data set needs to be changed equally. The following figure shows an example of how the segment records in a partition data set are arranged:

Header record for the data set
...
Physically sorted segment records (in partition 1) that will be reloaded into the home block
...
Physically sorted segment records (in partition 1) whose root segments will not fit into the home block
...
Physically sorted segment records (in partition 2) that will be reloaded into the home block
...
Physically sorted segment records (in partition 2) whose root segments will not fit into the home block
...
Trailer record for the data set

Figure 40. Example of the SORTOUT data set

Note: If the DD statements for all output partition data sets are specified in the PSSR JCL, no segment record is put into the SORTOUT data set.

SORTOUT2 data set for HALDB processing

This data set is a required work data set for PSSR.

You must not reload the segments that are contained in this data set for HALDB.

Format

The data set has the same format as SORTOUT.

SORTOUT3 data set

This data set is an optional output data set. This data set, if specified, contains the database records whose root segment key received a return code of 4 from the randomizing routine.

If the DD statement for this data set is not specified in the JCL or is coded as DUMMY, such database records are discarded.

The database records put into SORTOUT3 are not contained in the SORTOUT data set, the output partition data set, the SORTOUT2 data set, or in the SORTOUT4 data set.

Format

The data set has the same format as SORTOUT.

SORTOUT4 data set

This data set is an optional output data set. This data set, if specified, contains the database records whose root segment keys are returned with a nonzero return code by the partition selection.

If the DD statement for this data set is not specified in the JCL, or is coded as DUMMY, such database records are discarded.

The database records put into SORTOUT4 are not contained in the SORTOUT data set, the output partition data set, the SORTOUT2 data set, or in the SORTOUT3 data set.

Format

The data set has the same format as SORTOUT.

SORTOUTD data set

This data set is an optional output data set. If it is specified, PSSR checks for a duplicate root key.

When SORTOUTD is specified, and the root key is defined as unique and root keys is not defined as compressed in the DBD, PSSR checks every value of the root key. If some root keys have the same value, only the first database record input to PSSR is stored into the SORTOUT, SORTOUT2, or output partition data set. The other root keys, which are named as duplicated records, are stored into this SORTOUTD data set. If the SORTOUTD is coded as DUMMY, such duplicated records are discarded.

If the database records are changed by a user exit, the key duplications are checked with the changed root keys, and the changed database records are contained in the SORTOUTD data set.

Format

The data set format has the same as SORTOUT.

Output partition data set

This output data set is unique to HALDBs. It is a sequential data set that contains all the segment records that should be reloaded into a partition. The name of the DD is the partition name that is defined in the RECON data sets.

Format

Although the records contained in each partition data set are the segments to be reloaded into one partition, each output partition data set has the same format as the SORTOUT data set.

By specifying the names of all the partitions in your HALDB, you can split your unloaded database data set into a set of partition data sets. You can reload these partition data sets using IMS HP Load. The following figure shows an example of how the segment records in a partition data set are arranged:

Header record for the partition data set of HALDB
...
Physically sorted segment records for the partition that will be reloaded into the home block
...
...
Physically sorted segment records for the partition whose root segments will not fit into the home block
...
Trailer record for the data set

Figure 41. Example of the output partition data set

SYSOUT data set

This data set is the system output data set for messages from the DFSORT program.

Format

Code your DD statement as follows:

```
//SYSOUT DD SYSOUT=A
```

SYSPRINT data set

This data set is the system output data set for any messages from IMS.

Format

Code your DD statement as follows:

```
//SYSPRINT DD SYSOUT=A
```

PR8 data set

This data set contains the reports that are produced by module FABSRT15 or FABSPE15.

The following reports are contained in this data set:

- Control Card Format report
- Control Card report
- DBD Parameters and Overrides report
- Record Sizes report
- Comments on DL/I HDAM Database Load Procedure report
- Record Size Distribution report

Format

This data set contains 133-byte fixed-length records, and block size (if coded in your JCL) must be a multiple of 133. You must code your DD statement as follows:

```
//PR8      DD SYSOUT=A
```

Control Card Format report

This report describes the fields on the records in the CTL data set. It is printed for the convenience of the user.

The following figure shows an example of this report.

```
IMS HIGH PERFORMANCE LOAD - PSSR                                "CONTROL CARD FORMAT REPORT"                                PAGE: 1
5655-M26                                                         DATE: 08/10/2021 TIME: 06.34.17                                FABSR15 - V2.R1
>>> DB STATEMENT **** FIRST LINE ****                            >>> PART STATEMENT **** FOR HALDB : FIRST LINE ****
COLUMNS 1- 8: DBD NAME (REQUIRED)                                *** FOLLOWING FIELDS OPT - USED TO OVERRIDE DEFAULT DB DEFINITION
*** FOLLOWING FIELDS OPT - USED TO OVERRIDE DEFAULT DB DEFINITION COLUMNS 2- 9: PARTITION NAME
COLUMNS 11-18: HDAM ALGORITHM NAME *1                            COLUMNS 41-43: FREE BLOCK FREQUENCY FACTOR OF THE PARTITION *2
COLUMNS 20-26: NUMBER OF BLOCKS IN ROOT ADDRESSABLE AREA *1     COLUMNS 46-47: FREE SPACE FREQUENCY FACTOR OF THE PARTITION *2
COLUMNS 29-31: NUMBER OF RAPS PER BLOCK *1                       COLUMN 72: FOR PARTITION HIGH KEY/PARTITION SELECTION STRING
COLUMNS 34-38: BLOCK SIZE *1                                     " " = OVERRIDE
COLUMNS 41-43: STARTING POSITION IN KEY                            " " = DO NOT OVERRIDE
COLUMNS 46-48: KEY LENGTH
COLUMNS 51-55: BYTE LIMIT (IF COL. 51-52 = NO : NO LIMIT) *1    *** FOLLOWING FIELD OPT - USED TO REQUEST REPORT DISPLAY
COLUMNS 72: FOR HALDB                                           COLUMN 63: FOR DBD PARAMETERS AND OVERRIDES REPORT
      "S" = USE OR CHANGE PARTITION SELECTION EXIT              " " = DO NOT PRINT FOR THIS PARTITION
      "H" = USE OR CHANGE PARTITION HIGH KEY                    " " = PRINT FOR THIS PARTITION
      " " = DO NOT CHANGE
*** FOLLOWING FIELDS OPT - USED TO REQUEST REPORT DISPLAY          *** LEADING ZEROES REQUIRED IN ALL NUMERIC FIELDS
COLUMNS 58-60: RANGE SIZE FOR RECORD SIZE DISTRIBUTION TABLE  *** FIELDS STARTING IN COLUMNS 11, 20, 29, 34 AND 51 IS
      (DEFAULT = 50)                                             SAME AS DB STATEMENT
COLUMN 62: FOR RECORD SIZES OR DISTRIBUTION REPORT              >>> PART STATEMENT **** FOR HALDB : SECOND LINE ****
      "-" = DO NOT PRINT                                         *** FOLLOWING FIELDS OPT - USED TO OVERRIDE DEFAULT DB DEFINITION
      "0" = DO NOT SORT; PRINT REPORTS ONLY.
      " " = PRINT FOR WHOLE DATABASE                            COLUMNS 2-71: PARTITION HIGH KEY OR PARTITION SELECTION STRING
      "P" = PRINT FOR WHOLE DATABASE AND SOME PARTITIONS        COLUMN 72: "+" = CONTINUE SPECIFIED VALUES TO NEXT LINE
COLUMN 63: FOR DBD PARAMETERS AND OVERRIDES REPORT
      "-" = DO NOT PRINT
      " " = PRINT FOR WHOLE DATABASE
      "P" = PRINT FOR WHOLE DATABASE AND SOME PARTITIONS
COLUMN 64: FOR HALDB PROCESS SUMMARY REPORT
      "-" = DO NOT PRINT
      "S" = PRINT FOR ALL PARTITIONS
      " " = PRINT FOR PROCESSED PARTITIONS
COLUMNS 65-70: "NNNNNN" = NUMBER OF RECORD SIZES TO BE PRINTED.
      "ALL" = PRINT ALL RECORD SIZES.
      " " = DO NOT PRINT RECORD SIZES REPORT.
*** LEADING ZEROS REQUIRED IN ALL NUMERIC FIELDS
*** *1 : NOT APPLICABLE FOR (P)HIDAM OR (S)HISAM
*** *2 : NOT APPLICABLE FOR PHIDAM
>>> DB STATEMENT **** SECOND LINE ****
COLUMNS 11-18: PARTITION SELECTION EXIT NAME
```

Figure 42. Control Card Format report

Control Card report

This report contains a printed copy of the control statement that the user provided in the CTL data set.

The following figure shows an example of this report.

```
IMS HIGH PERFORMANCE LOAD - PSSR                                "CONTROL CARD REPORT"                                PAGE: 1
5655-M26                                                         DATE: 10/01/2020 TIME: 10.40.24                                FABSR15 - V2.R1
0.....1.....2.....3.....4.....5.....6.....7.....8
1234567890123456789012345678901234567890123456789012345678901234567890
DBHD0010 DF5HDC10 0000500 003 00512      NO      ALL
```

Figure 43. Control Card report

DBD Parameters and Overrides report

This report contains a printed copy of the DBD parameters that were used in the PSSR job. Any parameters that were overridden by the user's control statement are flagged ("*" is printed next to the overridden value).

The following figure shows an example of this report.

```

IMS HIGH PERFORMANCE LOAD - PSSR                                "DBD PARAMETERS AND OVERRIDES REPORT"                                PAGE: 1
5655-M26                                                         DATE: 10/01/2020 TIME: 10.40.24                                FABSR15 - V2.R1
*** DBDNAME: DBHD0010 ***
VALUES SHOWN BELOW OBTAINED FROM DBD BY DEFAULT, ** INDICATES VALUE SUPPLIED FROM CONTROL STATEMENT
DBDNAME..... DBHD0010 DIRECT ALGORITHM NAME... DFSDC10 **
DATABASE ORGANIZATION... HDAM HIGH BLOCK NUMBER..... 500 **
ACCESS METHOD..... VSAM RAPS PER BLOCK..... 3 **
BLOCK SIZE..... 512 ** TOTAL RAPS..... 1500
PRIME DDNAME..... DDHD0010 BYTE LIMIT COUNT..... NO LIMIT **
FSPC BLK, EVERY N BLKS.. 0 % FSPC WITHIN EACH BLK.. 0
FSPC SCAN CYLINDERS..... 3
ROOT SEGMENT NAME..... ROOTLEV1 ROOT SEGMENT KEY NAME... ROOTNO
ROOT SEGMENT KEY LENGTH. 8 START POSITION OF KEY... 2

```

Figure 44. DBD Parameters and Overrides report

Record Sizes report

This report contains a printed list of the sizes of all database records.

If the PAD operand of COMPRTN= parameter in DBDGEN SEGM statement is defined, and the length of the fixed-length segment is shorter than the PAD value by the Segment Edit/Compression exit, the PAD value is used to calculate the size of the database records instead of the segment length.

This report also contains the total number of root segments and the total number of dependent segments that were processed. Ten record sizes are printed on each line. Therefore, the number of printed lines on this report is about one tenth of the number of root segments in your database.

Tip: If your database is large, this report will also be fairly large. You might want to suppress this report by using a blank in column 65 of your control statement (see [“FABSPSSR CTL data set” on page 139](#) or [“FABSPSSI CTL data set” on page 143](#)).

The following figure shows an example of this report.

```

IMS HIGH PERFORMANCE LOAD - PSSR                                "RECORD SIZES REPORT"                                PAGE: 1
5655-M26                                                         DATE: 10/01/2020 TIME: 10.40.24                                FABSR15 - V2.R1
DATABASE RECORDS COUNTED AND DISPLAYED AS RECEIVED FROM IMS HD UNLOAD
DB REC #      1      2      3      4      5      6      7      8      9      0
0             1260    421    621    469    147    42    347    401    683    390
              COMPUTED VALUE OF AVAILABLE SPACE IN EACH R.A.A. BLOCK = 489 (DDHD0010) (SEE COMMENTS ON NEXT PAGE)

10 ROOT SEGMENTS PROCESSED
61 DEPENDENT SEGMENTS PROCESSED

```

Figure 45. Record Sizes report

Comments on DL/I HDAM Database Load Procedure report

This report contains some comments that helps you understand *cascading* and how HDAM and PHDAM databases are loaded. It is printed for the convenience of the user.

The following figure shows an example of this report.

```

IMS HIGH PERFORMANCE LOAD - PSSR                                "COMMENTS ON DL/I HDAM DATABASE LOAD PROCEDURE REPORT"
5655-M26                                                         PAGE: 1
                                                                DATE: 10/01/2020 TIME: 10.40.24
                                                                FABSRT15 - V2.R1
NOTE :
-----
- DL/I WILL ATTEMPT TO LOAD EACH DB RECORD (ROOT AND DEPS)
  INTO THE RANDOMIZED ROOT ADDRESS AREA (R.A.A.) LOCATION.
- IF THE AMOUNT OF DATA TO BE LOADED INTO EACH BLOCK
  EXCEEDS THE BLOCKSIZE, DATA WILL OVERFLOW.
- WHEN LOADING IN BLOCK/RAP SEQUENCE, THIS CAN RESULT IN A
  CASCADE EFFECT; AS EACH DB RECORD TO BE LOADED, FINDS
  ITS HOME BLOCK ALREADY FULL, IT MUST OVERFLOW TO THE
  NEXT BLOCK(S).
- IF THE DB RECORD IS NOT STORED IN THE BLOCK ASSIGNED BY
  THE RANDOMIZER (HOME BLOCK), EXCESSIVE PHYSICAL I/O(S)
  MAY BE REQUIRED TO LOAD AS WELL AS SUBSEQUENTLY USE
  THE DATA.
- THIS UTILITY WILL ATTEMPT TO PREVENT THE CASCADE EFFECT
  FROM OCCURRING BY TAILORING THE INPUT TO IMS HD RELOAD
  UTILITY.
  CASCADE PREVENTION IS POSSIBLE, ONLY IF THE USER SUPPLIES
  A BYTE LIMIT SPECIFICATION IN THE DBD LESS OR EQUAL TO
  THE AVAILABLE SPACE. (SEE NOTE)
  IF BYTE LIMIT IS NOT SPECIFIED, NO ATTEMPT TO PREVENT
  THE CASCADE EFFECT WILL BE MADE.
- FOR NON-HALDB, THE IMS HD RELOAD UTILITY INPUT MUST BE
  CONCATENATED AS FOLLOWS:
  1) SORTOUT - DB RECORDS (CONTROLLED BY BYTE LIMIT) WHICH
    WILL FIT IN THE ROOT ADDRESSABLE AREA
  2) SORTOUT2 - ALL OTHER DATABASE RECORDS
- FOR HALDB, SORTOUT2 OUTPUT MUST NOT BE USED
- IF THE DB IS RELOADED AS A WHOLE DB, ONLY THE SORTOUT DATA
  SET MUST BE USED AS THE INPUT FOR IMS HD RELOAD UTILITY.
  SORTOUT DATA SET CONTAINS ALL DATABASE RECORDS
  IN PARTITION SELECTION SEQUENCE
- IF THE DB IS RELOADED BY A PARTITION, EACH PARTITION
  MUST BE RELOADED, AND THE EACH INPUT MUST BE A PARTITION
  DATA SET.
  EACH PARTITION DATA SET CONTAINS ALL DATABASE RECORDS
  TO BE RELOADED TO THE PARTITION.

  BYTE LIMIT IS THE MAXIMUM NUMBER OF BYTES OF A SINGLE
  DB RECORD TO BE INSERTED BY CONSECUTIVE INSERT CALLS
  AGAINST THE SAME PCB.
  IDEALLY, 4 TO 5 DATABASE RECORDS SHOULD FIT IN ONE BLK
  HOWEVER, FOR VERY LARGE DB RECORDS - ONE AVERAGE RECORD
  PER N BLOCKS - CONSIDER A RANDOMIZING ALGORITHM,
  WHICH SKIPS ENTRY N BLOCKS.
  THE 'BYTES' PARAMETER SHOULD THEN BE NO LESS THAN THE
  AVERAGE DB RECORD SIZE AND THE NUMBER OF ANCHOR
  POINTS PER BLOCK SHOULD BE ONE.

  AVAIL-SPACE = BLOCKSIZE-FSE-(4*#RAPS)-VSAMBYTS-FSPF*BLOCKSIZ

  BLOCKSIZE = BLOCKSIZE FOR DATA SET GROUP #1 IN DBD,
  OR,
  BLOCKSIZE FOR EACH PARTITION.
  FSE = 4, THE FREE SPACE ANCHOR POINT
  #RAPS = # RAPS FROM DBD
  VSAMBYTS = 7, IF VSAM AND 0, IF OSAM
  FSPF = % FREE SPACE WITHIN EACH BLOCK

  ***** W A R N I N G *****
  SPECIFICATION OF WHOLE BLOCKS OF FREE SPACE (FBFF) MAY
  DEFEAT THE RANDOMIZING TECHNIQUE

```

Figure 46. Comments on DL/I HDAM Database Load Procedure report

Record Size Distribution report

This report contains a printed histogram of the sizes of all database records.

If the PAD operand of COMPRTN= parameter in DBDGEN SEGM statement is defined, and the length of the fixed-length segment is shorter than the PAD value by the Segment Edit/Compression exit, the PAD value is used to calculate the size of the database records instead of the segment length.

You can specify the width of the histogram classes in column 58 of your control statement (see “FABSPSSR CTL data set” on page 139 or “FABSPSSI CTL data set” on page 143). For databases with a large number of database records, this report is much more useful than the Record Sizes report.

The following figure shows an example of this report.

```

IMS HIGH PERFORMANCE LOAD - PSSR                                "RECORD SIZE DISTRIBUTION REPORT"
5655-M26                                                         PAGE: 1
                                                                DATE: 10/01/2020 TIME: 10.35.37
                                                                FABSPE15 - V2.R1
CLASS  DB-RECORDSIZE  OBSERVED  PERCENT  CUMULATIVE  CUMULATIVE
      FROM          TO    FREQUENCY  OF TOTAL  PERCENTAGE  REMAINDER

   1      1          50           1      10.000      10.000      90.000
   3     101        150           1      10.000      20.000      80.000
   7     301        350           1      10.000      30.000      70.000
   8     351        400           1      10.000      40.000      60.000
   9     401        450           2      20.000      60.000      40.000
  10     451        500           1      10.000      70.000      30.000
  13     601        650           1      10.000      80.000      20.000
  14     651        700           1      10.000      90.000      10.000
  26    1251       1300           1      10.000     100.000      0.000
ENTRIES IN TABLE = 10  MEAN ARGUMENT = 478.100  STANDARD DEVIATION = 334.633
NOTE : RANGES WHERE OBSERVED FREQUENCY IS 0 ARE NOT DISPLAYED

```

Figure 47. Record Size Distribution report

PR9 data set

This data set contains the Assigned Roots per RAP report, which is produced by module FABSRT35 or FABSPE35.

Format

This data set contains 133-byte fixed-length records, and the block size (if coded in your JCL) must be a multiple of 133. You must code your DD statement as follows:

```
//PR9      DD SYSOUT=A
```

Assigned Roots per RAP report

This report contains a map of all RAPs in the database. It gives the actual number of root segments that randomized to each RAP. It also includes some totals, including the number of database records that did not fit into their home blocks.

The following figure shows an example of this report.

```
IMS HIGH PERFORMANCE LOAD - PSSR                                "ASSIGNED ROOTS PER RAP REPORT"                                PAGE: 1
5655-M26                                                         DATE: 10/01/2020 TIME: 10.40.24                                FABSR35 - V2.R1
*** DBNAME: DBHD0010 ***                                         DBHD0010
    DATABASE ORGANIZATION... HDAM                                DIRECT ALGORITHM NAME... DFSHDC10
    ACCESS METHOD... VSAM                                         HIGH BLOCK NUMBER... 500
    BLOCK SIZE... 512                                           RAPS PER BLOCK... 3
    TOTAL RAPS... 1500
COUNT OF 0-35 REPRESENTED AS FOLLOWS:
SYMBOL: 1 2 3 4 5 6 7 8 9 A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
COUNT : 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35
COUNT GREATER THAN 35 = *
END OF DATA BLOCKS = \
    EACH COLUMN REPRESENTS COUNT OF ROOTS ON ONE RAP
RAP # 0.....1.....2.....3.....4.....5.....6.....7.....8.....9.....0
      1234567890123456789012345678901234567890123456789012345678901234567890
0 |
100 |
200 |
300 |
400 |
500 |
600 |
700 |
800 |
900 |
1000 |
1100 |
1200 |
1300 |
1400 |
1500 |
    \
COUNT OF RAPS NOT USED = 1490 COUNT OF RAPS WITH MORE THAN 35 ROOTS = 0
AVG. COUNT OF ROOTS ON ACTIVE RAP = 1.0 MAX. COUNT OF ROOTS ON ONE RAP = 1
10 ROOT SEGMENTS PROCESSED
61 DEPS SEGMENTS PROCESSED
N / A DB RECORDS WRITTEN TO SORTOUT2
```

Figure 48. Assigned Roots per RAP report

PR9X data set

This data set contains the Assigned Roots per Block report, which is produced by module FABSR35 or FABSPE35.

Format

This data set contains 133-byte fixed-length records, and block size (if coded in your JCL) must be a multiple of 133. Code your DD statement as follows:

```
//PR9X DD SYSOUT=A
```

Assigned Roots per Block report

This report contains a map of all blocks (or control intervals) in the database. It gives the actual number of root segments that randomized to each block. It also includes some totals.

The following figure shows an example of this report.

```

IMS HIGH PERFORMANCE LOAD - PSSR                                "ASSIGNED ROOTS PER BLOCK REPORT"
5655-M26                                                         PAGE: 1
*** DBNAME: DBHD0010 ***                                         DATE: 10/01/2020 TIME: 10.40.24
                                                                FABSR35 - V2.R1
DBDNAME..... DBHD0010      DIRECT ALGORITHM NAME... DFSHDC10
DATABASE ORGANIZATION... HDAM      HIGH BLOCK NUMBER..... 500
ACCESS METHOD..... VSAM      RAPS PER BLOCK..... 3
BLOCK SIZE..... 512      TOTAL RAPS..... 1500

COUNT OF 0-35 REPRESENTED AS FOLLOWS:
SYMBOL: 1 2 3 4 5 6 7 8 9 A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
COUNT : 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35
COUNT GREATER THAN 35 = *
END OF DATA BLOCKS = \
      E A C H C O L U M N R E P R E S E N T S C O U N T O F R O O T S I N O N E B L O C K

BLOCK # 0.....1.....2.....3.....4.....5.....6.....7.....8.....9.....0
12345678901234567890123456789012345678901234567890123456789012345678901234567890

0 |          1          1
100 |
200 |          1          1
300 |          1          1 1
400 |          1          1
500 | \
      COUNT OF BLOCKS WITHOUT ROOTS = 490      COUNT OF BLOCKS WITH MORE THAN 35 ROOTS = 0
      AVG. COUNT OF ROOTS PER ACTIVE BLOCK = 1.0      MAX. COUNT OF ROOTS IN ONE BLOCK = 1
      10 TYPE R RECORDS PROCESSED

```

Figure 49. Assigned Roots per Block report

PR10 data set

This data set contains the HALDB Process Summary report.

Format

This data set contains a 133-byte-fixed-length record.

HALDB Process Summary report

This report contains a summary of the processing. The report is printed only for HALDB.

The following figure shows an example of this report.

```

IMS HIGH PERFORMANCE LOAD - PSSR                                "HALDB PROCESS SUMMARY REPORT"
5655-M26                                                         PAGE: 1
*** DBDNAME: DBHD1070 ***                                         DATE: 10/01/2020 TIME: 10.26.05
                                                                FABSP15 - V2.R1
DBDNAME..... DBHD1070
DATABASE ORGANIZATION..... PHIDAM
ACCESS METHOD..... VSAM
NUMBER OF PARTITIONS DEFINED..... 5
NUMBER OF PARTITIONS PROCESSED.... 5
PARTITION SELECTION EXIT..... DFSPSE02
*** PARTITIONS LISTED IN ORDER OF PARTITION SELECTION ***
P SEQ NAME ID PARTITION SELECTION STRING
* 0001 DBHD01B 2 C'399999999'
* 0002 DBHD01D 4 C'799999999'
* 0003 DBHD01E 5 C'999999999'
* 0004 DBHD01C 3 C'59'
* 0005 DBHD01A 1 C'1'

```

Figure 50. HALDB Process Summary report

Note: The partitions that are indicated with asterisks (*) in this report include the segment records after sorting by PSSR job.

Chapter 13. PSSR user exit

PSSR supports user exit routines for deleting and modifying segments.

Programming interface of PSSR user exit

These topics contain product-sensitive programming interface information for PSSR. See [“Programming interface information” on page 300](#) to understand the restrictions that are associated with this type of material.

PSPI

The user exit routine is invoked after every reading of segment data from the HD unloaded data set. You can use the user exit routine to check, modify, or delete the segments.

The user exit module is loaded dynamically by PSSR.

When L is specified in the PSSRIN data set, PSSR establishes the LE environment by using the preinitialization services. The user exit is invoked by the CEEPIPI *call_sub* function.

Sample user exits

The following sample user exits are available in the HPS.SHPSSAMP data set:

HPSRXAA0

A sample user exit that is written in the Assembler language.

HPSRXCC1

A sample user exit that is written in Enterprise COBOL for z/OS.

HPSRXPP1

A sample user exit that is written in Enterprise PL/I for z/OS.

PSPI

The following topics describe the user exits of PSSR.

Topics:

- [“Program functions of PSSR user exit” on page 159](#)
- [“Parameters for PSSR user exit” on page 160](#)
- [“Interface of Assembler user exit routine” on page 162](#)
- [“Interface of Enterprise COBOL for z/OS program user exit routine” on page 163](#)
- [“Interface of Enterprise PL/I for z/OS user exit routine” on page 163](#)

Program functions of PSSR user exit

PSSR supports a user exit routine for deleting and modifying segments. The user exit is invoked by PSSR after every reading of a segment record from the unloaded data set.

If the unloaded database data set is HD, SH or CS format and the DECN option is specified in IMS High Performance Unload for z/OS unload job, PSSR processes as follows:

1. Calls the segment edit/compression exit routine to decompress the segment data before calling the user exit routine.
2. Calls the user exit.
3. Calls the partition selection for a HALDB, and the HDAM randomizing routine.
4. Calls the segment edit/compression exit routine again to recompress the segment data.

If the unloaded database data set is of *CS format and COMPRESSED=YES is specified in PSSRIN, PSSR also processes the same way.

The library that contains the user exit routine must be concatenated to the IMS2 DD statement.

The user exit routine can be coded in Assembler, Enterprise COBOL for z/OS programs, or Enterprise PL/I for z/OS. When the user exit is written in COBOL or PL/I, it is run in the Language Environment (LE).

Restriction: The user exit is supported only when PSSR is running on IMS.

PSSRIN data set

To activate the user exit, specify `USEREXIT=modname` in the PSSRIN control statement of PSSR job.

In the basic environment (not the LE environment), PSSR supports user exit routines that are written in the Assembler language. In this case, do not specify the second parameter of the USEREXIT statement in the PSSRIN data set of your PSSR JCL. See [“Programming interface of PSSR user exit” on page 159](#).

In the LE environment, PSSR supports user exit routines that are written in Enterprise COBOL for z/OS or Enterprise PL/I for z/OS. For user exit routines that are written in Enterprise COBOL for z/OS or Enterprise PL/I for z/OS, specify L as the second parameter of the USEREXIT statement in the PSSRIN data set of your PSSR JCL. There are some coding rules for compiling options that you must follow. These rules are documented in [“Programming interface of PSSR user exit” on page 159](#).

User Exit Action report

A User Exit Action report is added to the Record Sizes report in PR8 data set.

This report includes the following information:

INPUT

The number of segment occurrences in the unload file. The bottom number of INPUT indicates the total number of segments in the unload file. The number of INPUT is not equal to the frequency of the user exit called.

OUTPUT

The number of segment occurrences in the output files. The bottom number of OUTPUT indicates the total number of segments in the output files. For non-HALDB, the output files are SORTOUT, SORTOUT2, SORTOUT3, and SORTOUTD. For HALDB, the output files are SORTOUT, output partition data set, SORTOUT3, SORTOUT4, and SORTOUTD.

DELETED

The number of segment occurrences that are deleted by the user exit routine.

Parameters for PSSR user exit

The following information describes the parameters for the user exit and register contents upon return from the user exit.

This topic contains product-sensitive programming interface information for PSSR. See [“Programming interface information” on page 300](#) to understand the restrictions that are associated with this type of material.

Subsections:

- [“Parameters for the user exit” on page 160](#)
- [“Register contents upon return from the user exit” on page 161](#)

Parameters for the user exit



The following table contains a list of parameters.

Table 24. Parameters for the user exit

	Assembler	COBOL	PL/I	Contents
1	A(segment name)	segment name	pointer of segment name	A 9-byte area that contains an 8-byte segment name and a 1-byte segment code. At termination, the first 8 bytes of the area contain blanks.
2	A(segment data)	segment data	pointer of segment data	The segment data that is read from the HD unloaded data set. PSSR always decompress compressed data before presenting it to the user exit routine.
3	A(work area)	work area	pointer of work area	<p>A segment work area large enough to hold the largest segment that can be defined in the DBD being used. This area must be used whenever the length of a segment has to be changed. For variable-length segments, you must use the user exit routine to change the segment length (specified in the LL field) to a value that is appropriate for the segment being modified and that does not exceed the maximum segment length defined in the DBD being used.</p> <p>For fixed-length segments, the amount of segment data that is moved into the database data set is controlled by the setting in the DBD. If that setting has been expanded, it is your responsibility to initialize the expanded part of the segment by use of the user exit routine. If the routine issues a return code of zero, PSSR moves unchanged segment data into the database data set, and automatically initializes the expanded part of the segment to binary zeros.</p>
4	A(database name)	database name	pointer of database name	The 8-byte name of the database that is processed.

- For Assembler language, the address of the parameter list is pointed by register 1.
- For COBOL, each parameters are passed as the real ones, not as pointers.
- For PL/I, you need to declare each parameters as pointers.

PSPI

Register contents upon return from the user exit

PSPI

When PSSR returns from the user exit routine, it returns the return code to PSSR. This is necessary so that PSSR can determine the correct process of the segment data. The return code must be one of the values that are listed in the following table.

Table 25. Register contents upon return from the user exit

Value	Meaning
0	Do not modify the segment. PSSR uses the segment data that is pointed to by the second word of the parameter list.
4	Modify the segment. PSSR uses the segment data that is pointed to by the third word of the parameter list.
8	Delete the segment. PSSR skips this segment. The user exit routine must return the return code 8 for all dependent segments of this segment.
12	Delete the segment and all subsequent segments. PSSR skips this segment and all subsequent segments in the same database record.
100–999	Indicates termination. PSSR ends the process and passes this return code back as the job return code. The value of the return code can be from 100 to 999.

Note: A return code of 16 or 20 is interpreted as a return code of 0.

PSPI

Interface of Assembler user exit routine

When you use an Assembler user exit routine, ensure that the exit routine meets the following requirements.

This topic contains product-sensitive programming interface information for PSSR. See “[Programming interface information](#)” on page 300 to understand the restrictions that are associated with this type of material.

PSPI

- L must not be specified after the user exit name in the PSSRIN data set.
- The Assembler user exit routine is simply called by PSSR. The Language Environment is not established.
- When the PSSR enters the user exit routine, the contents of the registers are as listed in the following table.

Table 26. Interface of Assembler user exit routine

Value	Meaning
1	Parameter list pointer
13	Register save area pointer
14	Return address
15	Entry point address of the user exit

- Before returning to the PSSR, the user exit routine must set the return code in register 15.

A sample of this user exit is HPSRXAA0 in the HPS.SHPSSAMP data set.

PSPI

Interface of Enterprise COBOL for z/OS program user exit routine

When you use an Enterprise COBOL for z/OS program user exit routine, ensure that the exit routine meets the following requirements.

This topic contains product-sensitive programming interface information. See “Programming interface information” on page 300 to understand the restrictions that are associated with this type of material.

PSPI

- L must be specified after the user exit name in the PSSRIN data set.
- The user exit routine is called in the Language Environment (LE). LE libraries need to be used as follows:
 - SCEERUN is needed during compiling the user exit and running the PSSR.
 - SCEELKED is needed during the linkage-edit process of the user exit.
- The return code must be set in RETURN-CODE.
- STOP RUN cannot be used in the program.

A sample of this user exit is HPSRXCC1 in the HPS.SHPSSAMP data set.

PSPI

Interface of Enterprise PL/I for z/OS user exit routine

When you use an Enterprise PL/I for z/OS user exit routine, ensure that the exit routine meets the following requirements.

This topic contains product-sensitive programming interface information. See “Programming interface information” on page 300 to understand the restrictions that are associated with this type of material.

PSPI

- L must be specified after the user exit name in the PSSRIN data set.
- The user exit routine is called in the Language Environment (LE). LE libraries need to be used as follows:
 - SCEERUN is needed during compiling the user exit and running the PSSR.
 - SCEELKED is needed during the linkage-edit process of the user exit.
- The PL/I user exit routine is loaded dynamically and called by PSSR as a subprogram. It needs to be specified as OPTIONS(FETCHABLE) on the procedure statement in the program. OPTIONS(MAIN) cannot be specified.
- The parameters in the PL/I routine must be declared as pointer variables.
- The PL/I built-in function PLIRETC or LE callable service CEE3SRC can be used to set the return code.
- POSIX(ON) cannot be specified for the LE runtime option.
- Nested or multiple enclaves are not supported. For more information about the nested enclave, see the topic “Using Nested Enclaves” in the *Language Environment Programming Guide*.

A sample of this user exit is HPSRXPP1 in the HPS.SHPSSAMP data set.

PSPI

Chapter 14. PSSR usage examples

There are many ways to use PSSR. The examples that are given here represent some of the typical tasks that PSSR can perform. By studying and understanding these examples, you can learn the techniques to use and to reorganize your own databases with PSSR.

Topics:

- [“Example 1: Normal reorganization \(Changing root addressable area\)” on page 165](#)
- [“Example 2: Preventing cascading” on page 167](#)
- [“Example 3: Iterative tuning analysis” on page 169](#)
- [“Example 4: Print reports about record sizes” on page 171](#)
- [“Example 5: HALDB processing” on page 173](#)

Example 1: Normal reorganization (Changing root addressable area)

This example shows a scenario in which a single HDAM database is reorganized.

In this example, a single HDAM database is being reorganized. Because of recent growth in the amount of data in the database, the size of the root addressable area is being increased. Such a change completely alters the resulting physical sequence of the root segments. The database segments will be unloaded in the old physical sequence and reloaded in the new sequence. A likely result is excessive disk arm movement during the reload step. This is the kind of situation in which a significant performance improvement is likely to be gained by using PSSR. This example illustrates how to use PSSR in a very common type of database reorganization process.

Because there are no logical relationships in this database, there is no need to execute any of the IMS utilities that handle logical relationships. The following steps are required:

1. [“Create an image copy of the old database” on page 165](#)
2. [“Unload the database with the IMS HD Reorganization Unload utility” on page 165](#)
3. [“Create a new DBD” on page 166](#)
4. [“Sort the unloaded database data set with PSSR” on page 166](#)
5. [“Delete the old database cluster and define a new one” on page 166](#)
6. [“Reload the database with the IMS HD Reorganization Reload utility” on page 166](#)
7. [“Create an image copy of the new database” on page 167](#)
8. [“Run the HD Pointer Checker utility with image copy input” on page 167](#)

Create an image copy of the old database

An image copy is created as a protective measure. In case something goes wrong, the database can be recovered with no data loss.

Unload the database with the IMS HD Reorganization Unload utility

The database is unloaded in this step. It is a standard database unload execution.

Tip: This step can be replaced with an equivalent program, such as the unload utilities of IMS High Performance Unload.

```
//IMSHDUN EXEC PGM=DFSRR00,
//          PARM='ULU,DFSURGU0,ORDHDM,,,,,,,,,N,N'
//IMS      DD DSN=HPS.TEST.DBDLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//DFSURGU1 DD DSN=UNLOAD.FILE,DISP=(NEW,PASS),
//          UNIT=SYSDA,SPACE=(CYL,(1,1))
//DFSRESLB DD DSN=IMSVS.RESLIB,DISP=SHR
//DFSVSAMP DD DSN=HPS.TEST.SOURCE(DFSVSAMP),DISP=SHR
//ESDSHDM1 DD DSN=HPS.ESDSHDM1,DISP=OLD
```

Figure 51. Example 1: IMS HD Reorganization Unload (DFSURGU0) JCL

Create a new DBD

In this example, the DBD is modified to increase the size of the root addressable area. This step might be required because the amount of data in the database increased and caused performance degradation. This type of DBD change does not require a new PSB.

Sort the unloaded database data set with PSSR

The unloaded database is sorted in this step in order to make the reload step run faster. The cost of running this step is expected to be offset by a larger reduction in the cost of running the reload step.

The control statement of the CTL data set is in the standard format used for reloading a large database. Because column 65 is blank, the potentially gigantic Record Sizes report is not printed. All other PSSR reports are generated.

```
//DFSORT EXEC FABSPSSR,
//          DBDLIB='IMSVS.DBDLIB'
//STEPHD.CTL DD *
ORDHDM
/*
//STEPHD.SYSIN DD *
SORT   FIELDS=(5,20,BI,A),FILSZ=E9400000
MODS   E15=(FABSR15,50000,IMS2,N),E35=(FABSR35,50000,IMS2,N)
END
/*
```

Figure 52. Example 1: DFSORT (PSSR) JCL

Delete the old database cluster and define a new one

Because the database is VSAM, a new cluster must be defined.

Reload the database with the IMS HD Reorganization Reload utility

The database is reloaded in this step. Except for the DFSUINPT DD statement, it is a standard database reload execution.

The DFSUINPT data set contains the data to be reloaded. It is normally the data set created by the IMS HD Reorganization Unload utility. In this example, it is a concatenation of the two PSSR output data sets.

Tip: This step can be replaced with an equivalent program, such as the IMS HP Load utility.

```
//IMSHDRE EXEC PGM=DFSRR00,
//          PARM='ULU,DFSURGL0,ORDHDM,,,,,,,,,N,N'
//IMS      DD DSN=HPS..TEST.DBDLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//DFSRESLB DD DSN=IMSVS.RESLIB,DISP=SHR
//DFSURWF1 DD DUMMY,DCB=(RECFM=VB,LRECL=900,BLKSIZE=1008)
//DFSVSAMP DD DSN=HPS..TEST.SOURCE(DFSVSAMP),DISP=SHR
//DFSUINPT DD DSN=HPS.&&UNLSRT,DISP=(OLD,PASS)
//          DD DSN=HPS.&&UNLSRT2,DISP=(OLD,PASS)
//ESDSHDM1 DD DSN=HPS.ESDSHDM1,DISP=OLD
```

Figure 53. Example 1: IMS HD Reorganization Reload (DFSURGL0) JCL

Create an image copy of the new database

This image copy will be the first backup of your reorganized database.

Run the HD Pointer Checker utility with image copy input

Run the HD Pointer Checker utility of IMS High Performance Pointer Checker for the following reasons:

- To verify that your reorganization procedure worked properly
- To verify that your image copy is usable
- To obtain statistical reports that describe your database when it is in its optimally reorganized condition

Example 2: Preventing cascading

Cascading can be prevented or reduced by changing certain DBD parameters or by using PSSR.

Important: If you reload a database by using IMS HP Load 2.1, you cannot use PSSR to prevent cascading. To prevent cascading and avoid degradation of performance in reloading, it is recommended that you use the SORT=YES and the SEARCH=-nnn parameter instead of using PSSR.

Subsections:

- [“Changing DBD parameters” on page 167](#)
- [“Using PSSR” on page 167](#)
- [“Example of steps for preventing cascading” on page 168](#)
- [“Sort the unloaded database data set with PSSR” on page 169](#)

Changing DBD parameters

The following DBD parameters can affect the tendency of a database to exhibit cascading during a reload in physical sequence:

- RMNAME keyword on the DBD statement
- BLOCK keyword on the DATASET statement
- SIZE keyword on the DATASET statement
- SCAN keyword on the DATASET statement
- FRSPC keyword on the DATASET statement

By tuning the DBD to better match the data, you might be able to reduce or eliminate cascading. You can use the reports from PSSR.

Using PSSR

PSSR can also prevent cascading during reorganization by altering the reload sequence. This alteration causes some database records to be loaded at the end of the reload, instead of in their normal physical sequence. Those records will not contribute to the cascading effect. If the few *troublesome* records are held back until the other records are loaded, the cascading problem may be avoided.

As it processes the records that have randomized to a particular block, PSSR keeps track of the number of unused bytes in the block. Once this number gets smaller than the length of a root segment, PSSR sets an internal flag. All subsequent database records for that block are considered to be the *troublesome* ones.

The output unloaded database is contained on two sequential data sets:

- The SORTOUT data set contains all of the database records that are expected to fit comfortably in their home blocks. The segments that make up these records are sorted into their physical hierarchical sequence. Disk arm movement is minimized when reloading from this data set. Most of the database records are usually contained in the SORTOUT data set.

- The SORTOUT2 data set contains the rest of the database records. These *troublesome* records are expected to spill out of their home blocks if they are loaded in their natural physical sequence.

When you run the IMS HD Reorganization Reload utility, use both of these data sets as input. The DFSUINPT data set must be a concatenation of both the SORTOUT and the SORTOUT2 data sets.

Note: The SORTOUT data set must be the first in the concatenation (see [Figure 54 on page 168](#)). Otherwise, the reload does not work properly.

```
//DFSUINPT DD DSN=DSNAME=&&UNLSRT,          SORTOUT data set
//          DISP=(OLD,DELETE,DELETE)
//          DD DSN=DSNAME=&&UNLSRT2,          SORTOUT2 data set
//          DISP=(OLD,DELETE,DELETE)
```

Figure 54. The DFSUINPT data set

In order for this cascading prevention algorithm to be used, you *must* specify a byte limit for your database. You can do this by using one of the following methods:

- In the DBD, use the "BYTES" operand of the "RMNAME" keyword on the "DBD" statement.
- On the PSSR control statement, use the value in column 51.
- Use both the DBD and the PSSR control statements. (The PSSR control statement overrides the DBD.)

If you did not specify the byte limit, or if the byte limit is larger than the available space in one block (see [Figure 55 on page 168](#)), then the cascading prevention algorithm is disabled. All database records are written to the SORTOUT data set.

```
A = B - 4 - 4*R - V - (F*B)/100
where
A = available space in a root-addressable-area block
B = block size of data set group number 1
R = number of RAPs in one block
V = 7 (4 (CIDF) + 3 (RDF)) if the access method is VSAM
    0 if the access method is OSAM
F = free space percentage factor
```

Figure 55. Available space in one block

Note: Using the PSSR DBD override does not actually change the DBD. It merely changes the way PSSR sequences the database records.

Important: If you reload a database by using IMS HP Load 2.1, you cannot use PSSR to prevent cascading. To prevent cascading and avoid degradation of performance in reloading, it is recommended that you use the SORT=YES and the SEARCH=-nnn parameter instead of using PSSR. When the non-zero byte limit value is specified for your database, you must specify 'NO' in columns 51-52 of your control statement. Otherwise, IMS HP Load 2.1 ends abnormally with message HPSR3630E. For more information, see [“FABSPSSR CTL data set” on page 139](#) or [“FABSPSSI CTL data set” on page 143](#).

Example of steps for preventing cascading

In this example, a single HDAM database is being reorganized. Because the DBD is not being changed during the reorganization, the database segments will be unloaded and reloaded in physical sequence. The particular data in this database makes it especially prone to cascading during a reload performed in physical sequence. Therefore, PSSR is used to alter the reload sequence in an attempt to minimize cascading.

Because there are no logical relationships in this database, there is no need to execute any of the IMS utilities that handle logical relationships. The following steps are required:

1. Create an image copy of the old database.
2. Unload the database with IMS HD Reorganization Unload utility or an equivalent program, such as IMS High Performance Unload for z/OS unload utilities.

3. Delete the old database cluster and define a new one.
4. Reload the database with IMS HP Load 2.1 using the SORT=YES and the SEARCH=-nnn parameters.
5. Create an image copy of the new database.
6. Run the IMS High Performance Pointer Checker for z/OS HD Pointer Checker utility with image copy input.

Except for step “4” on page 169, these steps are identical to the corresponding steps of “[Example 1: Normal reorganization \(Changing root addressable area\)](#)” on page 165. Explanations and JCL for those steps are not repeated in this topic.

Sort the unloaded database data set with PSSR

The unloaded database is sorted in this step (see [Figure 56 on page 169](#)) in order to minimize cascading during the reload step. In this example, the cost of running the reload step is not expected to be reduced by running PSSR. The expected benefit from running PSSR is improved performance during production use of the database (because the amount of cascading is reduced).

In the following example, the PSSR control statement causes PSSR to override the DBD. The value in column 51 overrides the BYTES operand of the RMNAME keyword on the DBD statement. Overriding this parameter causes PSSR to place some database records in the SORTOUT2 data set. These records are reloaded last in order to eliminate their contribution to the cascading problem. The value of the override is the maximum amount of space (in one block) that can be used to contain database segments. The PSSR control statement is in the standard format used for reloading a large database in order to minimize cascading. Because column 65 is blank, the potentially gigantic Record Sizes report is not printed. All other PSSR reports are generated.

```
//DFSORT EXEC FABSPSSR,
//          DBDLIB='HPS.TEST.DBDLIB'
//STEPHD.CTL DD *
ORDHDM                                02028
/*
//STEPHD.SYSIN DD *
SORT  FIELDS=(5,20,BI,A),FILSZ=E9400000
MODS  E15=(FABSRT15,50000,IMS2),E35=(FABSRT35,50000,IMS2)
END
/*
```

Figure 56. Example 2: DFSORT (PSSR) JCL

Important: If you reload a database by using IMS HP Load 2.1, you cannot use PSSR to prevent cascading. To prevent cascading and avoid degradation of performance in reloading, it is recommended that you use the SORT=YES and the SEARCH=-nnn parameter instead of using PSSR. When the non-zero byte limit value is specified for your database, you must specify 'NO' in columns 51-52 of your control statement. Otherwise, IMS HP Load 2.1 ends abnormally with message HPSR3630E. For more information, see “[FABSPSSR CTL data set](#)” on page 139 or “[FABSPSSI CTL data set](#)” on page 143.

Example 3: Iterative tuning analysis

In this example, PSSR is used to investigate how potential DBD changes affect randomizer performance.

This kind of analysis is usually done in the following situation:

- Some performance degradation is being experienced.
- A database reorganization does not eliminate the poor performance.
- Poor randomization is the suspected cause of the bad performance.

PSSR can model the randomization process without actually creating a reorganized database. It prints the following two reports:

- Assigned Roots per Block, which tells how many root segments were randomized to each database block.
- Assigned Roots per RAP, which tells how many root segments were randomized to each RAP.

You can find out how many root segments are randomized to each block or RAP from these reports.

Note: Although they are much more compact than the Record Sizes report, these reports can still be quite large. They each contain approximately 5000 - 6000 entries on each page. A large database could result in a very large printed report. For example, assume that your database root addressable area is 250,000 blocks long, with two RAPs in each block. The Assigned Roots per Block report will be nearly 500 pages long, and the Assigned Roots per RAP report will be nearly 100 pages long.

Having well-distributed root segments is required to obtain optimum performance from an HDAM database. You want to minimize the number of physical input/output requests needed to access a segment. Having each root segment stored in its home block is a major factor. If your root segments are fairly evenly distributed throughout the root addressable area, it should minimize the number of roots that are not stored in their home block.

Database characteristics usually change over time. This can sometimes contribute to degraded performance. Some databases might require periodic analysis and changing of their randomization characteristics in order to maintain best performance.

You can use the PSSR randomizer-performance reports to evaluate how well your randomizer is distributing your root segments. By running PSSR iteratively, you can judge potential DBD changes without having to create a new version of the database. After using the PSSR to determine better values for the DBD randomization parameters, you can reorganize your database using those parameters.

Example of steps for tuning analysis

This example uses DBD overrides (on the PSSR control statement in the CTL data set) to model potential DBD changes. PSSR is run iteratively, changing the DBD overrides on each iteration until a satisfactory randomization is obtained. The following steps are required:

1. [“Unload the database with IMS HD Reorganization Unload utility or with an equivalent program” on page 170](#)
2. [“Run PSSR several times, each time with different DBD overrides” on page 170](#)

Once the new DBD parameters are selected, the database should be reorganized as described in [“Example 1: Normal reorganization \(Changing root addressable area\)” on page 165](#).

By monitoring the performance of your randomizing routines using PSSR (using PSSR, the HD Tuning Aid utility of IMS High Performance Pointer Checker, or both), you can detect conditions that might affect database performance. Proper analysis and tuning can then keep your databases in the best condition.

Unload the database with IMS HD Reorganization Unload utility or with an equivalent program

Unload the database with IMS HD Reorganization Unload utility or an equivalent program, such as IMS High Performance Unload for z/OS unload utilities.

In this scenario, the database is assumed to be unloaded as in [“Example 1: Normal reorganization \(Changing root addressable area\)” on page 165](#) (see [Figure 51 on page 166](#) for the JCL). It is a standard database unload execution.

Run PSSR several times, each time with different DBD overrides

This step prints the randomization reports. It consists of five executions of PSSR (see [Figure 57 on page 171](#)). The only difference between the five cases is the PSSR control statement.

1. This case uses the DBD without overriding any parameters. It represents the database condition that this analysis is trying to improve. All PSSR reports (including the potentially large Record Sizes report) are printed.
2. Here the number of blocks in the root addressable area is changed to 100 (column 20), and the number of RAPs in one block is changed to 4 (column 29). The leading zeros for these two control statement fields are required. The dash (-) in column 62 prevents the printing of both Record Sizes

reports. These were printed in case “1” on page 170, and there is no need to reprint them. (Modifying DBD parameters cannot change the size of a database record.)

3. The randomizing module is changed to DFSHDC30 (column 11), the number of blocks in the root addressable area is changed to 100 (column 20), and the number of RAPs in one block is changed to 4 (column 29). The Record Sizes reports are not printed (column 62).
4. The randomizing module is changed to DFSHDC20 (column 11), the number of blocks in the root addressable area is changed to 200 (column 20), and the number of RAPs in one block is changed to 1 (column 29). The Record Sizes reports are not printed (column 62).
5. The randomizing module is changed to DFSHDC10 (column 11), the number of blocks in the root addressable area is changed to 400 (column 20), and the number of RAPs in one block is changed to 3 (column 29). The Record Sizes reports are not printed (column 62).

```
//PHYBLK1 EXEC FABSPSSR
//STEPHD.CTL DD *
ORDHDM
/*
//STEPHD.SYSIN DD *
  SORT      FIELDS=(5,20,BI,A),FILSZ=E9400000
  MODS      E15=(FABSR15,50000,IMS2,N),E35=(FABSR35,50000,IMS2,N)
  END
/*
/*-----
//PHYBLK2 EXEC FABSPSSR
//STEPHD.CTL DD *
ORDHDM      0000100  004          -
/*
//STEPHD.SYSIN DD *
  SORT      FIELDS=(5,20,BI,A),FILSZ=E9400000
  MODS      E15=(FABSR15,50000,IMS2,N),E35=(FABSR35,50000,IMS2,N)
  END
/*
/*-----
//PHYBLK3 EXEC FABSPSSR
//STEPHD.CTL DD *
ORDHDM      DFSHDC30 0000100  004          -
/*
//STEPHD.SYSIN DD *
  SORT      FIELDS=(5,20,BI,A),FILSZ=E9400000
  MODS      E15=(FABSR15,50000,IMS2,N),E35=(FABSR35,50000,IMS2,N)
  END
/*
/*-----
//PHYBLK4 EXEC FABSPSSR
//STEPHD.CTL DD *
ORDHDM      DFSHDC20 0000200  001          -
/*
//STEPHD.SYSIN DD *
  SORT      FIELDS=(5,20,BI,A),FILSZ=E9400000
  MODS      E15=(FABSR15,50000,IMS2,N),E35=(FABSR35,50000,IMS2,N)
  END
/*
/*-----
//PHYBLK5 EXEC FABSPSSR
//STEPHD.CTL DD *
ORDHDM      DFSHDC10 0000400  003          -
/*
//STEPHD.SYSIN DD *
  SORT      FIELDS=(5,20,BI,A),FILSZ=E9400000
  MODS      E15=(FABSR15,50000,IMS2,N),E35=(FABSR35,50000,IMS2,N)
  END
/*
```

Figure 57. Example 3: DFSORT (PSSR) JCL

Example 4: Print reports about record sizes

PSSR produces two reports that describe the sizes of your database records.

These reports are:

- Record Sizes report
- Record Size Distribution report

To learn the size of every record in your database, print the Record Sizes report by coding ALL in column 65 as input for your control statement of the CTL data set (see [“FABSPSSR CTL data set” on page 139](#) or [“FABSPSSI CTL data set” on page 143](#).)

Note: The Record Sizes report contains approximately 500 - 600 record sizes on each page. A large database could result in a very large printed report. For example, if your database has one million root segments, this report will be nearly 2000 pages long. Therefore, be sure that you really need to see this report (if your database is large) before coding ALL on your control statement.

One use for this report would be to locate the longest records. You might want to find and analyze those records to determine why they are so long. You can use PSSR and the IMS High Performance Pointer Checker for z/OS HD Pointer Checker utility and HD Tuning Aid utility and the IMS DBT Version 2 HD Tuning Aid utility to locate long records as follows:

1. Run PSSR to get the Record Sizes report. Suppose this report shows that the N-th database record is very long.
2. Run IMS High Performance Pointer Checker for z/OS HD Pointer Checker and HD Tuning Aid utilities to get the Actual Root per Block report. You can estimate which block contains the N-th root segment from this report.
3. Run IMS High Performance Pointer Checker for z/OS HD Pointer Checker utility to print a few database blocks surrounding your estimate of the block that contains the N-th root segment.
4. Extract the root segment keys from these blocks. Then, read each of those database records under DL/I to locate the longest records.

The Record Size Distribution report is usually more useful. It contains much of the same information as the Record Sizes report. However, the information in the Record Size Distribution report is in a compact, usable format. This report should help you select an appropriate byte limit and block size (or control interval size). It gives the average database record length in addition to a histogram of the distribution of all database record lengths. Byte limit and block size should usually be larger than the average database record length. This report can help you estimate how much data will go into overflow during a database reorganization (using particular values for byte limit and block size).

Example of steps for printing reports

In this example, PSSR is used to obtain information about database record sizes. No database reorganization is needed, so PSSR can be run without actually sorting the unloaded database data set. Eliminating the sorting reduces the amount of computer resources (both input/output time and processor time) needed to obtain the reports. The following steps are required:

1. [“Unload the database with IMS HD Reorganization Unload utility or with an equivalent program” on page 172](#)
2. [“Run PSSR without sorting the unloaded database data set” on page 172](#)

Unload the database with IMS HD Reorganization Unload utility or with an equivalent program

Unload the database with IMS HD Reorganization Unload utility or an equivalent program, such as IMS High Performance Unload for z/OS unload utilities.

In this scenario, the database is assumed to be unloaded as in [“Example 1: Normal reorganization \(Changing root addressable area\)” on page 165](#) (see [Figure 51 on page 166](#) for the JCL). It is a standard database unload execution.

Run PSSR without sorting the unloaded database data set

This step prints the Record Sizes reports. In the following example, the PSSR control statement is in the standard format used for printing both Record Sizes reports without sorting:

- The 0 in column 62 causes the actual sorting to be suppressed.

- Placing the word ALL in column 65 causes both the Record Sizes report and the Record Size Distribution report to be printed. If column 65 is left blank, only the Record Size Distribution report would be printed.

```
//DFSORT EXEC FABSPSSR
//          DBDLIB='HPS.TEST.DBDLIB'
//STEPHD.CTL DD *
ORDHDM                                0  ALL
/*
//STEPHD.SYSIN DD *
SORT      FIELDS=(5,20,BI,A),FILSZ=E9400000
MODS      E15=(FABSRT15,50000,IMS2,N),E35=(FABSRT35,50000,IMS2,N)
END
/*
```

Figure 58. Example 4: DFSORT (PSSR) JCL

Example 5: HALDB processing

This example illustrates how to use PSSR to sort an entire database data set that is unloaded by the IMS HD Reorganization Unload utility. This method enables you to reorganize a HALDB.

In this example, it is assumed that there is no logical relationship in the database. The typical tasks are as follows:

1. Create an image copy of the old HALDB.
2. Unload the HALDB with the IMS HD Reorganization Unload utility or an equivalent program, such as IMS High Performance Unload for z/OS FABHURG1 (with *HD format) or FABHFSU (with UL format).
3. Create a new DBD. For HALDB, change the partition information using a partition definition utility if necessary.
4. Sort the unloaded database data set with PSSR, using the FABSPSSI procedure.
5. Delete the cluster for the old HALDB, and define a new one.
6. Reload the database with the IMS HD Reorganization Reload utility or an equivalent program, such as IMS HP Load.
7. Create an image copy of the new HALDB.
8. Run IMS High Performance Pointer Checker for z/OS HD Pointer Checker utility, using the image copy as input.

The PSSR JCL can be used to sort the unloaded data set into the SORTOUT data set:

```
//PSSRSORT EXEC FABSPSSI,
//          IMSHDUN='UNLOAD.DATASET'
//STEPHD.SORTOUT DD DSN=UNLOAD.DATASET,DISP=NEW,
//          SPACE=(CYL,(10,1)),
//          UNIT=SYSDA,VOL=SER=000000,
//          DCB=UNLOAD.DATASET
//STEPHD.CTL DD *
PHDB01
/*
```

Part 5. Bitmap Resetter

The Bitmap Resetter utility adjusts bitmaps to accommodate denser packing of HD database blocks.

Topics:

- [Chapter 15, “Introduction to the Bitmap Resetter utility,” on page 177](#)
- [Chapter 16, “Resetting bitmaps with the Bitmap Resetter utility,” on page 179](#)

Chapter 15. Introduction to the Bitmap Resetter utility

The Bitmap Resetter utility can be used to adjust the bitmap of an HDAM, HIDAM, PHDAM, or PHIDAM database to accommodate denser packing of the database blocks.

A bit in the bitmap block indicates whether a block has free space, and the order of the bits in the bitmap block corresponds to the order of blocks.

Normally, when the bit is '1', it means that the corresponding block contains a contiguous free space large enough to put the largest segment in the data set group, and when the bit is '0', it means that it has no space for it.

The determination whether a block has free space is done as follows:

- Though there might be segments with various lengths, the largest segment in the data set group is used for determination.
- For a variable segment, the longest length is used for determination. Therefore, the actual segment length might be smaller than the maximum length defined in the DBD.
- For a compression segment, the original length (of uncompressed status) is used for determination.

Therefore, though the block might have enough free space for segments, if the bit is turned to '0' if it is determined that there is not enough space by its check, no segment is inserted into the block.

If you use the Bitmap Resetter utility, you can specify the threshold value for free space size whether the bit in bitmap block is set to '1' or '0'. That is, you can reset the bit so as to put the segment data into the contiguous free space, which is larger than the segment but smaller than the maximum segment size in the data set group. You can specify a separate value for up to 10 data set groups.

Important: Bitmap Resetter is a utility that changes the bitmap data. Therefore, it is recommended that you run image copy before you run Bitmap Resetter.

Restriction: Bitmap Resetter does not support HALDB partitions whose OLR cursor is active (when both A-J and M-V data sets are active).

Chapter 16. Resetting bitmaps with the Bitmap Resetter utility

Use the following topics to learn how to run the Bitmap Resetter utility.

Topics:

- [“Resetting bitmaps” on page 179](#)
- [“Bitmap Resetter JCL requirements” on page 180](#)
- [“Bitmap Resetter control statements” on page 182](#)
- [“Bitmap Resetter reports” on page 183](#)

Resetting bitmaps

To run the Bitmap Resetter utility to reset bitmaps, you must code the EXEC statement and DD statements, and optionally control statements to control the behavior of the utility.

Procedure

1. Optional: Take an image copy of the database.

The Bitmap Resetter utility changes the bitmap data. Therefore, it is recommended that you run image copy before you run the utility.

2. Prepare JCL for the Bitmap Resetter utility, and code the EXEC statement and DD statements to meet the JCL requirements of the Bitmap Resetter utility.

For more information about the EXEC statement and DD statements, see [“Bitmap Resetter JCL requirements” on page 180](#).

3. Optional: Code the control statements in the HPSIN data set.

For more information about the control statements, see [“Bitmap Resetter control statements” on page 182](#).

4. Submit the job.

5. Check the output reports and messages, and ensure that the job ran successfully.

For more information about the reports, see [“Bitmap Resetter reports” on page 183](#).

Example

The following figure shows a JCL example to run the Bitmap Resetter utility.

```
//BMPRST EXEC PGM=HPSBRSET,
//      PARM='TSTHDL1,DBRC=N'
//STEPLIB DD DISP=SHR,DSN=HPLD.SHPSLMD0
//      DD DISP=SHR,DSN=IMS.SDSFRESL
//IMS    DD DISP=SHR,DSN=DBDLIB
//HPSOUT DD SYSOUT=*
//HPSOUT2 DD SYSOUT=*
//HPSIN  DD *
BMSETDSG=(1000,3000,6000)
/*
```

Figure 59. JCL example for the Bitmap Resetter utility

Bitmap Resetter JCL requirements

To run a Bitmap Resetter job, code the EXEC statement and DD statements that satisfy the Bitmap Resetter JCL requirements.

The keywords for the JCL stream that are needed to run the Bitmap Resetter utility are shown in the following table.

Table 27. DD statements and record format for Bitmap Resetter

DDNAME	Use	Format	Need
STEPLIB	Input		Required (Note 1)
IMS	Input		Required
HPSIN	Input	LRECL=80	Required
RECONx	Input		Optional for Non-HALDB Required for HALDB
<i>database</i>	Input/Output		Optional (Note 2)
IMSDALIB	Input	Same as that used in the IMS control region startup JCL stream	Optional
HPSOUT	Output	LRECL=133	Required
HPSOUT2	Output	LRECL=133	Required
SYSUDUMP	Output	LRECL=133	Optional

Notes:

1. The load module library of STEPLIB must be authorized through Authorized Program Facility (APF).
2. If you use dynamic allocation, do not use the DD statements for these data sets.

EXEC

Must be in the following form:

```
//name EXEC PGM=HPSBRSET,PARM='dbdname,DBRC=Y'
```

dbdname

The name of the DBD.

DBRC=

Y

Requires DBD authorization. Specify DBRC=Y when you process a HALDB.

N

If DBRC=FORCE is set in SCD, returns HPSB0601E error. To use for a HALDB, you must set DBRC=Y.

STEPLIB DD

```
//STEPLIB DD DISP=SHR,DSNAME=pgmlib  
// DD DISP=SHR,DSNAME=IMSESA.RESLIB
```

pgmlib

The name of the library that contains the load module of Bitmap Resetter.

IMSESA.RESLIB

The name of the library that contains IMS load modules.

To offload eligible workloads to zIIP processors, the name of the SGLXLOAD library of IMS Tools Base must also be specified on the STEPLIB DD statement. The load module libraries that are specified on the STEPLIB DD must be APF-authorized.

IMSDALIB DD

Specifies a partitioned data set or data sets that contain the dynamic allocation members for the database and the RECON data sets.

Allocation of the database and the RECON data sets is attempted in the following order:

1. The DD statements that are coded in the JCL stream
2. Dynamic allocation members in the IMSDALIB concatenation
3. Dynamic allocation members in JOBLIB or STEPLIB concatenation

For dynamic allocation of HALDB databases, the RECON data sets are used instead of the IMSDALIB DD statement.

IMS DD

Describes the library that contains the DBD referred to in the PARM field of the EXEC statement. This data set must reside on a direct-access device.

HPSIN DD

Defines a data set that contains control statements that specify the functions of Bitmap Resetter. This DD statement is required. If the DD is omitted, the run terminates. For details about control statements, see [“Bitmap Resetter control statements” on page 182](#).

RECON1 DD

Defines the first Database Recovery Control (DBRC) RECON data set.

RECON2 DD

Defines the second DBRC RECON data set.

RECON3 DD

Defines the optional DBRC RECON data set that is used when an error is encountered in RECON1 or RECON2. This RECON data set must be the same RECON data set as the one the control region is using.

Note: If you use dynamic allocation, these RECON data set ddnames must not be used.

database DD

Defines the database data set to be reset. You need one statement for each data set that appears in the DBD that describes this database. The ddname must match the ddname in the DBD. No DD statements are required for whatever primary index and secondary indexes that might be associated with this database. This data set must reside on a direct-access device.

Note: If you use dynamic allocation, do not use the DD statement for the database data sets.

For HALDBs, no DD statements are necessary for any database data sets because the data sets are always dynamically allocated.

HPSOUT DD

Reports, such as the HPSIN control statements report, Parameters and DBD/Data Sets report, error and warning messages, and Bitmap Reset Process Summary report, are printed. If the DD is omitted, the run terminates.

HPSOUT2 DD

Old and new contents of bitmap is printed. If the DD is omitted, no report is printed.

SYSUDUMP DD

Defines a dump data set. Most errors encountered end the Bitmap Resetter utility job by issuing an ABEND macro with the DUMP operand. Only a SYSUDUMP DD is needed. The SYSABEND DD statement is not required.

Bitmap Resetter control statements

Bitmap Resetter control statements specify the functions of Bitmap Resetter.

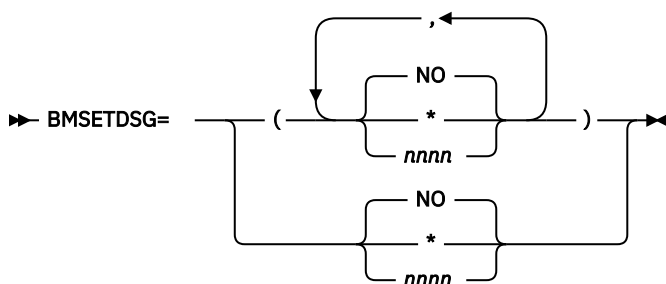
The following table lists the parameters that you can specify for the process control in the HPSIN data set.

Table 28. Bitmap Resetter control statements

Keyword	Accepted values	Default	Description
BMSETDSG=(n1,n2,n3)	nnnnn or * or NO	NO	Specifies the threshold value for determining whether a block has space for DSG.
BMSETPART=(part_a,part_b,part_c)	mmmmmmm (7 digit)	N/A	When you select the partitions to be reset in the bitmap, use this optional control statement.
ZIIPMODE=COND	COND or NEVER	NEVER	Specifies whether to offload eligible workloads to zIIP processors.

BMSETDSG control statement

Specifies the threshold value for determining whether a block has space for data set group (DSG).



NO

Do not reset bitmap for this data set group.

*

Use the largest segment value for the data set group in the same manner as the IMS.

nnnn

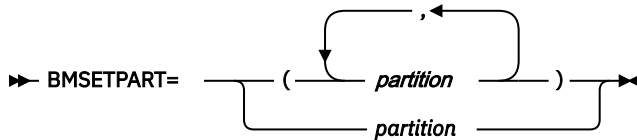
Use this value to specify the size to reset the bitmap block for the data set group. You can specify a value in the range of 6 - 32,000.

You can specify one of these parameters up to 10 times. When the number of specified parameters is less than the actual number of the data set groups, the Bitmap Resetter processes from the first to the specified number of the data set group.

When the number of specified parameters is more than number of the data set groups, the Bitmap Resetter processes from the first to the actual number of the data set groups.

BMSETPART control statement

When you select the partitions to be reset the bitmap, use this optional control statement. If you do not specify this control statement, and if the database is a HALDB, all partitions are processed.



partition

Specifies the partition name to be reset.

You can specify the value for the partition name in multiple BMSETPART control statements. When you specify multiple BMSETPART control statements, the statements do not need to be consecutive.

Example of a normal case:

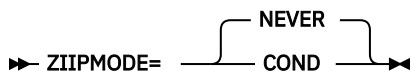
```
BMSETPART=(PartA,PartB)
BMSETPART=(PartC,PartD)
:
```

You can specify up to 20 partitions at once.

ZIIPMODE control statement

Specifies whether Bitmap Resetter offloads eligible I/O workloads to zIIP processors.

This control statement is optional. If you do not specify this control statement, ZIIPMODE=NEVER is used.



COND

Offloads VSAM ESDS I/O or OSAM LDS I/O workloads to zIIP processors. COND is effective only when available zIIP processors are found. Otherwise, the job is run on the main CPs.

To apply ZIIPMODE=COND, the SGLXLOAD library of IMS Tools Base must be specified to the STEPLIB.

NEVER

Does not offload any workload to zIIP processors. NEVER is the default to avoid unexpected performance degradation.

Bitmap Resetter reports

The Bitmap Resetter utility generates several reports that contain information about the job and the bitmap blocks.

HPSIN Control Statements report

This report contains an echo back of the control statements that you specified in the HPSIN data set.

The following figure shows an example of the HPSIN Control Statements report.

"HPSIN CONTROL STATEMENTS"

```
0.....1.....2.....3.....4.....5.....6.....7.....8
123456789012345678901234567890123456789012345678901234567890
BMSETDSG=(1000,3000,6000)
```

Figure 60. HPSIN Control Statements report

Parameter and DBD/Data Sets report

This report provides information about the DBD definition and the parameter values that you specified.

The following figure shows an example of the Parameters and DBD/Data Sets report.

```
IMS HP LOAD BITMAP RESETTER          "PARAMETERS AND DBD/DATA SETS"          PAGE: 1
5655-M26                               10/01/2020 23.11.15

PARAMETER STRING:  TSTHDL1,DBRC=N
DBDNAME           :  TSTHDL1
DBRC IS SET TO    :  NO
DBD ORGANIZATION:  HDAM VSAM
ANCHOR POINTS     :  6
DATA SET GROUPS   :  3

BASED ON INPUT PARAMETERS NEXT DATA SET GROUPS WILL BE SCANNED:

DATA SET GROUP 1:
LRECL/CI: 2048
MAXSEGML: 1618
MINSEGML: 1618
PARM VALUE: 1000

DATA SET GROUP 2:
LRECL/CI: 4096
MAXSEGML: 3214
MINSEGML: 1610
PARM VALUE: 3000

DATA SET GROUP 3:
LRECL/CI: 8192
MAXSEGML: 6410
MINSEGML: 6410
PARM VALUE: 6000
```

Figure 61. Parameters and DBD/Data Sets report

PARAMETER STRING

The parameters of the Bitmap Resetter program.

ANCHOR POINTS

The number of RAPs.

DATA SET GROUPS

The number of data set groups.

LRECL/CI

The size of block/CI. For a HALDB database, '(PART)' is displayed. To know the size of block/CI, see ["Bitmap Reset Process Summary report" on page 184](#).

MAXSEGML

The length of the maximum segment.

MINSEGML

The length of the minimum segment.

PARM VALUE

The parameter value of BMSETDSG that you specified.

Bitmap Reset Process Summary report

This report contains a summary of the bitmap reset process. For each data set, statistics about bitmap blocks are provided.

The following figure shows an example of the Bitmap Reset Process Summary report.

DDNAME	PRIM/OVFL	DSNAME	BLKSZ	BITMAP BLK#	-NUMBER OF ADDED	BLOCKS WITH REMOVED	FREE SPACE- UNCHANGED
TSTHDS1	PRIMARY	TEMPDS.TFMB0103.TFMB0103.TSTHDS1	02048	0000002	0000000	0000000	0000005
DDNAME	PRIM/OVFL	DSNAME	BLKSZ	BITMAP BLK#	-NUMBER OF ADDED	BLOCKS WITH REMOVED	FREE SPACE- UNCHANGED
TSTHDS2	PRIMARY	TEMPDS.TFMB0103.TFMB0103.TSTHDS2	04096	0000002	0000005	0000000	0000000
DDNAME	PRIM/OVFL	DSNAME	BLKSZ	BITMAP BLK#	-NUMBER OF ADDED	BLOCKS WITH REMOVED	FREE SPACE- UNCHANGED
TSTHDS3	PRIMARY	TEMPDS.TFMB0103.TFMB0103.TSTHDS3	08192	0000002	0000005	0000000	0000000

Figure 62. Bitmap Reset Process Summary report

BITMAP BLK#

The number of bitmap blocks.

NUMBER OF BLOCKS WITH FREE SPACE

The number of blocks/CIs which bitmap status is updated.

ADDED

The number of bitmap data that are turned on.

REMOVED

The number of bitmap data that are turned off.

UNCHANGED

The number of bitmap data unchanged.

If NO is specified for BMSETDSG, the data of that data set group is dropped from this report and other data set groups are not shown.

Error and Warning Messages report

This report contains error messages and warning messages that are issued during the job (if any).

The following figure shows an example of the Error and Warning Messages report.

HPSB0136E - MEMBER FOUND - ERROR IN NAME:	TSTHDL1
HPSB0111E - ERROR RETURN FROM DYNAMIC ALLOCATION PROGRAM	TSTHDS1

Figure 63. Error and Warning Messages report

Old and New Contents of Bitmap report

This report shows the beginning of the data set. You can use this report to compare the old and new bitmap information.

The following figure shows an example of the Old and New Contents of Bitmap report.

```

BITMAP          DDNAME=TSTHDS1  -BLOCKNO= 0000002 ***** OLD CONTENT *****
00000000  00000001 00000000 00000000 00000000 00000000 00000000 00000000 00000000
00000020  00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
00000040  00000000 00000000 00000000 00000000 00000000 00000404 01FFFFFF FFFFFFFF
00000060  FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF
00000080  FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF
000000A0  FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF
000000C0  FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF
000000E0  FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF
00000100  FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF
00000120  FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF
00000140  FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF
00000160  FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF
00000180  FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF
000001A0  FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF
000001C0  FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF
000001E0  FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FF0001F9 01F90000

BITMAP          DDNAME=TSTHDS1  -BLOCKNO= 0000002 ***** NEW CONTENT *****
00000000  00000001 00000000 00000000 00000000 00000000 00000000 00000000 00000000
00000020  00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
00000040  00000000 00000000 00000000 00000000 00000000 00000404 7FFFFFFF FFFFFFFF
00000060  FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF
00000080  FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF
000000A0  FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF
000000C0  FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF
000000E0  FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF
00000100  FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF
00000120  FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF
00000140  FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF
00000160  FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF

```

Figure 64. Old and New Content of Bitmap report

Part 6. References

The following reference information helps you set site default values for IMS HP Load jobs and learn how to read syntax diagrams used in IMS HP Load information.

Topics:

- [Chapter 17, “Setting installation default options,” on page 189](#)
- [Chapter 18, “How to read syntax diagrams,” on page 193](#)

Chapter 17. Setting installation default options

You can change the default values for some options by creating an installation default option table (HPSROPTI) for your site.

Installation default option table is effective only for IMS HP Load. You cannot set installation default option values for the following utilities:

- Physical Sequence Sort for Reload
- Load API
- Bitmap Resetter

The following topics contain product-sensitive programming interface information. See “[Programming interface information](#)” on page 300 to understand the restrictions that are associated with this type of material.

Topics:

- “[How the runtime options are determined](#)” on page 189
- “[Creating an installation default option table \(HPSROPTI\)](#)” on page 190
- “[HPSROPT macro statements](#)” on page 190

How the runtime options are determined

Runtime options are determined by the parameter values that are set in the FRRIN data set, the installation default option table (HPSROPTI), and the system default option table (HPSROPTS).

PSPI

The following figure illustrates how the values of the runtime options are determined. The sources that determine those values are placed in order of priority; that is, an option in a higher position in the figure overrides one in a lower position.

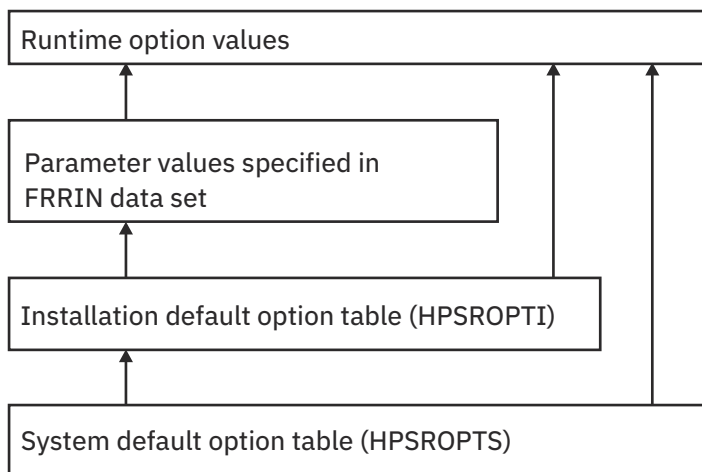


Figure 65. How the runtime options are determined

PSPI

Creating an installation default option table (HPSROPTI)

You can create an installation default option table (HPSROPTI) to change the default values of some options. If you link-edit HPSROPTI to your load module library of IMS HP Load, the default values specified in HPSROPTI apply to all IMS HP Load jobs that use the library.

Procedure

PSPI

1. Copy the sample JCL stream HPSROPTG from the sample library.

HPSROPTG is a sample JCL for use in creating an installation default option table (HPSROPTI). HPSROPTG is provided as a member of the HPS.SHPSSAMP library. HPSROPTG assembles the user-specified HPSROPT macro statements and link-edits the output of the assembly into the HPS.SHPSLMD0 load module library to build the module HPSROPTI.

2. Modify the HPSROPT macro statements in the copied JCL stream.

The options that can be changed by creating an HPSROPTI are described in [“HPSROPT macro statements”](#) on page 190.

Example:

Use the following HPSROPT macro statements to change the default values as follows:

- Change the default value of the CHKTRAIL option to (YES,ERROR).
- Change the default value of the OADSPR option to YES.

```
HPSROPT  START
HPSROPT  RELOAD ,CHKTRAIL=(YES,ERROR) ,OADSPR=YES
HPSROPT  END
```

3. Submit the JCL stream to assemble the HPSROPT macro statements and link edit the module HPSROPTI into the IMS HP Load load module library or a user library.

PSPI

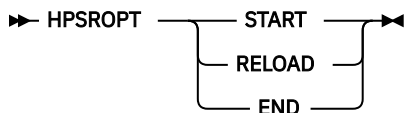
HPSROPT macro statements

The installation default options are specified by coding a set of HPSROPT macro statements.

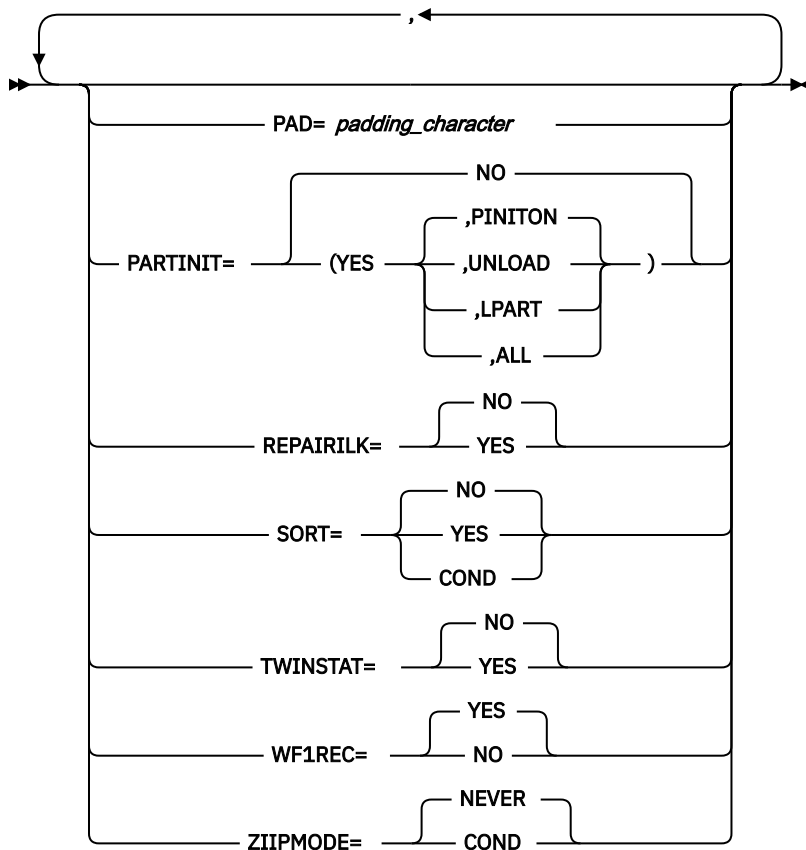
PSPI

These statements are assembler language macro instructions and therefore are subject to the rules contained in the *High Level Assembler Programmer's Guide*.

The general syntax of the HPSROPT macro statement is as follows:



RELOAD



You must specify a set of HPSROPT macro statements in the following sequence:

1. An HPSROPT macro statement that specifies START as the first positional parameter.
2. An HPSROPT macro statement that specifies RELOAD as the first positional parameter, plus keywords and their parameters.
3. An HPSROPT macro statement that specifies END as the first positional parameter.



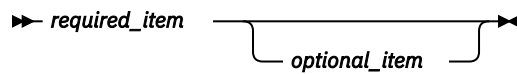
Chapter 18. How to read syntax diagrams

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

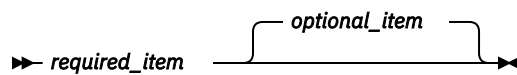
- Read the syntax diagrams from left to right, from top to bottom, following the path of the line. The following conventions are used:
 - The >>--- symbol indicates the beginning of a syntax diagram.
 - The ---> symbol indicates that the syntax diagram is continued on the next line.
 - The >--- symbol indicates that a syntax diagram is continued from the previous line.
 - The --->< symbol indicates the end of a syntax diagram.
- Required items appear on the horizontal line (the main path).

➤ *required_item* ➤

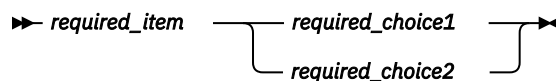
- Optional items appear below the main path.



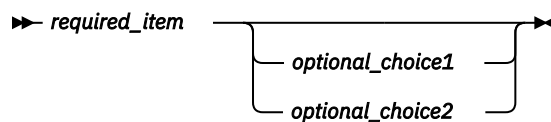
If an optional item appears above the main path, that item has no effect on the execution of the syntax element and is used only for readability.



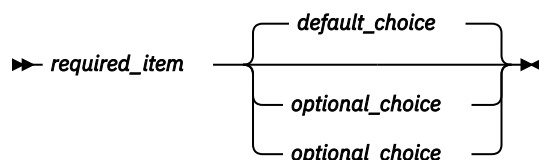
- If you can choose from two or more items, they appear vertically, in a stack.
If you *must* choose one of the items, one item of the stack appears on the main path.



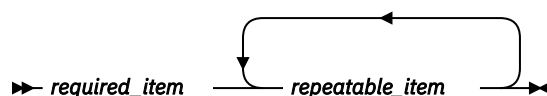
If choosing one of the items is optional, the entire stack appears below the main path.



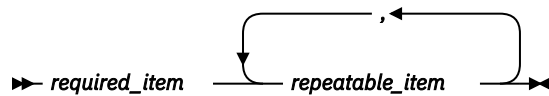
If one of the items is the default, it appears above the main path, and the remaining choices are shown below.



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

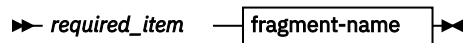


If the repeat arrow contains a comma, you must separate repeated items with a comma.

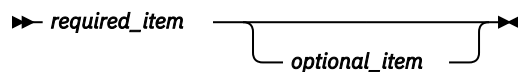


A repeat arrow above a stack indicates that you can repeat the items in the stack.

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



fragment-name



- A b symbol indicates one blank position.
- Keywords, and their minimum abbreviations if applicable, appear in uppercase. They must be spelled exactly as shown. Variables appear in all lowercase italic letters (for example, *column-name*). They represent user-supplied names or values.
- Separate keywords and parameters by at least one space if no intervening punctuation is shown in the diagram.
- Enter punctuation marks, parentheses, arithmetic operators, and other symbols exactly as shown in the diagram.
- Footnotes are shown by a number in parentheses; for example, (1).

Part 7. Troubleshooting

Use the following topics to diagnose and correct problems that you experience with IMS High Performance Load.

Topics:

- [Chapter 19, “Messages and codes,” on page 197](#)
- [Chapter 20, “Gathering diagnostic information ,” on page 291](#)
- [Chapter 21, “Diagnostics Aid,” on page 293](#)

Chapter 19. Messages and codes

This reference section provides detailed information about the abend codes, return codes, and messages that might be issued during the execution of IMS High Performance Load, Physical Sequence Sort for Reload, and Bitmap Resetter.

Topics:

- [“Abend codes” on page 197](#)
- [“Return codes” on page 197](#)
- [“Messages” on page 200](#)

Abend codes

IMS HP Load issues an abend code when a module of IMS HP Load ends abnormally.

Every *nnnn* abend code is accompanied by an HPSR*nnnn*E, FABS*nnnn*E, or HPSB*nnnn*E message. (*nnnn* is a four-digit number that identifies the abend code and message.) See the message description for the 3*nnn* and 4000 abend code.

For the Load API, the abend code is U4000. For the problem analysis of the Load API, see the HPSR*nnnn*E messages that are issued before the HPSR4000E message. For other messages of IMS HP Load, see [“Messages” on page 200](#).

Return codes

The following topics explain the return codes that are issued by IMS High Performance Load, Physical Sequence Sort for Reload, and Bitmap Resetter.

IMS HP Load return codes

The following table summarizes the return codes of IMS HP Load. These return codes are applicable also when IMS HP Load is used in IMS Database Reorganization Expert jobs.

Table 29. Return codes of IMS HP Load

Return code	Reason code	Meaning
0	None.	Successful completion.

Table 29. Return codes of IMS HP Load (continued)

Return code	Reason code	Meaning
4 (see Note)	X'0001'	No header or trailer record. This code is returned if the input unloaded data set did not have an unload type header or trailer record. The database was successfully reloaded. IMS HP Load issues a message that explains which type of record was missing.
	X'0002'	A return code 4 is received from the HDAM randomizer. The database is successfully reloaded except for the root segment and its dependent segments.
	X'0004'	Some segments are saved in the SEQERROR data set by the SEQERROR=SAVE option. Those segments are available for review and reinsertion by a user-written program.
	X'0008'	Although the database reloaded is involved in a logical relationship or has a secondary index, DFSURWF1 DD DUMMY is specified.
	X'0010'	Although SEQERROR=SAVE is specified in the FRRIN DD statement, SEQERROR DD DUMMY is specified.
	X'0020'	An inconsistent return code is received from the exit routine that is specified on the USERHDRX control statement.
	X'0040'	No segment is read from the non-dummy input (DFSUINPT). The database is empty. Tip: The return code can be changed by specifying the CHKEMPTYUL statement. For more information, see “CHKEMPTYUL control statement” on page 40.
	X'0200'	Although the reloaded database is involved in a secondary index, HPSRSIDXDD DUMMY is specified.
	X'0400'	An update between unload and reload processes is found, but processing continued due to the specification of CHKUPDT=YES,WARN.
	X'0800'	One or more errors occurred in the IMS Tools Knowledge Base Output repository processing.
	X'1000'	API function error in IMS Library Integrity Utilities (LIU), Integrity Checker.
	X'2000'	Although partition initialization function is used, some partitions were not initialized by one of the following reasons: <ul style="list-style-type: none"> • The flag in the RECON shows that the partition does not need to be initialized (NOPINIT). • The partition information is not found in the unloaded data set. • Although PARTINIT=YES,LPART is specified, one or more partitions are not specified on the LPART statement.)
	X'4000'	The DB Sensor component returned an error code.
	X'8000'	Although REPAIRILK=YES is specified, some partitions are not reloaded. When you specify REPAIRILK=YES, ensure that the entire HALDB (that is, all the partitions of the HALDB) is reorganized with the REPAIRILK=YES option to avoid problems that might be caused by duplicate segment ILKs.

Table 29. Return codes of IMS HP Load (continued)

Return code	Reason code	Meaning
8	None.	<p>This return code is returned in one of the following cases:</p> <ul style="list-style-type: none"> • An incorrect control statement was encountered. IMS HP Load issues a message that the user-supplied control statement contained an error. • A library of STEPLIB is not APF-authorized. The load module library of IMS HP Load must be APF-authorized. <p>The database was not reloaded.</p>
16	None.	The database was not reloaded successfully. The reload segment count was not equal to the unload count. Or the reload segment count cannot be verified because a trailer record is not found at the end of the unload data set when the unload data set should have a trailer record.
100–999	None.	A user exit routine requested to stop the processing during the reloading process and to return the return code.

Note: For return code 4, the reason code is a logical sum of the reason codes that are listed in this table.

Physical Sequence Sort for Reload return codes

In the MVS batch environment, PSSR consists of DFSORT exit routines. The return code that is returned to the operating system comes from DFSORT (not from PSSR).

The DFSORT return codes for a PSSR run, and their meanings, are summarized in the following table.

Table 30. Return codes of Physical Sequence Sort for Reload (DFSORT)

Return code	Meaning
0	DFSORT is successfully executed and the sorting ends. This code is the normal return code for all PSSR runs in which column 62 of the PSSR control statement does not contain 0.
16	If column 62 of the PSSR control statement contains 0, DFSORT ends. This is <i>not an error</i> . Otherwise, DFSORT encounters an error during execution and ends.
20	The SYSOUT DD statement is missing.

In the IMS environment, PSSR returns the reason codes summarized in the following table.

Table 31. Return codes of Physical Sequence Sort for Reload in IMS environment

Return code	Meaning
0	This code is the normal return code for all PSSR runs in which column 62 of the PSSR control statement does not contain 0.
4	<ul style="list-style-type: none"> • Some segments are not stored in the output data set. The error reason is shown in message FABSnnnnW. • Some specifications to the PSSR CTL statement are invalid. PSSR ignores them or regards them as blanks. • The specified RAA size is larger than or equal to 4 GB.

Table 31. Return codes of Physical Sequence Sort for Reload in IMS environment (continued)

Return code	Meaning
16	<ul style="list-style-type: none"> If column 62 of the PSSR control statement contains 0, DFSORT ends. This is <i>not</i> an error. Otherwise, DFSORT encounters an error during execution and ends.
20	The SYSOUT DD statement is missing.
100–999	Indicates termination by a user exit. PSSR ends the process and passes this return code back as the job return code. The return code value can be in the range of 100 - 999.

Bitmap Resetter return codes

Bitmap Resetter returns the return codes that are shown in the following table.

Table 32. Return codes of Bitmap Resetter

Return code	Meaning
0	Successfully completed.
4	Warning. An error except for the following (RC=8, 12) cases has occurred.
8	<p>The case that there is no specification of database data set IMSDALIB or STEPLIB DD.</p> <p>One or more errors occurred. The error messages are reported in the HPSIN Control Statements report or in the Error and Warning Messages report.</p>
12	The following error occurred: HPSB0103E, HPSB0104E, HPSB0105E, HPSB0108E, HPSB01110E, HPSB0122E, and HPSB3nnnE other than HPSB3999E.
16	One or more errors occurred, and the processing aborted.

Messages

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

Message format

All the messages that are issued by IMS HP Load have the following format:

```
HPSRnnnnx
FABSnnnnx
HPSBnnnnx
```

Where:

HPSR

Indicates that the message is issued by IMS HP Load

FABS

Indicates that the message is issued by Physical Sequence Sort for Reload

HPSB

Indicates that the message is issued by Bitmap Resetter

nnnn

Indicates the four-digit message identification number

X

Indicates the severity of the message:

E

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

I

Indicates that the message is informational only.

W

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

Each message also includes the following information:

Explanation:

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

System action:

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

User response:

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

IMS HP Load messages

These topics provide HPSR messages, which are issued by IMS HP Load.

**HPSR0001I RELOAD FUNCTION ENDED,
HIGHEST RETURN CODE IS
return_code (REASON CODE:
reason_code)**

Explanation

IMS HP Load ended. The return code and the reason code show the result of the processing. For the description of each return code and reason code, see [“IMS HP Load return codes” on page 197](#).

System action

IMS HP Load sets the indicated return code and continues processing the HD unloaded data set.

User response

None. This message is informational.

**HPSR0002W FIRST RECORD WAS NOT A HDR
RECORD**

Explanation

The first record in the HD unloaded data set (DFSUINPT DD) was not an HD Unload utility header record.

System action

IMS HP Load sets a return code of 4 and continues processing the HD unloaded data set.

User response

Ensure that the input HD unloaded data set is correct. If it is not, correct it, and resubmit the job.

**HPSR0003W LAST RECORD WAS NOT A
TRAILER RECORD**

Explanation

An unloaded data set must have a trailer record as its last record, though the last record in the HD unloaded data set (DFSUINPT DD) was not an unload trailer record.

System action

IMS HP Load sets a return code of 4 and completes the reloading of the database.

User response

Ensure that the input HD unloaded data set is correct. If it is not, correct it, and resubmit the job.

**HPSR0004E UNLOAD AND RELOAD SEGMENT
COUNTS ARE NOT THE SAME**

Explanation

The number of records in the HD unloaded data set is not equal to the number of records that are written into the reloaded database.

System action

IMS HP Load sets a return code of 16.

User response

Contact IBM Software Support.

HPSR0005E	INVALID CONTROL STATEMENT WAS ENCOUNTERED
------------------	--

Explanation

The user-supplied control statement is found to contain an error.

System action

IMS HP Load sets a return code of 8.

User response

Correct the error and rerun the job.

HPSR0006W	RETURN CODE 4 FROM HDAM RANDOMIZER, SEGMENTS DROPPED
------------------	---

Explanation

IMS HP Load received a return code of 4 from the HDAM randomizer. The root segment and its dependent segments were not reloaded. This message is followed by the data of the segments.

System action

IMS HP Load continues processing and sets a return code of 4. In the case of the Load API processing, the return code is 0.

User response

Check the reason of the return code 4 from the HDAM randomizer. Verify the logic of the HDAM randomizer. Correct it, and rerun the job if necessary.

HPSR0007W	DUMMY SPECIFIED FOR DFSURWF1 DD
------------------	--

Explanation

The DFSURWF1 data set is used as input to resolve a logical or secondary index relationship. DFSURWF1 DD DUMMY is specified, although the database reloaded is involved in a logical relationship or with a secondary index.

System action

IMS HP Load sets a return code of 4. In the case of the Load API processing, the return code is 0, and completes reloading the database.

User response

Check the DBD and the PSB to see if logical or secondary index relationships must be resolved. If they must be resolved, specify the DFSURWF1 data set, and rerun the job.

HPSR0009W	DUMMY SPECIFIED FOR SEQERROR DD
------------------	--

Explanation

Although SEQERROR=SAVE is specified in the FRRIN or HPSIN DD statement, SEQERROR DD DUMMY is specified. The SEQERROR data set is required for saving segments in key sequence errors.

System action

IMS HP Load continues processing and sets a return code of 4.

User response

Ensure that a DD statement is present for SEQERROR indicated, and that it properly identifies the correct data set. Specify the SEQERROR data set, and rerun the job if necessary.

HPSR0010W	NO SEGMENT WAS READ FROM INPUT
------------------	---

Explanation

IMS HP Load attempted to reload a database from the non-dummy input (DFSUINPT), but no segment is read from the input.

System action

IMS HP Load sets a return code of 4 and ends. The reloaded database is empty.

User response

Ensure that the correct DBD and the unloaded data (DFSUINPT) are used for the processing. If not, correct the error and rerun the job.

Problem determination

Check the unloaded data format that is determined by IMS HP Load. The format is reported in the FRRIN

or HPSIN Control Statements report. If the reported format is not the one you expected, the input data might be corrupted.

HPSR0011W	NO HEADER OR TRAILER RECORD EXISTED
------------------	--

Explanation

Although the exit routine that is specified on the USERHDRX control statement has set the indicator, which means "there is a header or a trailer record", it did not return a return code of 4.

System action

IMS HP Load sets a return code of 4 and ends.

User response

Check the routine and the input data set (DFSUINPT). If the input data set has a header or a trailer record, the routine should set the indicator and return a return code of 4. If it does not, it should not set the indicator nor return a return code of 4.

HPSR0012W	DBD <i>dbdname</i> IS USING DATA SETS NOT REGISTERED WITH DBRC
------------------	---

Explanation

DBRC is called to create a REORG record for the database, but one or more data set names are not registered with DBRC.

System action

IMS HP Load sets a return code of 4. In the case of the Load API processing, the return code is 0.

User response

Ensure that the correct RECON data sets are used. Correct the error, and rerun the job.

HPSR0013W	DUMMY SPECIFIED FOR HPSRSIDX DD
------------------	--

Explanation

The HPSRSIDX data set is used as input to resolve the secondary index relationship. Although the database that was reloaded is involved in secondary index relationship, HPSRSIDX DD DUMMY is specified.

System action

IMS HP Load sets a return code of 4 (in the case of Load API processing, the return code is 0), and completes reloading the database.

User response

Check the DBD and the PSB and identify if they are required to resolve secondary index relationship. If it is necessary to resolve secondary index relationship, specify one of the following data sets and rerun the job:

- HPSRSIDX data set
- DFSURWF1 data set, but do not specify the HPSRSIDX data set

HPSR0015I	RELOAD TASK FORCED TO END DUE TO ERROR IN ANOTHER TASK
------------------	---

Explanation

The reload task of the IPR Driver was forced to end because of an error in another task.

System action

The reload task of the IPR Driver is forced to end.

User response

Identify the task that originated the error. Correct the error and rerun the job.

HPSR0016I	COMPRESSED SEGMENTS WERE NOT DECOMPRESSED AT UNLOAD. COMPRESS=N IS FORCED
------------------	--

Explanation

COMPRESS=Y is specified in the FRRIN or HPSIN DD. The IMS HP Load utility must be run with COMPRESS=N.

System action

COMPRESS=N is forced, and processing continues.

User response

None. This message is informational.

HPSR0020I	DBD "<i>dbdname</i>" IS PARTITIONED DB
------------------	---

Explanation

The database to be reloaded is a partitioned database.

System action

Processing continues.

User response

None. This message is informational.

**HPSR0023I PARTITION LOAD FOR "partname"
STARTED**

Explanation

Loading of the partition *partname* has just started.

System action

Processing continues.

User response

None. This message is informational.

**HPSR0024I PARTITION LOAD FOR "partition"
COMPLETED**

Explanation

Loading of the indicated partition is complete.

System action

Processing continues. If no other partition is left, processing ends.

User response

None. This message is informational.

HPSR0025I DBDSNAP=Y IS IGNORED

Explanation

DBDSNAP=Y is specified in the FRRIN or HPSIN DD, but the SNAP DD is not specified or is DUMMY.

System action

Processing continues. IMS HP Load utility does not print the dump of DBD for user reference.

User response

Specify SNAP DD, and rerun the job if necessary.

**HPSR0026E BUFFERNO= AND DBRLBUF=
KEYWORDS ARE MUTUALLY
EXCLUSIVE**

Explanation

Both BUFFERNO and DBRLBUF keywords are specified in the FRRIN or HPSIN data set. These keywords are mutually exclusive.

System action

Processing stops.

User response

Correct the error and rerun the job.

**HPSR0027I nnn,nnn,nnn DB RECORDS
PROCESSED
- DBD=database PART=partition**

Explanation

nnn,nnn,nnn database records are processed for the indicated database. PART=*partition* is displayed only for a partitioned database; database records are counted within each partition. This information message helps you to monitor the IMS HP Load job progress.

System action

IMS HP Load continues processing.

User response

None. This message is informational.

**HPSR0028I nnn,nnn,nnn DB RECORDS
PROCESSED
- PART=pppppppp**

Explanation

nnn,nnn,nnn database records are processed. PART=*pppppppp* is displayed only for a partitioned database. This information message helps you to monitor the progress of an IMS HP Load job, when some sequence error segments are reloaded. A preceding message or messages indicate the reason.

System action

IMS HP Load continues processing.

User response

None. This message is informational.

**HPSR0029E LAPIPCBNO=, LAPIPCB=, AND
LAPIPDB= ARE MUTUALLY
EXCLUSIVE**

Explanation

Multiple control statements are specified among LAPIPCBNO, LAPIPCB, and LAPIPDBD in the FRRIN data set. They are mutually exclusive.

System action

Processing stops.

User response

Correct the error and rerun the job.

HPSR0032W	SOME SEGMENTS WERE SAVED IN SEQERROR DD
------------------	--

Explanation

There were some key sequence errors in the unloaded data set. IMS HP Load saved segment in error and their dependent segments in the SEQERROR data set, as specified by SEQERROR=SAVE.

System action

IMS HP Load continues processing and sets a return code of 4. The number of segments that are saved is reported in the Segment Count Summary report.

User response

None. You can use the SEQERROR data set to insert segments with your user-written DL/I program.

HPSR0033I	A SEGMENT IS OUT OF SEQUENCE SEGMENT="<i>segment_name</i>" FIELD="<i>field_name</i>"
------------------	---

Explanation

IMS HP Load attempted to put a segment chain whose sequence field is less than the previous segment on a twin chain. IMS HP Load reloads a database record in descending order.

System action

IMS HP Load continues processing.

User response

None. This message is informational.

HPSR0034I	A SEQUENCE FIELD IS NOT UNIQUE SEGMENT="<i>segment_name</i>" FIELD="<i>field_name</i>"
------------------	---

Explanation

IMS HP Load attempted to put a segment *segment_name* whose sequence field *field_name* was not unique on a twin chain. But the specification of the sequence field is unique.

System action

IMS HP Load continues processing.

User response

None. This message is informational.

HPSR0036E	LAST RECORD WAS NOT A TRAILER RECORD
------------------	---

Explanation

An unloaded data set must have a trailer record as its last record, though the last record in the HD unloaded data set (DFSUINPT DD) was not an unload trailer record.

System action

IMS HP Load sets a return code of 16.

User response

Verify that the input HD unloaded data set is correct. If it is not, correct it, and resubmit the job.

HPSR0037I	DFSURWF1 RECORD CREATION IS SUPPRESSED
------------------	---

Explanation

Though the database to be reloaded has a logical relationship or has a secondary index, creation of the DFSURWF1 records is suppressed because WF1REC=NO is specified.

System action

IMS HP Load continues processing without producing DFSURWF1 records.

User response

If you need the DFSURWF1 data set, remove WF1REC=NO and rerun the job.

HPSR0038I	INSTALLATION DEFAULT OPTIONS TABLE HPSROPTI (LV.nn) IS FOUND
------------------	---

Explanation

The Installation Default Options Table (HPSROPTI) is found. HPSROPTI is generated with the HPSROPT macro of level *nn*. The default values in this table override the values in the System Default Option Table (HPSROPTS).

System action

IMS HP Load continues processing.

User response

None. This message is informational.

HPSR0039I GDG BASE ENTRY WAS CREATED

Explanation

Because GDGBASE=YES is specified, a GDG base entry was created by the IDCAMS command.

System action

IMS HP Load continues processing.

User response

None. This message is informational.

HPSR0040I THE AMOUNT OF DATABASE BUFFERS ADJUSTED

Explanation

IMS HP Load adjusted the amount of database buffers that are specified by the DBRLBUF statement or the BUFFERNO statement. The amount of database buffers adjusted can be calculated by using the following formula:

The amount of the access method buffers See [Note](#) + 10 tracks

Note: Specified by the DBIOBUF statement or JCL.

System action

The amount of database buffers is adjusted to the correct size, and IMS HP Load continues processing.

User response

None. This message is informational.

HPSR0041I GDG BASE ENTRY WAS NOT CREATED BECAUSE GDG BASE ENTRY ALREADY EXISTS

Explanation

GDGBASE=YES is specified. However, GDG base entry is not created because a GDG base entry with the name that is specified on the WF1DSN control statement exists.

System action

IMS HP Load continues processing.

User response

None. This message is informational.

HPSR0042I APF AUTHORIZATION CHECK FAILED (DD: *ddname*, REASON: *reason_code*)

Explanation

The APF-authorization check module (HPSRAPF0) returned an error for the *ddname* DD statement. The reason code *reason_code* is used internally by the module.

System action

Processing continues.

User response

This error is likely an internal system error. Contact IBM Software Support.

HPSR0043I WF1DSN IS IGNORED BECAUSE MULTIPLE DATABASES WERE PROCESSED

Explanation

The specification of the WF1DSN statement was ignored because multiple PCBs are specified in the PSB and a logical relationship or a secondary index is defined in those PCBs. In this case, Load API cannot allocate DFSURWF1 data sets dynamically.

System action

IMS HP Load continues processing.

User response

None. This message is informational.

HPSR0044W WF1DSN SPECIFICATION IS IGNORED BECAUSE DFSURWF1 DD IS SPECIFIED

Explanation

The specification of the WF1DSN statement was ignored because the DFSURWF1 DD statement is specified in the JCL stream.

System action

IMS HP Load continues processing. IMS HP Load uses the data set that is specified on the DFSURWF1 DD statement.

User response

If you want to use the data set that is specified on the WF1DSN statement, remove the DFSURWF1 DD statement and rerun the job.

HPSR0045I	WFPHLQ IS IGNORED BECAUSE PSINDEX IS NOT DEFINED
------------------	---

Explanation

The WFPHLQ control statement is ignored because PSINDEX is not defined to the database that is to be reloaded.

System action

IMS High Performance Load ignores the parameter, and continues processing.

User response

None. This message is informational.

HPSR0046I	IMS CATALOG IS FOUND (HLQ=hlq)
------------------	---------------------------------------

Explanation

IMS HP Load detected that the IMS catalog is enabled and that the ACBs are managed by IMS.

System action

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

User response

None. This message is informational.

HPSR0047I	ZIIPMODE IS IGNORED BECAUSE HPIO IS INACTIVE
------------------	---

Explanation

ZIIPMODE is not applied because High Performance I/O driver (HPIO) is inactive.

System action

Processing continues; the keyword parameter is ignored.

User response

To use the ZIIPMODE keyword, activate High Performance I/O driver by specifying HPIO=YES.

HPSR0050E	UNABLE TO PROCESS THE SPECIFIED PCB (REASON: <i>reason</i>)
------------------	--

Explanation

The PCB that is specified with the control statements cannot be processed. The string *reason* shows the reason.

<i>reason</i>	Description
GSAMPCB	The specified PCB is a GSAM PCB.
PROCOPT	The PROCOPT parameter on the PCB statement specifies an incorrect code or combination of codes. The allowable codes are L and LS.
NOTFOUND	The specified PCB does not exist.

For the PCB name, see message HPSR4000E that accompanies this message.

System action

IMS HP Load issues a user 4000abend.

User response

Correct the specification of the control statement and rerun the job.

HPSR0060E	AN ERROR OCCURRED WHILE THE PIPES WERE PROCESSED FUNC=NNNN
------------------	---

Explanation

An error occurred while the IPRPIPE service was processing. The following are the explanations of FUNC=NNNN:

INIT

An error occurred when PIPE was allocated.

TERM

An error occurred when PIPE was deallocated.

System action

IMS HP Load issues a user 4000 abend.

User response

See the user response sections of the messages that are issued together with this message.

**HPSR0075E THE USER EXIT ROUTINE MUST BE
 AMODE=31.**

Explanation

The user exit routine must be AMODE=31 for the Load API processing.

System action

IMS HP Load issues a user 4000 abend.

User response

Correct the error and rerun the job.

**HPSR0100W "keyword" IS NOT APPLIED
 TO db_type DB. SPECIFICATION
 IGNORED
 RAAFORMAT=
 SEARCH=
 FRSPC=
 RAPCHAIN=
 DBRECDIST=
 SORT=
 SORTHIDAM=**

Explanation

Keyword is not applied to the database to be reloaded because the database organization of the database is *db_type*. This parameter specification is ignored for this run.

System action

Processing continues; the parameter specification is ignored.

User response

Ensure that the control statement and the database organization of the database to be reloaded are correct. If necessary, correct the control statement in error and rerun the job.

**HPSR0101W "keyword" IS NOT APPLIED TO
 NON PARTITIONED DB
 ILDSBLD=
 LPART=**

**PARTINIT=
PARTINFO=
PARTSTAT=**

Explanation

Keyword is not applied to the database to be reloaded because the database is a nonpartitioned database. This parameter specification is ignored for this run.

System action

Processing continues; the parameter specification is ignored.

User response

Ensure that the control statement is correct and whether the correct DBD was used for this job. If necessary, correct the control statement in error and rerun the job.

**HPSR0102W keyword IS IGNORED UNDER LOAD
 API PROCESSING
 CHKTRAIL=
 CHKUPDT=
 LPART=
 SEQERROR=
 USERHDR=
 USERHDRX=**

Explanation

Keyword is not applied to the Load API processing. This keyword parameter is ignored for this run.

System action

Processing continues; the keyword parameter specification is ignored.

User response

Check whether the indicated control statement is specified in the FRRIN data set. If necessary, correct the control statement and rerun the job.

**HPSR0104E "parm_value" IS INVALID FOR
 "parm_name" PARAMETER**

Explanation

An incorrect control statement is detected in control statement syntax checking.

System action

Processing stops.

User response

Correct the error and rerun the job.

HPSR0105W	HPIO= IGNORED BECAUSE OF THE DEFINITION FOR IPR DRIVER
------------------	---

Explanation

The HPIO= specification for the reload task was ignored because the definition for IPR Driver overrides the specification.

System action

IMS HP Load continues processing.

User response

None.

HPSR0106E	NUMBERS IN DBRECDIST STATEMENTS MUST BE SPECIFIED IN ASCENDING ORDER
------------------	---

Explanation

The range values that are specified in the DBRECDIST control statements must not be duplicated and must be in ascending order.

System action

Processing stops.

User response

Correct the error and rerun the job.

HPSR0107E	MORE THAN 20 RANGE VALUES ARE SPECIFIED
------------------	--

Explanation

More than 20 range values are specified in the DBRECDIST control statements.

System action

Processing stops.

User response

Reduce the number of values that are specified on the DBRECDIST control statement.

HPSR0108E	INVALID DBRECDIST STATEMENT IS SPECIFIED
------------------	---

Explanation

IMS HP Load detected an incorrect DBRECDIST control statement.

System action

Processing stops.

User response

If you do not want to generate the Distribution of Database Record Sizes report, specify 0 on the DBRECDIST control statement. If you want to generate it, specify up to 20 values, each of which must be a decimal number in the range of 1 - 9999999, on the DBRECDIST control statement.

HPSR0109E	IPR DRIVER NOT IN REQUIRED LEVEL (level)
------------------	---

Explanation

The release level or maintenance level of the IPR Driver is lower than the level that is required for IMS HP Load to work correctly.

System action

Reload task ends with a return code of 8.

User response

Apply the required maintenance of the IPR Driver.

HPSR0110W	<i>keyword IS IGNORED UNDER IMS REGION CONTROLLER</i>
------------------	--

Explanation

The keyword cannot be used under IMS region controller (PGM=DFSRR00). The keyword parameter is ignored.

System action

Processing continues; the keyword parameter is ignored.

User response

To use the keyword, specify PGM=HPSRR00 and APF-authorize all the libraries that are in the STEPLIB DD concatenation.

HPSR0111E	USERHDR=, USERHDRX=, AND SORT= KEYWORDS ARE MUTUALLY EXCLUSIVE
------------------	---

Explanation

All USERHDR, USERHDRX, and SORT keywords are specified in the FRRIN or HPSIN data set. These keywords are mutually exclusive when processing HALDBs.

System action

Processing stops.

User response

Correct the error and rerun the job.

HPSR0112E	DUPLICATE ELEMENT (<i>element</i>) SPECIFIED IN USERHDR CONTROL STATEMENT
------------------	--

Explanation

The same element *element* is specified in the USERHDR control statement. You can specify *element* only once in the control statement.

System action

Processing stops.

User response

Correct the parameter error, and rerun the job.

HPSR0113E	<i>element</i> MUST PRECEDE ROOTKEY, SEGKEY, OR SEGCKEY
------------------	--

Explanation

The element that you specified (HDRLEN, SEGNAME, or SEGCODE) must precede one of the ROOTKEY, SEGKEY, or SEGCKEY elements.

System action

Processing stops.

User response

Correct the parameter error, and rerun the job.

HPSR0114E	MORE THAN 20 ELEMENTS ARE SPECIFIED IN USERHDR
------------------	---

Explanation

More than 20 elements are specified on the USERHDR control statements.

System action

Processing stops.

User response

Reduce the number of elements on the USERHDR control statements, and rerun the job.

HPSR0115E	HDRLEN MUST BE SPECIFIED WITH SEGKEY, SEGCKEY, OR ROOTKEY
------------------	--

Explanation

If the SEGKEY, SEGCKEY, or ROOTKEY element is specified, the HDRLEN element must be specified.

System action

Processing stops.

User response

Correct the parameter error, and rerun the job.

HPSR0116E	SEGNAME OR SEGCODE IS REQUIRED FOR SPECIFICATION OF USERHDR
------------------	--

Explanation

The USERHDR statement requires either the SEGNAME or the SEGCODE keyword, but neither keyword was provided.

System action

Processing stops with a return code of 8.

User response

Provide the SEGNAME or the SEGCODE keyword and rerun the job.

HPSR0119I	PHYSICAL SEQUENTIAL SORTING PROCESSED (<i>reason</i>)
------------------	--

Explanation

SORT=COND is specified and physical sequential sorting is processed by one of following reasons:

<i>reason</i>	Description
CHANGE DB ORGANIZATION	Database organization is changed from (P)HIDAM to (P)HDAM.
CHANGE PARTITION	The number of partitions has been changed since the unload process.

<i>reason</i>	Description
CHANGE RANDOMIZER	The randomizing module name that is used for reload has been changed since the unload process.
CHANGE RAP#	RAP number that is used for reload has been changed since the unload process.
CHANGE RBN	The maximum BLK/CI number in RAA that is used for reload has been changed since the unload process.
CHANGE ROOT KEY LENGTH	The length of the root key that is used for reload has been changed since the unload process.
CHANGE ROOT KEY POSITION	The starting position of root key that is used for reload has been changed since the unload process.
CONCATENATED UNLOAD D/S	The input unloaded data sets are concatenated.
CS HEADER	The input unloaded data set was created in *CS format.
FALLBACK TO NON-HALDB	Database organization is changed from HALDB to non-HALDB.
LOAD API	The Load API function is used.
LOW LEVEL UNLOAD D/S	The input unloaded data set was not created by IMS HP Unload with the CHECKREC=YES option or the maintenance level of IMS HP Unload was low.
MIGRATION TO HALDB	Database organization is changed from non-HALDB to HALDB.
UNLOADED VIA SECONDARY INDEX	The input unloaded data set was created by referring to the secondary index database.
USER HEADER	USERHDR= or USERHDRX= is specified.

System action

Processing continues.

User response

None. This message is informational.

HPSR0120I SORT PROCESS IS NOT APPLICABLE (reason)

Explanation

SORT=COND is specified. However, physical sequential sorting is not processed by one of the following reasons:

<i>reason</i>	Description
DB ORGANIZATION	Database organization is not (P)HDAM.
USERHDR=	Both SORT= and USERHDR= are specified. These control statements are mutually exclusive when processing HALDBs.

<i>reason</i>	Description
USERHDRX=	Both SORT= and USERHDRX= are specified. These control statements are mutually exclusive when processing HALDBs.

System action

Processing continues.

User response

See the description of the SORT control statement and check the reason of the error.

HPSR0121W PARTINIT=YES,UNLOAD IS IGNORED (reason)

Explanation

PARTINIT=YES,UNLOAD was ignored because IMS HP Load could not determine which partition should be initialized. *Reason* gives description why the process was ignored. The following list describes the *reason*:

CONCATENATED UNLOAD D/S

The input unloaded data sets are concatenated.

LOAD API

The Load API function is used.

LOW LEVEL UNLOAD D/S

The input unloaded data set was not created by IMS HP Unload with the CHECKREC=YES option, or the release level or the maintenance level of IMS HP Unload is lower than the level that is required for IMS HP Load to work correctly.

System action

Processing continues.

User response

Check the HALDB Process Summary report to determine if the all deleted or defined partitions are processed. If there are partitions that are not processed, you must initialize them by DFSUPNT0 before using it.

HPSR0122W PART: xxxxxxxx IS NOT INITIALIZED BECAUSE INFORMATION IS NOT FOUND IN UNLOAD D/S

Explanation

The flag in the DBRC RECON record for the partition shows that the partition needs to be initialized (PINIT=ON). However, the partition whose information

is not found in the unloaded data set is not initialized due to the specification of PARTINIT=YES,UNLOAD.

System action

IMS HP Load continues processing and sets a return code of 4.

User response

If the partition database data set is deleted or defined before the reload, you must initialize it by DFSUPNTO before using it.

HPSR0123W	EMPTY PARTITION xxxxxxxx IS NOT INITIALIZED BECAUSE THE DBRC FLAG SHOWS NOPINIT
------------------	--

Explanation

The unloaded partition does not contain any segment during reload. However, the partition is not initialized because the flag in the RECON shows that the partition does not need to be initialized (NOPINIT).

System action

IMS HP Load continues processing and sets a return code of 4.

User response

If the partition database data set is deleted or defined before the reload, you must initialize it by DFSUPNTO before using it.

HPSR0124E	WF1REC=NO CANNOT BE SPECIFIED WITH IPR INDEXBLD=YES
------------------	--

Explanation

An incorrect control statement is detected by control statement syntax checking in the Reload task of IPR Driver.

System action

Processing stops.

User response

Correct the error and rerun the job.

HPSR0125E	SORTHIDAM=YES IS NOT APPLICABLE FOR <i>db_type</i> DB
------------------	--

Explanation

SORTHIDAM=YES is not applicable for the database organization.

System action

Processing stops.

User response

Ensure that the control statement and the database organization of the database that is to be reloaded are correct. Correct the error and rerun the job.

HPSR0126E	SORTHIDAM=YES CANNOT BE SPECIFIED FOR LOAD API
------------------	---

Explanation

SORTHIDAM=YES is specified for the Load API. However, the statement is not applicable for the Load API.

System action

Processing stops.

User response

Correct the error and rerun the job.

HPSR0127E	USERHDR=, USERHDRX=, AND SORTHIDAM=YES KEYWORDS ARE MUTUALLY EXCLUSIVE
------------------	---

Explanation

All USERHDR, USERHDRX, and SORTHIDAM=YES keywords are specified in the FRRIN or the HPSIN data set. These keywords are mutually exclusive when processing HALDBs.

System action

Processing stops.

User response

Correct the error and rerun the job.

HPSR0128E	RECNUM IS NOT APPLICABLE, BECAUSE SORT PROCESS IS NOT IN EFFECT
------------------	--

Explanation

RECNUM is not applicable because SORT=YES or SORTHIDAM=YES is not specified.

System action

Processing stops.

User response

Correct the control statement, and rerun the job.

HPSR0130W	EMPTY PART <i>partition</i> IS NOT INITIALIZED BECAUSE NO SPECIFICATION ON LPART
------------------	---

Explanation

In the reload process, IMS HP Load found no segments in the unloaded data set for the indicated partition. Although PARTINIT=YES,LPART is specified, IMS HP Load does not initialize the empty partition because the partition is not specified on the LPART control statement.

System action

IMS HP Load continues processing and sets a return code of 4.

User response

If the partition database data set is deleted or defined before the reload, you must initialize it by DFSUPNT0 before using it.

HPSR0131E	PARTITION (<i>partname</i>) IS SPECIFIED MORE THAN ONCE ON THE LPART STATEMENT
------------------	---

Explanation

The indicated partition is specified more than once on the LPART control statement. A partition name that is already specified cannot be specified again.

System action

Processing stops.

User response

Correct the parameter error, and rerun the job.

HPSR0132E	UNDEFINED PARTITION NAME (<i>partname</i>) IS SPECIFIED ON THE LPART STATEMENT
------------------	---

Explanation

The indicated partition name is specified on the LPART control statement. However, the partition is not defined in the DBRC.

System action

Processing stops.

User response

Ensure that the indicated partition is specified correctly and that the partition is defined in the DBRC. Correct the error and rerun the job.

HPSR0133E	THE EXIT NAME FOR USERHDRX= CANNOT BE USED WITH SORT OR SORTHIDAM
------------------	--

Explanation

The exit routine name that is specified on the USERHDRX control statement cannot be specified with a SORT or a SORTHIDAM control statement.

System action

Processing stops.

User response

See the list of exit routine names in [“Restrictions for reloading user-defined header format records”](#) on page 87, correct the exit routine name on the USERHDRX control statement, and rerun the job.

HPSR0134I	LOGICAL RELATIONSHIP IS FOUND IN THE DBD DEFINITION
------------------	--

Explanation

A logical relationship is defined in the DBD definition. If the database is a HALDB, you must rebuild the ILDS.

System action

IMS HP Load continues processing.

User response

None. This message is informational.

HPSR0135I	SECONDARY INDEX IS DEFINED FOR THE DB
------------------	--

Explanation

At least one secondary index is defined for the database. If the database is a HALDB, you must rebuild the ILDS or the secondary index databases.

System action

IMS HP Load continues processing.

User response

None. This message is informational.

HPSR0136E	REPAIRILK=YES CANNOT BE SPECIFIED FOR DB WITH LOGICAL RELATIONSHIP
------------------	---

Explanation

REPAIRILK=YES cannot be specified for databases that are involved in logical relationships.

System action

Processing stops with return code 8.

User response

Correct the REPAIRILK control statement and rerun the job.

HPSR0137W	ALTHOUGH REPAIRILK=YES IS SPECIFIED, SOME PARTITIONS ARE NOT RELOADED
------------------	--

Explanation

Although REPAIRILK=YES is specified, some partitions are not reloaded.



Attention: Segment ILKs of the reloaded partitions are reassigned, but segment ILKs of the unprocessed partitions remain the same. Under such a circumstance, duplicate segment ILKs might be produced within the database.

System action

IMS HP Load sets a return code of 4 and completes the reloading of the database.

User response

If you want to prevent duplicate segment ILKs, specify the REPAIRILK=YES option for all the partitions of the HALDB, and rerun the job.

HPSR0138W	PSINDEX: <i>ddname</i> MUST BE REBUILT
------------------	---

Explanation

The indicated PSINDEX database must be rebuilt because ILKs are reassigned by the REPAIRILK=YES option.

System action

IMS HP Load continues processing.

User response

When the database is reorganized, rebuild the indicated PSINDEX database.

HPSR0139E	TWINSTAT=YES REQUIRES STATRL=YES OR HPSSTAT DD
------------------	---

Explanation

TWINSTAT=YES was specified to print the Twin Segment Statistics section in the Segment Statistics report. However, neither STATRL=YES nor HPSRSTAT DD was specified.

System action

Processing stops with a return code 8.

User response

To print statistics about twin chained segments in the Twin Segment Statistics section of the Segment Statistics report, specify STATRL=YES in the REORG block of the Smart Reorg utility or specify the HPSSTAT DD. If you do not need to print Twin Segment Statistics, specify TWINSTAT=NO.

HPSR0140W	PARTSTAT SPECIFICATION WAS FORCED TO "YES" DUE TO TWINSTAT=YES
------------------	---

Explanation

PARTSTAT=NO was changed to PARTSTAT=YES because TWINSTAT=YES was specified to print the Twin Segment Statistics section.

System action

Processing continues.

User response

None.

HPSR0201E	xxxx TASK ENDED ABNORMALLY (CC= <i>comp_code</i>)
------------------	--

Explanation

The subtask that is shown by string xxxx ended abnormally with a completion code of *comp_code* due to an error in the task. The subtask xxxx is as follows:

xxxx	Subtask
APPL	Application task
DBRC	DBRC command task

<i>xxxx</i>	Subtask
ILES	ILE sort task
RELD	Reload task
SORT	Sort task of unloaded database data set

System action

One of messages HPSR3770E, HPSR4000E, or HPSR3775E follows, and IMS HP Load issues a user 3770, 4000, or 3775 abend.

User response

See the accompanying error messages that are issued from the abended task.

**HPSR0202E *xxxx* TASK WAS FORCED TO END
DUE TO ERROR IN ANOTHER TASK**

Explanation

The task that is shown by string *xxxx* ended abnormally with U2006 due to an error in another task.

<i>xxxx</i>	Subtask
APPL	Application task
RELD	Reload task
SORT	Sort task

System action

Message HPSR3770E or HPSR4000E follows, and IMS HP Load issues a user 3770 or 4000 abend.

User response

See the accompanying error messages that are issued from the abended task.

**HPSR0203I NO CALLS ARE PROCESSED BY
LOAD API PROCESSING**

Explanation

LAPIPCBNO is specified, but no calls are processed by the Load API processing.

System action

The processing continues, and all calls to the PCB are transferred to the DL/I call interface modules.

User response

If the database calls need to be processed by the Load API process, ensure that the specified PCB is correct. Otherwise, ignore this message and continue processing by using the DL/I module. Check the LAPIPCBNO, LAPIPDBD, and LAPIPCB control statements.

**HPSR0301I OUTPUT REPOSITORY
PROCESSING IS COMMITTED**

Explanation

This informational message indicates that IMS HP Load committed to save reports to the IMS Tools KB Output repository.

System action

Processing continues.

User response

None. This message is informational.

**HPSR0302W OUTPUT REPOSITORY
PROCESSING IS CANCELED**

Explanation

This informational message indicates that IMS HP Load canceled storing reports in the IMS Tools KB Output repository because Reload failed.

System action

Processing continues.

User response

None.

**HPSR0311W THE ACCESS TO OUTPUT
REPOSITORY WAS CANCELED.
REASON: *reason***

Explanation

IMS HP Load canceled its access to the IMS Tools KB Output repository because initialization process failed. The list describes the *reason*:

<i>Reason</i>	Meaning
ITKBLOAD DYNALLOC FAILURE	Dynamic allocation for the library that is specified on the ITKBLOAD control statement failed.
HKTXXLI LOAD FAILURE	Loading of the HKTXXLI module failed.

Reason	Meaning
ITKBLOAD OPEN FAILURE	Opening of the library that is specified on the ITKBLOAD control statement failed.
ITKBLOAD NOT AUTHORIZED	The library that is specified on the ITKBLOAD control statement is not APF-authorized.

System action

Processing continues, but none of the reports are stored in the IMS Tools KB Output repository.

User response

If you want to store reports in the IMS Tools KB Output repository, specify the IMS Tools KB product load module library correctly. If the reason is "ITKBLOAD NOT AUTHORIZED", the library must be APF-authorized.

HPSR0312W	ERROR OCCURRED IN ACCESSING OUTPUT REPOSITORY FUNC: function RC: <i>return_code</i> RSN: <i>reason_code</i>
------------------	--

Explanation

An error occurred while getting access to the IMS Tools KB Output repository.

System action

Processing continues. If the return code is equal to or greater than 08, no reports are stored in the IMS Tools KB Output repository.

User response

If you want to store the reports in the IMS Tools KB Output repository, correct the error. If any of the messages, HPSR0320W, HPSR0321W, HPSR0322W, or HPSR0323W, which describe the cause of the error, are issued following this message, see the explanation for those messages. If these messages are not issued, check the return code and the reason code. The codes are in hexadecimal. For the description of the codes, see the *Tools Base IMS Tools Knowledge Base User's Guide*.

HPSR0313W	ERROR OCCURRED IN ACCESSING OUTPUT REPOSITORY FUNC: function RC: <i>return_code</i> RSN: <i>reason_code</i>
------------------	--

Explanation

An error occurred while getting access to the IMS Tools KB Output repository.

System action

Processing continues. If the return code is equal to or greater than 08, the report that is shown in message HPSR0314W and subsequent reports are not stored in the IMS Tools KB Output repository.

User response

See the explanation of message HPSR0312W.

HPSR0314W	DBD: <i>dbdname</i> PART: <i>partition</i> REPORT: <i>report-name</i>
------------------	--

Explanation

This message follows message HPSR0313W to show which report is processed.

System action

Processing continues.

User response

See the explanation of message HPSR0313W.

HPSR0318W	GETMAIN FAILED FOR ITKB TEMPORARY WORK STORAGE
------------------	---

Explanation

An error occurred in the GETMAIN macro when storing reports temporarily.

System action

Processing continues. Some of the reports are not stored in the IMS Tools KB Output repository.

User response

Ensure that sufficient virtual storage is available.

HPSR0320W	RECON ENTRY WAS NOT FOUND IN ITKB
------------------	--

Explanation

The RECON entry is not found in the IMS Tools Knowledge Base information management environment.

System action

Processing continues, but none of the reports are stored in the IMS Tools KB Output repository.

User response

If you want to store reports in the IMS Tools KB Output repository, register the RECON environment to your IMS Tools Knowledge Base information management environment. For more information about registering the RECON environment, see the *Tools Base Configuration Guide*.

**HPSR0321W ITKB SERVER NAME WAS
INCORRECT**

Explanation

The connection to the IMS Tools KB server failed because the server XCF group name specified by the ITKBSRVR control statement is incorrect.

System action

Processing continues, but none of the reports are stored to the IMS Tools KB Output repository.

User response

If you want to store reports in the IMS Tools KB Output repository, specify the correct IMS Tools KB server XCF group name.

**HPSR0322W THE PRODUCT IPR RELOAD WAS
NOT DEFINED IN ITKB**

Explanation

IMS HP Load is not defined in the IMS Tools Knowledge Base information management environment as a product that can store reports to the IMS Tools KB Output repository.

System action

Processing continues, but none of the reports that are produced by IMS HP Load are stored in the IMS Tools KB Output repository.

User response

If you want to store reports in the IMS Tools KB Output repository, register the IMS HP Load product by using the IMS Tools KB product administration utility (HKTAPRA0). For more information, see the *Tools Base Configuration Guide*.

**HPSR0323W THE REPORT WAS NOT DEFINED
IN ITKB**

Explanation

The report is not defined in the IMS Tools Knowledge Base information management environment.

System action

Processing continues, but the report is not stored in the IMS Tools KB Output repository.

User response

If you want to store the report in the IMS Tools KB Output repository, register the report by using the IMS Tools KB product administration utility (HKTAPRA0). For more information, see the *Tools Base Configuration Guide*.

**HPSR0400W ERROR CODE RETURNED FROM DB
SENSOR. FUNC=function**

Explanation

An error code is returned from the DB Sensor function. *Function* is the function name of the DB Sensor API.

System action

IMS HP Load stops calling the DB Sensor, continues processing, and sets a return code of 4.

User response

The accompanying messages are recorded in the CRSS journal. Check the CRSS journal and follow the user response sections of the accompanying messages.

**HPSR0401W INFORMATION REQUESTED BY DB
SENSOR IS NOT VALID**

Explanation

IMS HP Load received an invalid request from the DB Sensor API.

System action

IMS HP Load stops calling the DB Sensor, continues processing, and sets a return code of 4.

User response

This error is likely an internal error. Contact IBM Software Support.

**HPSR2000I PIPE SERVICE INITIALIZATION
SUCCESSFUL (IPRPIPE V.nn.nn.n)**

Explanation

The IPRPIPE service is initialized successfully. The string *V.nn.nn.n* shows the internal version ID of IPRPIPE.

System action

The processing continues.

User response

None. This message is informational.

HPSR2001E	PIPE SERVICE ['INIT' 'TERM'] ERROR; REASON=xxxxxxx
------------------	---

Explanation

An error occurred while initializing or terminating the IPRPIPE service. Reason code *xxxxxxx* shows the reason of the error.

System action

Program IPRPIPE returns a return code of 8.

User response

Contact IBM Software Support.

HPSR2002E	ERROR IN ALLOCATING PIPE pppppppppppppppp; REASON=xyyyzzz-sssssss
------------------	--

Explanation

An error occurred while allocating pipe *pppppppppppppppp*. Reason code *xyyyzzz-sssssss* shows the reason of the error.

System action

Program IPRPIPE returns a return code of 8.

User response

Contact IBM Software Support.

HPSR2003E	ERROR IN DEALLOCATING PIPE pppppppppppppppp; REASON=xyyyzzz-aaaaaaa- bbbbbbb
------------------	---

Explanation

An error occurred while deallocating pipe *pppppppppppppppp*. Reason code *xyyyzzz-aaaaaaa-bbbbbbb* shows the reason of the error.

System action

Program IPRPIPE returns a return code of 8.

User response

Contact IBM Software Support.

HPSR2004E	TIME-OUT IN ttttt OF PIPE pppppppppppppppp; REASON=rrrrrrr
------------------	---

Explanation

Timeout occurred while processing the writer or reader task *ttttt* through pipe *pppppppppppppppp*. Reason code *rrrrrrr* shows the reason of the error.

System action

Message HPSR2006E follows and the task abends.

User response

Contact IBM Software Support.

HPSR2005E	PIPE SERVICE ERROR IN task OF PIPE pppppppppppppppp; REASON=reason_code
------------------	--

Explanation

A pipe service that is requested by the reader or the writer task *task*, of pipe *pppppppppppppppp* is aborted by an error in the task. The hexadecimal reason code *reason_code* shows the reason of the error and the status of the pipe at the time the error occurred. The reason code is the logical sum of the following reason flags:

Flag (hex)	Meaning
80000000	The pipe has been requested to open.
40000000	The pipe has been requested to close.
20000000	PUT processing for the pipe has been requested.
10000000	GET processing for the pipe has been requested.
01000000	Pipe OPEN, CLOSE, PUT, or GET processing is in progress.
00800000	The task has a lock.
00400000	The task is waiting for a lock.
00200000	The task is waiting for the partner task to put data in the pipe or to get data from the pipe.

Flag (hex)	Meaning
00100000	This flag is used internally.
00010000	The pipe is closed on this end.
00008000	An error in the partner task is detected.
00004000	The task is ending abnormally.
00002000	A timeout occurred while a pipe request was being processed.
00001000	An error occurred while setting up a recovery routine.
00000800	A record that is passed to a PUT request is too large.
00000080	The partner task ended abnormally.
00000040	The partner task closed the pipe unexpectedly.
00000020	A timeout occurred while the task was waiting for the partner task to open the pipe.

System action

The task abends with a user completion code of 2005.

User response

Identify the cause of the error. If the cause is not found, contact IBM Software Support.

**HPSR2006E PIPE SERVICE REQUESTED
BY task IS ABORTED
FOR PIPE *pppppppppppppppppp*;
REASON=*reason_code***

Explanation

A pipe service that is requested by the reader or the writer task *task*, of pipe *pppppppppppppppppp* is aborted by an error in the task. The hexadecimal reason code *reason_code* shows the reason of the error and the status of the pipe at the time the error occurred. The reason code is the logical sum of the following reason flags:

Flag (hex)	Meaning
80000000	The pipe has been requested to open.
40000000	The pipe has been requested to close.
20000000	PUT processing for the pipe has been requested.
10000000	GET processing for the pipe has been requested.

Flag (hex)	Meaning
01000000	Pipe OPEN, CLOSE, PUT, or GET processing is in progress.
00800000	The task has a lock.
00400000	The task is waiting for a lock.
00200000	The task is waiting for the partner task to put data in the pipe or to get data from the pipe.
00100000	This flag is used internally.
00010000	The pipe is closed on this end.
00008000	An error in the partner task is detected.
00004000	The task is ending abnormally.
00002000	A timeout occurred while a pipe request was being processed.
00001000	An error occurred while setting up a recovery routine.
00000800	A record that is passed to a PUT request is too large.
00000400	The task stopped waiting for the partner task to open the pipe.
00000080	The partner task ended abnormally.
00000040	The partner task closed the pipe unexpectedly.
00000020	A timeout occurred while the task was waiting for the partner task to open the pipe.
00000010	The partner task could not wait for the current task to open the pipe.
00000008	The task was requested to stop waiting for the partner task to open the pipe.

System action

The task abends with a user completion code of 2006.

User response

Identify the cause of the error in the partner task. If the cause is not found, contact IBM Software Support.

**HPSR2007E PIPE task ALREADY CLOSED THE
PIPE *pppppppppppppppppp***

Explanation

The reader or the writer task, which is shown by *task*, tried to close the pipe *pppppppppppppppppp*, but the pipe was already closed.

System action

Message HPSR2005E follows and the task abends.

User response

This error is likely caused by an internal error. Contact IBM Software Support.

HPSR2008I	PIPE task WAITING FOR PARTNER TO OPEN PIPE <i>pppppppppppppppppp</i>
------------------	---

Explanation

The reader or the writer task, which is shown by *task*, is waiting for the partner task to open the pipe.

System action

The task waits for the pipe to open for one minute.

User response

If this message is followed by message HPSR2009I that is issued from the partner task and message HPSR2010I, no action is required. If this message is followed by message HPSR2011E, something is wrong in the partner task. For example, the partner task abended before the pipe was opened.

HPSR2009I	PIPE task OPENED PIPE <i>pppppppppppppppppp</i>
------------------	--

Explanation

The reader or the writer task, which is shown by *task*, opened the pipe for which the partner task waited. Message HPSR2010I follows.

System action

The task that issued this message continues processing.

User response

None. This message is informational.

HPSR2010I	PIPE CONNECTION ESTABLISHED FOR PIPE <i>pppppppppppppppppp</i>
------------------	---

Explanation

The connection to pipe *pppppppppppppppppp* is established. This message is issued from the task that issued the preceding message HPSR2008I for the pipe.

System action

The task that issued the message and the partner task continue processing.

User response

None. This message is informational.

HPSR2011E	TIME-OUT WHILE PIPE <i>tttttt</i> WAITING FOR PARTNER TO OPEN PIPE <i>pppppppppppppppppp</i>
------------------	---

Explanation

If the partner task does not open the pipe within a minute, this message is issued from the task that issued the preceding message HPSR2008I for pipe *pppppppppppppppppp*. Something is wrong in the partner task.

System action

Message HPSR2006E follows and the task abends.

User response

You can code the PIPEWAIT control statement to stay in the wait state until the session of the pipe connection is established completely. For details of the statement, see [“PIPEWAIT control statement”](#) on page 115. If the timeout still occurs even if the PIPEWAIT control statement is coded, contact IBM Software Support.

HPSR2998E	PIPE IS NOT OPENED. GPR2=ADDR(PDCB)
------------------	--

Explanation

The reader or the writer task tried to close the pipe that has not been opened.

System action

The task abends with a completion code of U2998.

User response

This error is likely an internal error. Contact IBM Software Support.

HPSR3033I	DECODEDBD IS IGNORED BECAUSE LEVEL OF REORG EXPERT IS NOT HIGH ENOUGH
------------------	--

Explanation

DECODEDBD=YES was ignored because the maintenance level of IMS Database Reorganization Expert is not high enough to decode the DBD in an IMS-managed ACBs environment.

System action

Processing continues.

User response

To apply DECODEDBD=YES, ensure that the maintenance level of IMS Database Reorganization Expert is at the required level.

HPSR3380E	HPSCLI00 IS NOT FOUND ALTHOUGH DECODEDBD=YES SPECIFIED
------------------	---

Explanation

Although DECODEDBD=YES is specified, the required module HPSCLI00 is not found.

System action

IMS HP Load issues a user 3380 abend and a dump.

User response

If you need to use the DECODEDBD=YES option, ensure that the required maintenance is applied to IMS Database Reorganization Expert. Otherwise, remove the option and rerun the job.

HPSR3601E	SPECIFIED DBD IS NOT FOUND IN DBD LIBRARY
------------------	--

Explanation

IMS HP Load could not find the DBD specified in the EXEC statement in the DBD library pointed to by the IMS DD statement.

System action

Module HPSRPDBD or HPSRHDBD issues a user 3601 abend.

User response

Ensure that the names of the DBD and the DBD library are specified correctly. If they are correct, the DBD might be missing and needs to be generated. Correct the error and rerun the job.

HPSR3602I	HALDB <i>dbdname</i> IS DEFINED AS OSAM8G
------------------	--

Explanation

The indicated HALDB is defined as OSAM8G in the RECON data set. The maximum capacity of OSAM data sets is 8 GB of data.

System action

IMS HP Load continues processing.

User response

None. This message is informational.

HPSR3603E	POINTERS ACCOUNTING FAILURE IN A SEGMENT PREFIX
------------------	--

Explanation

IMS HP Load failed to account for all pointers in a segment prefix.

System action

Module HPSRPDBD or HPSRHDBD issues a user 3603 abend and a dump.

User response

Contact IBM Software Support.

HPSR3607E	UNSUPPORTED DATABASE TYPE SPECIFIED
------------------	--

Explanation

The specified DBD shows that the database is not HDAM/PHDAM, HIDAM/PHIDAM, or HISAM/SHISAM. These organizations are the only database organizations that IMS HP Load can process.

System action

Module HPSRPDBD or HPSRHDBD issued a user 3607 abend.

User response

Correct the error and rerun the job.

HPSR3608E	LCHILD FOR HIDAM PRIMARY INDEX IS NOT DEFINED IN DBD
------------------	---

Explanation

IMS HP Load was unable to find an LCHILD definition for the HIDAM primary index DBD.

System action

Module HPSRPDBD issues a user 3608 abend and a dump.

User response

Check the HIDAM database DBD to add or to change the LCHILD statement that defines the primary index. Correct the error and rerun the job.

HPSR3609E	UNABLE TO LOCATE A VALID DBD FOR HIDAM PRIMARY INDEX
------------------	---

Explanation

IMS HP Load was unable to locate a valid DBD for the HIDAM primary index.

System action

Module HPSRPDBD issues a user 3609 abend and a dump.

User response

Ensure that the correct DBD library is specified on the IMS DD statement. If so, add the correct DBD to the library. If not, correct the DD statement. Rerun the job.

HPSR3610E	SYNAD EXIT WAS INVOKED FOR A SEQUENTIAL WRITE
------------------	--

Explanation

The SYNAD exit was invoked for a sequential WRITE.

System action

Module HPSROSAM issues a user 3610 abend and a dump.

User response

Register 3 points to the address of a BSAM DECB, and Register 2 points to the address of the data set DCB. Check the DECB exception bits for the error as described in *DFSMS Using Data Sets*.

If the problem persists, collect the dump in SYSUDUMP and contact IBM Software Support.

HPSR3611E	SYNAD EXIT WAS INVOKED FOR AN UPDATE PROCESS
------------------	---

Explanation

The SYNAD exit was invoked for an update process.

System action

Module HPSROSAM issues a user 3611 abend and a dump.

User response

Register 3 points to the address of a BSAM DECB, and Register 2 points to the address of the data set DCB. Check the DECB exception bits for the error as described in *DFSMS Using Data Sets*.

If the problem persists, collect the dump in SYSUDUMP and contact IBM Software Support.

HPSR3612E	SYNAD EXIT WAS INVOKED FOR A VSAM DATA SET
------------------	---

Explanation

The SYNAD exit was invoked for a VSAM data set.

System action

Module HPSRVSAM issues a user 3612 abend and a dump.

User response

Register 3 contains the feedback codes from the RPL. Register 5 contains the address of the RPL. The second byte of register 3 contains the return code, and the fourth byte contains the reason code. The explanation of these codes is in the *DFSMS/MVS Macro Instructions for Data Sets*.

Correct the error and rerun the job.

HPSR3614E	I/O FAILURE OCCURRED DURING A VSAM SEQUENTIAL WRITE
------------------	--

Explanation

An error occurred attempting a VSAM sequential write.

System action

Module HPSRVSAM issues a user 3614 abend and a dump.

User response

Register 3 contains the RPL feedback code, and register 5 contains the RPL address. The second byte of register 3 contains the return code, and the fourth byte contains the reason code. The explanation of

these codes is in the *DFSMS/MVS Macro Instructions for Data Sets*.

If you are reloading an HIDAM or a PHIDAM database, this message likely indicates that the size of the database data set exceeds 4 GB.

Correct the error and rerun the job.

**HPSR3616E I/O FAILURE OCCURRED DURING
A SEQUENTIAL VSAM PUT**

Explanation

A sequential VSAM PUT was not accepted because the RPL was active for another request.

System action

Module HPSRVSAM issues a user 3616 abend and a dump.

User response

Contact IBM Software Support.

**HPSR3617E I/O FAILURE OCCURRED DURING
A DIRECT VSAM PUT**

Explanation

A direct VSAM PUT was not accepted.

System action

Module HPSRVSAM issues a user 3617 abend and a dump.

User response

Contact IBM Software Support.

**HPSR3618E VSAM ESDS OPEN FAILURE
OCCURRED**

Explanation

An error occurred while a VSAM ESDS data set was being opened.

System action

Module HPSRVSAM issues a user 3618 abend and a dump.

User response

Register 5 contains the address of the ACB. Look up the error reason flag in field ACBERFLG. The

error codes are explained in the *DFSMS/MVS Macro Instructions for Data Sets*.

Correct the error and rerun the job.

**HPSR3619E DD NOT FOUND FOR DATA SET
GROUP "dddddddd"**

Explanation

No DD statement for data set group "dddddddd" is found in the JCL. The DD statement for the data set group is required.

System action

IMS HP Load issues a user 3619 abend and a dump.

User response

Check if the DD statement for "dddddddd" exists in the JCL. Correct the error and rerun the job.

**HPSR3620E HISAM/SHISAM PRIMARY DATA
SET (KSDS) OPEN FAILURE
OCCURRED**

Explanation

An error occurred while a VSAM KSDS data set was being opened.

System action

IMS HP Load issues a user 3620 abend and a dump.

User response

Register 5 contains the address of the ACB. Look up the error reason flag in field ACBERFLG.

Correct the error and rerun the job.

**HPSR3621E INCORRECT DATA SET FOR
ddname DD - reason**

Explanation

Incorrect parameter is specified in *ddname* DD, *reason* shows the error reason.

Reason	Description
DUMMY	A dummy data set is specified for <i>ddname</i> .
DISP=MOD	DISP=MOD is specified for <i>ddname</i> .

System action

IMS HP Load issues a user 3621 abend and a dump.

User response

Ensure that a DD statement is present for the ddname indicated, and that it properly identifies the correct data set. Correct the error and rerun the job.

HPSR3622E DD NOT FOUND HISAM OVERFLOW DATA SET (ESDS) "dddddddd"

Explanation

No DD statement for the HISAM overflow data set "dddddddd" is found in the JCL. Such a DD statement is required.

System action

IMS HP Load issues a user 3622 abend and a dump.

User response

Check whether the DD statement for "dddddddd" exists in the JCL. Correct the error and rerun the job.

HPSR3623E TRKCALC FAILED FOR ddname, RC= return_code

Explanation

IMS HP Load called TRKCALC, but received an error return code from TRKCALC. *Return_code* shows the return code.

System action

IMS HP Load issues a user 3623 abend and a dump.

User response

See the *DFSMSdfp Advanced Services* and check the meaning of the return code of TRKCALC. Correct the error and rerun the job.

HPSR3624E I/O FAILURE OCCURRED DURING A VSAM DIRECT READ

Explanation

An error occurred on a VSAM direct read.

System action

Module HPSRVSAM issues a user 3624 abend and a dump.

User response

Register 3 contains the RPL feedback code, and register 5 contains the address of the RPL. The second byte of register 3 contains the request return code,

and the fourth byte contains the reason code. The meaning of these codes is in the *DFSMS/MVS Macro Instructions for Data Sets*.

Correct the error and rerun the job.

HPSR3625E I/O FAILURE OCCURRED DURING A VSAM DIRECT WRITE

Explanation

An error occurred on a VSAM direct write.

System action

Module HPSRVSAM issues a user 3625 abend and a dump.

User response

Register 3 contains the feedback codes from the RPL. Register 5 contains the address of the RPL. The second byte of register 3 contains the return code, and the fourth byte contains the reason code. The explanation of these codes is in the *DFSMS/MVS Macro Instructions for Data Sets*.

Correct the error and rerun the job.

HPSR3626E proc_name ERROR FOR DDNAME: ddname DURING ESTAE PROCESSING

Explanation

The process (*proc_name*) for the *ddname* data set ended with an error in ESTAE processing.

System action

IMS HP Load ends the process.

User response

See the accompanying error messages.

HPSR3628E DYNAMIC VOLUME ADDITION IS NOT ALLOWED

Explanation

While processing an OSAM database, IMS HP Load found a volume that is dynamically added to the volume list after the processing started.

System action

Module HPSROSAM issues a user 3628 abend and a dump.

User response

If the database to be reloaded requires multiple DASD volumes, define explicitly enough multi-volumes for the database.

HPSR3629I ESTAE RECOVERY ROUTINE IS INVOKED

Explanation

The ESTAE routine is invoked to close the database data sets.

System action

IMS HP Load ends the process.

User response

See the accompanying error messages.

HPSR3630E RAP ASSIGNED OUT OF PHYSICAL SEQUENCE

Explanation

Root key data was not in the order of hexadecimal value *bbbbbbrr* that represents the result of randomizing module conversion. *bbbbbb* is the block number and *rr* is the RAP number.

System action

Module HPSRHDLD or HPSRRLDM issues a user 3630 abend.

User response

If the randomizer was changed, specify YES for the SORT control statement in FRRIN and run Load to sort the unloaded data in the order *bbbbbbrr*. If you use PSSR and the non-zero byte limit value is specified for your database, you must specify NO in column 51 in the PSSR control statement and run PSSR before you rerun Load to sort. To avoid a degradation of performance in reloading, it is recommended that you specify *-nnn* on the SEARCH control statement.

HPSR3631E A SEQUENCE ERROR DETECTED ON DFSUINPT

Explanation

There is an error in the segment sequence on the HD unloaded data set (DFSUINPT DD).

System action

Module HPSRPTRS issues a user 3631 abend and a dump.

User response

Probable cause can be: the HD unloaded data set is a multivolume file, or tapes are not mounted in the appropriate sequence.

Rerun the job, ensuring that the volumes are mounted in the correct sequence.

HPSR3632E A SEQUENCE FIELD IS LESS THAN THE PREVIOUS SEGMENT

Explanation

IMS HP Load attempted to put a segment chain whose sequence field is less than the previous segment on a twin chain.

System action

Module HPSRPTRS issues a user 3632 abend and a dump.

User response

Check the original database, and correct the incorrect sequence field. Rerun the job.

HPSR3633E A SEQUENCE FIELD IS NOT UNIQUE DBD=*dbdname* SEGMENT=*segment_name* FIELD=*field_name*

Explanation

IMS HP Load attempted to put a segment *segment_name* whose sequence field *field_name* was not unique on a twin chain. But the specification of the sequence field in the DBD *dbdname* is unique. This message is followed by the key data.

The DBD name, segment name, sequence field name, and key data are shown in the Messages report.

System action

Module HPSRPTRS issues a user 3633 abend and a dump.

User response

Check the sequence field for this segment in the DBD. Ensure that it is marked unique. It should be changed to multiple, or locate and correct the sequence field in

the original database. Correct the error and rerun the job.

**HPSR3634E A ROOT SEGMENT IS OUT
OF SEQUENCE DBD="dbdname"
SEGMENT="segment_name"
FIELD="field_name"**

Explanation

IMS HP Load found a HIDAM/HISAM/SHISAM/PHIDAM root segment *segment_name* whose sequence field *field_name* was out of sequence. This message is followed by the key data.

The DBD name, segment name, sequence field name, and key data are shown in the Messages report.

System action

Module HPSRPTRS issues a user 3634 abend and a dump.

User response

Locate and correct the sequence field in the original database. Rerun the job.

**HPSR3635E TWIN-FORWARD CHAIN IS NOT
SPECIFIED FOR HDAM/PHDAM
SYNONYM**

Explanation

A synonym of an HDAM/PHDAM root segment is found, but no physical twin forward (PTF) in the root segment is specified for the synonym; that is, POINTER=NOTWIN is coded in the DBD.

System action

Module HPSRPTRS issues a user 3635 abend and a dump.

User response

Locate the segment description in the DBD, and add the PTF pointer if needed.

Correct the error and rerun the job.

**HPSR3636E THE INCONSISTENCY OF
DEPENDENT SEGMENT WAS
DETECTED**

Explanation

A second dependent segment has occurred, but that segment type does not have a physical twin forward (PTF) or hierarchical forward (HF) pointer defined.

System action

Module HPSRPTRS issues a user 3636 abend and a dump.

User response

Check the DBD to see if the segment in error has a PTF or HF pointer.

Correct the error and rerun the job.

**HPSR3637E NUMBER OF KEY SEQUENCE
ERRORS EXCEEDS THE LIMIT:
nnnnn**

Explanation

The number of key sequence errors exceeds the specified limit value. *nnnnn* is a value that is specified by SEQERROR=SAVE, *nnnnn*, or SEQERROR=ACCEPT, *nnnnn*.

System action

IMS HP Load issues a user 3637 abend.

User response

If necessary, check the original database and the incorrect sequence field.

If you want to allow any number of sequence errors, specify SEQERROR=SAVE or SEQERROR=ACCEPT without the limit value *nnnnn*. Otherwise, correct the sequence errors in the unloaded data set, and rerun the job.

**HPSR3638E INTERNAL ERROR OCCURRED
DURING POINTER RESOLUTION**

Explanation

An unexpected internal error occurred during the pointer resolution process.

System action

IMS HP Load issues a user 3638 abend and a dump.

User response

Contact IBM Software Support.

**HPSR3639E NON-HIERARCHICAL SEQUENCE
SEGMENT WAS DETECTED IN
DFSUINPT**

Explanation

The HD unloaded data set (DFSUINPT DD) contains segments that are not in hierarchical sequence.

System action

Module HPSRPTRS issues a user 3639 abend and a dump.

User response

Check the results of HD unload processing. Correct the error and rerun the job.

HPSR3640E	DYNALLOC FAILURE OCCURRED FOR xxxxxxxx: RETURN CODE=return_code REASON CODE=reason_code
------------------	--

Explanation

An attempt of dynamic allocation for the indicated data set failed. *Return_code* and *reason_code* are the return code and the reason code from the SVC99 routine.

System action

A user 3640 abend and a dump are issued.

User response

See the *z/OS MVS Programming: Authorized Assembler Services Guide* for the return code and the reason code from the SVC99 routine. Correct the error and rerun the job.

HPSR3641E	data_set OPEN FAILURE OCCURRED
------------------	---------------------------------------

Explanation

An attempt to open the data set *data_set* failed.

System action

A user 3641 abend and a dump are issued.

User response

Check the system messages in the job log. Correct the error and rerun the job.

HPSR3642E	I/O FAILURE OCCURRED DURING xxxxx FOR yyyyyyyy
------------------	---

Explanation

An attempt for input/output to the data set yyyyyyyy failed. xxxxx is the type of I/O, READ or WRITE.

System action

A user 3642 abend and a dump are issued.

User response

Check the system messages in the job log. Correct the error and rerun the job.

HPSR3643E	DSPSERV xxxxxx FAILURE OCCURRED: RETURN CODE is yyyy REASON CODE is zzzzzzzz
------------------	---

Explanation

The DSPSERV macro failed. xxxxxx is the function code of the failed macro, yyyy is the return code, and zzzzzzzz is the reason code.

System action

A user 3643 abend and a dump are issued.

User response

See the *z/OS MVS Programming: Assembler Services Reference* for the return code and the reason code from DSPSERV macro.

Correct the error, and rerun the job. If your installation limits the amount of data space that the IEFUSI exit routine can use, consult your system programmer to extend the allocation.

HPSR3644E	ALESERV xxxxxx FAILURE OCCURRED: RETURN CODE is yyyy
------------------	---

Explanation

The ALESERV macro failed. xxxxxx is the function code of the failed macro, and yyyy is the return code.

System action

A user 3644 abend and a dump are issued.

User response

See the *z/OS MVS Programming: Assembler Services Reference* for the return code and the reason code from the ALESERV macro. Correct the error, and rerun the job.

HPSR3646E	SORT CANNOT BE PROCESSED DUE TO COMPRESSED ROOT KEY
------------------	--

Explanation

IMS HP Load cannot sort the unload data, of which root key field is compressed.

System action

IMS HP Load issues a user 3646 abend and a dump.

User response

Specify DECOMPRESS=YES for the IMS HP Unload utility job to expand the compressed keys.

HPSR3647E	THE SIZE OF SORTWK CANNOT BE ESTIMATED, BECAUSE THE BLKSIZE OF DBDS IS ZERO.
------------------	---

Explanation

The size of intermediate storage data sets used by DFSORT cannot be estimated because the BLKSIZE of the DBDS is zero.

System action

IMS HP Load issues a user 3647 abend and a dump.

User response

Correct the error and rerun the job.

HPSR3648E	HPSRSVX2 EXIT CANNOT RUN WITH SORTHIDAM=YES
------------------	--

Explanation

The HPSRSVX2 exit cannot run with SORTHIDAM=YES.

System action

IMS HP Load issues a user 3648 abend and a dump.

User response

Correct the error and rerun the job.

HPSR3649I	AVERAGE SEGMENT LENGTH FOR SORTWK ESTIMATION IS ROUNDED UP
------------------	---

Explanation

IMS HP Load calculated the average segment size to estimate the size of sort work data sets. The calculated value is rounded up.

System action

IMS HP Load continues processing.

User response

None. This message is informational.

HPSR3650E	QSAM PUT ERROR OCCURRED FOR WFP DATASET: <i>data_set</i>
------------------	---

Explanation

A QSAM put error occurred while processing the indicated WFP data set.

System action

IMS HP Load issues a user 3650 abend and a dump.

User response

Register 3 points to the address of the status indicators. See *DFSMSdfp Diagnosis* to interpret the exception from status indicators. Correct the error and rerun the job.

HPSR3651E	SEGMENT WAS LOADED BEYOND THE xGB SIZE LIMIT
------------------	---

Explanation

IMS HP Load utility reloaded a segment that is beyond the 4- (or 8-) GB size limit.

System action

Module HPSRHDLD or HPSRRLDM issues a user 3651 abend.

User response

If you are reloading an unloaded data set that was created from an OSAM database whose size is over 4 GB, check that the block size of the output database data set is an even number and that the database is a non-HALDB.

If the block size is correct, the database data set is full. If you are reloading an HDAM/PHDAM database, adjust the SEARCH control statement value to decrease the number of segments directed to overflow portion of the database. If so, rerun the job. If this situation persists, plan to divide the database data set into two or more data set groups. Correct the error and rerun the job.

HPSR3652E	RAA GREATER THAN THE xGB SIZE LIMIT
------------------	--

Explanation

For the HDAM/PHDAM database, IMS HP Load utility detected that RAA exceeded the 4- (or 8-) GB size limit, and RAAFORMAT=NO was not specified.

System action

Module HPSRHDLD or HPSRRLDM issues a user 3652 abend.

User response

Specify RAAFORMAT=NO for reloading the HDAM/PHDAM database whose RAA size exceeded the limit.

HPSR3659E DDN *dd_name* IS NOT FOUND IN THE RECON

Explanation

IMS HP Load checks the block size of each database data set with the size that is registered to RECON. However, the DDN *dd_name* is not found in the RECON data set.

System action

IMS HP Load issues a user 3659 abend and a dump.

User response

Ensure that the indicated DD name is correct. If necessary, contact IBM Software Support.

HPSR3660E THE BLKSIZE OF DDN=*dd_name* DOES NOT MATCH THE VALUE IN RECON

Explanation

The block size of the database data set is not the same as the block size that is registered to RECON.

System action

IMS HP Load issues a user 3660 abend and a dump.

User response

If you specified the block size for the database data set in the JCL, remove the block size specification or correct the value, and then rerun the job.

Alternatively, you can change the RECON definition from NOREORGV to REORGV so that the correct block size is reloaded. If necessary, contact IBM Software Support.

HPSR3667E INPUT FORMAT *CS IS NOT ALLOWED FOR SHISAM

Explanation

Input format CS (communication industry standard format), which is not allowed, is used for SHISAM.

System action

IMS HP Load issues a user 3667 abend and a dump.

User response

If the database to be reloaded is a SHISAM database, check the format of the unloaded data set and the DBD.

If you want to reload a SHISAM, you must use HD or SH format as input. Use one of these formats as input, and rerun the job.

HPSR3668E INPUT FORMAT IS NOT ALLOWED FOR NON-HALDB

Explanation

The input format is PHD or CP. These formats are not supported for a non-High Availability Large Database.

System action

IMS HP Load issues a user 3668 abend and a dump.

User response

If the database to be reloaded is not a HALDB, check the format of the unloaded data set and the DBD.

If you want to reload a non-HALDB, you must use HD, SH, or CS format as input. Use one of these formats as input, and rerun the job.

HPSR3669E INPUT FORMAT IS NOT ALLOWED FOR HALDB

Explanation

Input format HD or SH (short header format), which is not allowed, is used for a High Availability Large Database.

System action

IMS HP Load issues a user 3669 abend and a dump.

User response

If you want to reload a High Availability Large Database, use PHD format as input and rerun the job.

If the database to be reloaded is not a HALDB, check the format of the unloaded data set and the DBD.

HPSR3670E	INPUT FORMAT *SH/*CS/*CP/ HDX IS NOT ALLOWED FOR A DATABASE IN A LOGICAL RELATIONSHIP
------------------	--

Explanation

Input format SH (short header format), CS (communication industry standard format), CP (communication industry partitioned format), or HDX (USERHDRX or USERHDR control statement is specified) is used for a database in a logical relationship, which is not supported.

System action

IMS HP Load issues a user 3670 abend and a dump.

User response

Check the unloaded data set format and the DBD if the database to be reloaded has a logical relationship.

If you want to reload a HALDB that has logical relationships, specify the unloaded file that is in HD format as input, and rerun the job.

HPSR3671E	INPUT FORMAT IS INCORRECT FOR A DATABASE IN A LOGICAL RELATIONSHIP
------------------	---

Explanation

The format of the input unloaded data set is not applicable for a HALDB with logical relationships.

System action

IMS HP Load issues a user 3671 abend and a dump.

User response

Correct the error and rerun the job.

HPSR3672E	UNEXPECTED PARTITION CHANGE, REASON=xx
------------------	---

Explanation

This message is issued when IMS HP Load is running as the Reload task of the IPR Driver. An unexpected partition change occurred while the unloaded segment records were passed from the Unload task to the Reload task. The reason for the error is indicated by code xx:

Reason (xx)	Description
--------------------	--------------------

01	The Unload task issued a notice of the partition change before the Reload task received the header record.
02	Partition changed or ended without notification.

System action

The Reload task issues a user abend 3672.

User response

Correct the error and rerun the job.

This error is likely an internal system error. If necessary, contact IBM Software Support.

HPSR3673E	A DIFFERENT PARTITION IS ASSIGNED BY A ROOT KEY CHANGE IN USER EXIT ROUTINE
------------------	--

Explanation

The exit routine that is used in the Reload task of the IPR Driver job modified the sequence key value of a root segment, and the partition assigned to the segment was changed from the original one. When IMS HP Load is running as the Reload task of the IPR Driver, any exit routine for IMS HP Load must not modify a root sequence key to change the partition assigned to the segment.

System action

The Reload task issues a user abend 3673.

User response

Correct the error and rerun the job.

HPSR3674E	DBDNAME <i>dbdname</i> IN CS HEADER DOES NOT MATCH DBD SPECIFIED
------------------	---

Explanation

The DBD name in CS header must match the DBD name that is specified in the EXEC parameters.

System action

The Reload task issues a user abend 3674.

User response

Correct the DBDNAME in the CS header or the EXEC parameters, and rerun the job.

HPSR3675E	UNABLE TO PROCESS THE UNLOAD FILE DUE TO INCORRECT STAT RECORD
------------------	---

Explanation

The statistics records in the Unload data set are not recognizable by the Reload utility.

System action

The Reload task issues a user 3675 abend.

User response

Contact IBM Software Support.

HPSR3676E	THE INPUT FORMAT IS NOT ALLOWED FOR A HALDB WITH A PSINDEX
------------------	---

Explanation

Input format CS (communication industry standard format) is used for a HALDB with a partitioned secondary index, which cannot be used.

System action

IMS HP Load issues a user 3676 abend and a dump.

User response

If the database to be reloaded is HALDB with a partitioned secondary index, check the unloaded data set format and the DBD.

If you want to reload a HALDB with a partitioned secondary index, use PHD format as input and rerun the job.

HPSR3678E	THE RECORD SIZE IS NOT LARGE ENOUGH TO CONTAIN THE LONGEST SEGMENT. DDN:ddname
------------------	---

Explanation

The record size for the database data set is not large enough to contain the longest segment in the database plus the IMS overhead required.

System action

IMS HP Load issues a user 3678 abend and a dump.

User response

Correct the record size of the database data set. The recommended record size is provided in the output listing of DBD generation.

HPSR3679E	OVERFLOW RECORD SIZE CANNOT BE LESS THAN PRIME RECORD SIZE.
------------------	--

Explanation

Logical record lengths in the overflow data set must be equal to or greater than the logical record length in the primary data set.

System action

IMS HP Load issues a user 3679 abend and a dump.

User response

Correct the logical record lengths of database data sets.

HPSR3680E	OSAM IS DEFINED IN THE DBD BUT AN ESDS IS ALLOCATED AS A DATABASE DATA SET
------------------	---

Explanation

The access method is defined as OSAM in the DBD. However, IMS HP Load found an ESDS allocated for a database data set. To use ESDS, the access method must be VSAM.

System action

IMS HP Load issues a user 3672 abend and a dump.

User response

Update the access method defined in the DBD or change the allocation method for database data sets, and rerun the job.

HPSR3681E	RDJFCB MACRO FAILED FOR DDNAME ddname (RC=xx)
------------------	--

Explanation

The RDJFCB macro failed with a return code xx for the data set that is specified for ddname DD.

System action

Process ends abnormally.

User response

Check the job log messages and other printed output for an indication that some system service has failed. If none can be found, it is likely that IMS HP Load has had an internal logic error. Contact IBM Software Support.

**HPSR3683I CHECKING DBDS USAGE IS
BYPASSED DUE TO GQSCAN
ERROR RC=\$, RSN=\$**

Explanation

Because IMS HP Load received an error return code and reason code as result of issuing the GQSCAN macro, IMS HP Load did not check whether the database data set is being used or not.

System action

IMS HP Load continues processing.

User response

If you want IMS HP Load to check whether the database data set is in use or not, contact IBM Software Support.

**HPSR3684I CHECKING DBDS USAGE
IS BYPASSED DUE TO
['GETDSAB'/'SWAREQ'] FAILURE
FOR DDNAME: *ddname***

Explanation

Due to a failure in issuing the GETDSAB or the SWAREQ macro, IMS HP Load could not obtain the data set name of the database data set. IMS HP Load did not check whether the database data set is being used or not.

System action

IMS HP Load continues processing.

User response

If you want IMS HP Load to check whether the database data set is in use or not, contact IBM Software Support.

**HPSR3685E THE FOLLOWING DBDS IS IN USE
BY JOBNAME=*job_name*
ON SYSTEM=*sysname1*,
sysname2
DSN=*data_set_name***

Explanation

The indicated database data set is used by another job (*job_name*). If the database data set is used by a job in another system and the name of that job is the same as the IMS HP Load job name, *sysname1* and *sysname2* are printed to identify the system.

System action

IMS HP Load issues a user 3685 abend.

User response

Rerun the IMS HP Load job after the other job releases the database data set.

**HPSR3686W DSN=*data_set_name* IS NOT
USED.**

Explanation

The indicated database data set is not used.

System action

IMS HP Load continues processing.

User response

None.

**HPSR3687E ERROR RETURNED FROM GQSCAN
MACRO RC=\$, RSN=\$**

Explanation

The GQSCAN macro failed.

System action

IMS HP Load issues a user 3687 abend.

User response

Contact IBM Software Support.

**HPSR3688I CHECKING DBDS USAGE IS
BYPASSED DUE TO THE LACK OF
AUTHORIZATION**

Explanation

Multilevel security is activated and the program is not authorized to issue the GQSCAN macro. IMS HP Load did not check whether the database data set is being used or not.

System action

IMS HP Load continues processing.

User response

If you want IMS HP Load to check whether the database data set is in use or not, ensure that the program is running authorized, or is associated with your userid with at least READ access to the best fit FACILITY class resource profile of the form ISG.QSCANSERVICES.AUTHORIZATION.

HPSR3689E DATABASE AUTHORIZATION FAILURE OCCURRED

Explanation

IMS HP Load received a bad return code from the IMS authorization module DFSDBAU0.

System action

Module HPSRHDLD issues a user 3689 abend and a dump.

User response

Ensure that the database is authorized for reload. Correct the error and rerun the job.

HPSR3690E DBRC REQUEST FAILED, REASON=*reason_code*, RC=*return_code*

Explanation

The DBRC request with the reason code *reason_code* failed with a return code of *return_code*. To determine the cause of the failure that is specified by the reason code, see DFS030I in *IMS Messages and Codes*. And to determine the cause of the failure that is specified by the return code and for information about DBRC requests and return codes, also see *IMS Messages and Codes*.

System action

IMS HP Load issues a user 3690 abend.

User response

Correct the error and rerun the job.

HPSR3691E A SEGMENT NAME IN DFSUINPT IS NOT FOUND IN DBD

Explanation

IMS HP Load is unable to find a segment name in the DBD that matches the one from the HD Unload data set (DFSUINPT DD).

System action

Module HPSRHDLD or HPSRRLDM issues a user 3691 abend and a dump.

User response

Register 9 points to the input record. The segment name is 6 bytes into the record. Check to be certain you are running with the correct DBD.

Correct the error and rerun the job.

HPSR3692E HIDAM/PHIDAM INDEX (KSDS) OPEN FAILURE OCCURRED

Explanation

IMS HP Load attempted to OPEN a VSAM KSDS for the HIDAM/PHIDAM Primary Index but it failed.

System action

Module HPSRHDLD or HPSRRLDM issues a user 3692 abend and a dump.

User response

Register 5 contains the address of the ACB. Examine the ACB error field (ACBERFLG) to determine the reason.

Correct the error and rerun the job.

HPSR3693E HIDAM/PHIDAM INDEX (KSDS) I/O FAILURE OCCURRED

Explanation

IMS HP Load has had an unsuccessful PUT to the VSAM KSDS for the HIDAM/PHIDAM Primary Index.

System action

Module HPSRHDLD or HPSRRLDM issues a user 3693 abend and a dump.

User response

Register 5 contains the address of the RPL, and register 3 contains the RPL feedback code. Examine the second byte of register 3 to locate the return code and the fourth byte for the reason code.

Correct the error and rerun the job.

**HPSR3694E KEYLEN VALUE OF VSAM CATALOG
IS NOT EQUAL TO THE DBD ONE****Explanation**

The KEYLEN field in the VSAM catalog is not the same as the corresponding value in the DBD for the HIDAM/PHIDAM primary index or HISAM/SHISAM primary data set.

System action

Module HPSRHDLD or HPSRRLDM issues a user 3694 abend and a dump.

User response

Identify the incorrect value, correct the error, and rerun the job.

**HPSR3695E VSAM KSDS WITH EXTENDED
ADDRESSABILITY ATTRIBUTE IS
NOT SUPPORTED****Explanation**

The KSDS is an SMS data set with the extended addressability attribute, which IMS does not support.

System action

IMS HP Load issues a user 3695 abend and a dump.

User response

Allocate the data set with a data class that does not specify extended addressability, and rerun the job.

**HPSR3696E MAXIMUM RELATIVE BLOCK
NUMBER VALUE IS NOT
SPECIFIED****Explanation**

The DBD does not specify a maximum relative block number value for the HDAM/PHDAM database. IMS HP Load requires a value because it preformats the entire root addressable area.

System action

Module HPSRHDLD or HPSRRLDM issues a user 3696 abend.

User response

Use the IMS HD Reorganization Reload utility (DFSURGL0) to reorganize a database with an *infinite* root addressable area.

HPSR3697E GETMAIN FAILED**Explanation**

GETMAIN failed while attempting to get storage for a bitmap block.

System action

IMS HP Load issues a user 3697 abend and a dump.

User response

Determine how much more storage must be allocated for the job step. Increase the job-step region size, and rerun the job.

**HPSR3698E DFSUINPT OPEN FAILURE
OCCURRED****Explanation**

IMS HP Load was unsuccessful in attempting to OPEN the HD unloaded data set (DFSUINPT DD).

System action

Module HPSRHDLD or HPSRRLDM issues a user 3698 abend.

User response

Ensure that a DFSUINPT DD statement exists in the JCL. If there is, check the JCL system messages to find the reason for the unsuccessful OPEN.

Correct the error and rerun the job.

**HPSR3699W DBRC API FUNC= *function*,
[TYPE=*type*,]RC=*rc*,RSN=*rsn*****Explanation**

IMS HP Load received an error return code from the DBRC API during DBRC processing. *function* is the function name of the DBRC API. *type* is the type of the DBRC query request. *rc* is the return code in decimal, and *rsn* is the reason code in hexadecimal format.

System action

IMS HP Load cannot check the block size of the database data set due to an error from the DBRC API. Processing continues.

User response

You can ignore this message if you can manually verify that the block size of each database data set is correct. Otherwise, correct the error and rerun the job.

The meaning of the return code and reason code is described in *IMS System Programming APIs*. If necessary, contact IBM Software Support.

HPSR3701E	RELOAD TERMINATED - TOO MANY SEGMENTS DROPPED
------------------	--

Explanation

IMS HP Load received a return code of 4 from the HDAM randomizer too many times, and more than 10,000 segments (root segments and their dependent segments) were dropped.

System action

Module HPSRHDLD or HPSRRLDM issues a user 3701 abend.

User response

Check the reason why the randomizer issued return code 4 so many times. Correct the error and rerun the job.

HPSR3702E	RETURN CODE <i>xx</i> FROM HDAM RANDOMIZER
------------------	---

Explanation

IMS HP Load received return code *xx* (in hexadecimal) from the HDAM randomizer.

System action

Module HPSRHDLD or HPSRRLDM issues a user 3702 abend.

User response

Check the reason of return code *xx* from the HDAM randomizer. Correct the error and rerun the job.

HPSR3703E	UNSUPPORTED LEVEL OF IMS IS BEING USED: <i>level</i> IMS LEVEL OF THIS RUN
------------------	---

Explanation

You are running an IMS batch region controller (DFSRR00) that is not supported by IMS HP Load. *level* represents IMS level.

System action

IMS HP Load issues a user 3703 abend.

User response

Run IMS HP Load with a supported version of IMS.

HPSR3704E	REQUESTED USER EXIT ROUTINE "<i>routine</i>" NOT FOUND
------------------	---

Explanation

IMS HP Load attempted to load user exit routine *routine*, but the load module is not found.

System action

IMS HP Load issues a user 3704 abend and a dump.

User response

Ensure that the correct user exit program library is concatenated to the STEPLIB DD.

HPSR3705E	TERMINATION REQUESTED BY USER EXIT ROUTINE, RETURN CODE=<i>return_code</i>
------------------	---

Explanation

Job step termination is requested by the user exit routine; returning a return code of *return_code*.

System action

The reload job ends immediately with the indicated return code. Subsequent unloaded segments are not reloaded.

User response

Check the return code of the user exit routine. If the return code is not intended, correct the error and rerun the job.

HPSR3706E	INVALID RETURN CODE FROM USER EXIT ROUTINE, RETURN CODE=<i>return_code</i> RETURN CODE GREATER THAN 999
------------------	--

Explanation

An incorrect return code *return_code* or a value that is greater than 999 is returned by the user exit routine.

System action

IMS HP Load issues a user 3706 abend and a dump.

User response

Correct the error and rerun the job.

HPSR3707E **INCORRECT REQUEST FROM USER
EXIT ROUTINE,
RETURN CODE=*return_code*
reason
FOR HIDAM/PHIDAM
FOR HDAM/PHDAM
FOR HISAM/SHISAM
(MUST BE 008)**

Explanation

An incorrect return code *return_code* was returned by the user exit routine. *reason* shows the reason why the return code is incorrect.

FOR HIDAM/PHIDAM

Return code 16 is not allowed.

FOR HDAM/PHDAM

Return code 20 is not allowed.

FOR HISAM/SHISAM

Return codes 16 and 20 are not allowed.

(MUST BE 008):

Return code is not 8. The user exit routine must return code 8 for all the dependent segments of the segment that have return code 8.

System action

IMS HP Load issues a user 3707 abend and a dump.

User response

Correct the error and rerun the job.

HPSR3708E **INVALID SEGMENT LENGTH
RETURNED FROM USER EXIT
ROUTINE**

Explanation

A user exit routine changed the length of a database segment. The modified length is larger than the maximum segment length allowed.

System action

IMS HP Load issues a user 3708 abend and a dump.

User response

Correct the error and rerun the job.

HPSR3709E **INVALID SEGMENT LENGTH
RETURNED FROM COMPRESSION
ROUTINE**

SEGMENT NAME: *segment_name*

COMPRESSED LENGTH: *nnnnn*

ALLOWED MAX LENGTH: *nnnnn*

Explanation

The length of a database segment that is returned from the segment edit/compression exit routine is larger than the allowed maximum value.

System action

A user 3709 abend and a dump are issued.

User response

Increase the maximum number of bytes for the reported segment, or correct the DBD or the segment edit/compression exit routine. Then, rerun the job.

HPSR3710E **DUMMY SPECIFIED FOR
OVERFLOW DD**

Explanation

The DUMMY parameter is specified in OVERFLOW DD. The DUMMY parameter is not allowed for OVERFLOW DD.

System action

IMS HP Load issues a user 3710 abend and a dump.

User response

Ensure that a DD statement is present for the ddname indicated, and that it properly identifies the correct data set. Correct the error and rerun the job.

HPSR3711E **DEVTYPE MACRO FAILURE
OCCURRED FOR DDNAME:
ddname. RETURN CODE IS
*return_code***

Explanation

After issuing a DEVTYPE macro to get information about the device associated with the *ddname*, the return code indicated that the attempt to do so was unsuccessful. *Return_code* shows the return code.

System action

IMS HP Load issues a user 3711 abend and a dump.

User response

Ensure that the DD statement of indicated ddname indicates the correct data set. Correct the error and rerun the job.

**HPSR3712E DD NOT FOUND FOR DDNAME:
ddname**

Explanation

The JCL contains no *ddname* DD statement. Such a statement is required.

System action

A user 3712 abend and a dump are issued.

User response

Ensure that the *ddname* DD statement exists in the JCL. Correct the error and rerun the job.

**HPSR3713E WORK AREA FOR USER EXIT
user_exit IS TOO LARGE**

Explanation

The size of the work area for user exit is too large for the prepared work area by IMS HP Load.

System action

IMS HP Load issues a user 3713 abend and a dump.

User response

Modify the size of the work area that is defined in the user exit to reflect the maximum segment length. The size must be larger than the maximum segment length and smaller than the maximum segment length plus 1024 bytes.

HPSR3714E DD NOT FOUND FOR SEQERROR

Explanation

The JCL contains no DD statement for SEQERROR. If SEQERROR=SAVE is specified in the FRRIN or HPSIN DD statement, a SEQERROR DD statement is required.

System action

IMS HP Load issues a user 3714 abend.

User response

Ensure that the SEQERROR DD statement exists in the JCL. Correct the error and rerun the job.

**HPSR3715E SECONDARY INDEX
MAINTENANCE EXIT ROUTINE
routine IS NOT FOUND**

Explanation

The secondary index maintenance exit routine *routine* is not found.

System action

IMS HP Load issues a user 3715 abend and a dump.

User response

Ensure that the correct secondary index maintenance exit program library is concatenated to the STEPLIB DD.

**HPSR3716E SECONDARY INDEX MINTENANCE
EXIT ROUTINE routine LOAD
FAILURE OCCURRED**

Explanation

IMS HP Load failed to load the secondary index maintenance exit routine *routine*.

System action

IMS HP Load issues a user 3716 abend and a dump.

User response

Contact IBM Software Support.

**HPSR3717E INVALID RETURN CODE FROM
routine,
RETURN CODE=return_code
RETURN CODE GREATER THAN
999**

Explanation

An incorrect return code *return_code* or a value that is greater than 999 is returned by the indicated routine that is specified on the USERHDRX control statement. This message is also issued if the routine returns return code 4 and does not set the 'No Header/Trailer Record' indicator.

System action

IMS HP Load issues a user 3717 abend and a dump.

User response

Correct the error and rerun the job.

HPSR3718E DFSURWF1 DD STATEMENT MISSING

Explanation

Although the database that was reloaded is involved in a logical relationship or has a secondary index, DFSURWF1 DD is not specified.

System action

IMS HP Load issues a user 3718 abend and a dump.

User response

Check the DBD and the PSB to see if it is necessary to resolve logical or secondary index relationships. Specify the DFSURWF1 data set, and rerun the job.

HPSR3719E THE STORAGE AREA JUST PRIOR TO THE WORK AREA FOR USER EXIT HAS BEEN BROKEN

Explanation

The storage area immediately before the work area for user exit is broken.

System action

IMS HP Load issues a user 3719 abend and a dump.

User response

Contact IBM Software Support.

HPSR3720I DBDGEN REQUIRED FOR DATABASE "*dbdname*" TO SET DATXEXIT INDICATOR

Explanation

IMS HP Load called the DFSDBUX1 exit routine and identified that some database segments require conversion, but the DATXEXIT=YES parameter is not specified in the DBD *dbdname*. This message is an information message to the user to notify that a DBDGEN with DATXEXIT=YES needs to be done for this database.

System action

IMS HP Load continues processing.

User response

The database administrator needs to be notified that a DBDGEN is required for this database.

HPSR3721E SPECIFIED DATABASE "*database*" IS NOT A TARGET FOR CONVERSION

Explanation

While processing database "*database*", for which data conversion is specified by the DATXEXIT=YES parameter, IMS HP Load called the DFSDBUX1 exit routine and found that none of the segments require conversion.

System action

IMS HP Load issues a user 3721 abend and a dump.

User response

Correct the error and rerun the job.

HPSR3722E LOAD FAILED FOR DFSDBUX1 ROUTINE

Explanation

While processing a database that requires data conversion by the DATXEXIT=YES parameter in the DBD, IMS HP Load attempted to load the DFSDBUX1 exit routine but it could not find the load module.

System action

IMS HP Load issues a user 3722 abend and a dump.

User response

Correct the error and rerun the job.

HPSR3723E NONZERO RETURN CODE FROM DFSDBUX1 ROUTINE RC = *return_code*

Explanation

A nonzero return code *return_code* is returned by the DFSDBUX1 exit routine.

System action

IMS HP Load issues a user 3723 abend and a dump.

User response

Correct the error and rerun the job.

HPSR3724E PARTITION SELECTION FAILURE OCCURRED; REQUEST=*xxxxxx* RC=*return_code*, RSN=*reason_code*

Explanation

For HALDB reload, the DL/I DFSPSEL macro returned an error return code. xxxxxxx is the request type of partition selection (the PART parameter value for the DFSPSEL macro), *return_code* is the return code, and *reason_code* is the reason code. For the explanation of these reason codes, see *IMS Messages and Codes*.

System action

IMS HP Load issues a user 3724 abend and a dump.

User response

If a corresponding IMS message (DFSnnnn) is issued, see the user response for that IMS message or the following table. Then, correct the error and rerun the job.

Return code (return_code) (decimal)	Reason code (reason_code) (hexadecimal)	User response
04	4020	Database authorization error occurred. If a corresponding IMS message (DFSnnnn) is not issued, the possible cause of the error is a mismatch between the DSN registered with the RECON and the DSN that is processed by IMS HP Load. Check for any mismatch. If the corresponding IMS message DFS2503W is issued, check for the presence of the data set that is reported in the message.
08	8011	An incorrect key value is passed to the DL/I DFSPSEL macro. Register 6 contains the passed key address. Check the key value and the high-key value of each partition.
	8031	If the database data set is a VSAM data set with no REUSE parameter specified, this reason code is returned. The REUSE parameter is required for the HADLB data sets. Check the attribute of the database data set.
Any other code	Any other code	Collect the dump and contact IBM Software Support.

If necessary, contact IBM Software Support.

HPSR3725E ILE CREATION FAILURE OCCURRED; REQUEST=xxxxxx, RC=return_code, RSN=reason_code

Explanation

For HALDB reload, the DL/I DFSPCSH macro returned an error return code. xxxxxxx is the requested function (the FUNC parameter value for the DFSPCSH macro), *return_code* is the return code, and *reason_code* is the reason code.

System action

IMS HP Load issues a user 3725 abend and a dump.

User response

Correct the error and rerun the job. If necessary, contact IBM Software Support.

HPSR3726E UNLOAD DATA SET REQUIRES PREPROCESS FOR HALDB

Explanation

Segment records in the input unloaded data set are out of the partition sequence. PSSR process is required.

System action

IMS HP Load issues a user 3726 abend and a dump.

User response

Sort the records in the unloaded data set by using PSSR.

HPSR3727E LOAD FAILED FOR HPSRxxx7 ROUTINE

Explanation

Load failure occurred for the HPSRxxx7 module.

System action

IMS HP Load issues a user 3727 abend and a dump.

User response

Check the contents of the load module library of IMS HP Load. Correct the error and rerun the job.

HPSR3728E UNSUPPORTED RELEASE OF DFP

Explanation

The IMS HP Load job is run under an unsupported release of MVS/DFP. The DFSMSdfp of DFSMS/MVS 1.1 or later is required to run the job.

System action

IMS HP Load issues a user 3728 abend and a dump.

User response

Run the job in the correct DFSMSdfp environment.

HPSR3729E	UNSUPPORTED DBD: IMS/ESA PARTITION SUPPORT PRODUCT
------------------	---

Explanation

A DBD created with IMS Partition Support Product is not supported by IMS HP Load.

System action

IMS HP Load issues a user 3729 abend.

User response

Use the utilities that are provided by IMS Partition Support Product.

HPSR3730E	LOAD FAILED FOR "module"
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Explanation

Load failed for the indicated module.

System action

IMS HP Load issues a user 3730 abend and a dump.

User response

Check the contents of the load module library. Correct the error and rerun the job.

HPSR3731E	CEEPIPI ERROR OCCURRED. FUNC="function" RC="return_code"
------------------	---

Explanation

IMS HP Load called CEEPIPI for processing the user exit routine, specified to run in Language Environment (LE), but it received a none-zero return code.

System action

IMS HP Load issues a USER 3731 ABEND and a dump.

User response

If *function* shows INIT, the function of CEEPIPI is *init_sub* or *identify_entry*. If *function* shows CALLSUB, the function of CEEPIPI is *call_sub*. For the return codes, see the topic about using preinitialization

services in the *Language Environment Programming Guide (SA22-7561)*.

Correct the error and rerun the job.

HPSR3732E	SEGMENT LENGTH FIELD IS INCORRECT
------------------	--

Explanation

The length field of the segment contains a value greater than the allowed maximum or less than the allowed minimum.

System action

Module HPSRHDLD or HPSRRLDM issues a user 3732 abend and a dump.

User response

Correct the error and rerun the job.

HPSR3733E	LOAD FAILED FOR MODULE: module
------------------	---

Explanation

An error was encountered while the module named *module* was being loaded.

System action

The Reload task issues a user 3733 abend.

User response

Ensure that the correct load module libraries are specified in the JOBLIB or STEPLIB concatenation. Also ensure that all required maintenance are applied. Correct the error and rerun the job. If necessary, contact IBM Software Support.

HPSR3734E	NONZERO RETURN CODE FROM DFSRVSP0, RC=return_code
------------------	--

Explanation

An error occurred when DFSRVSP0 was called. *return_code* shows the return code from DFSRVSP0.

System action

The Reload task issues user 3734 abend.

User response

This error is likely an internal system error. Contact IBM Software Support.

**HPSR3735E NONZERO RETURN CODE
FROM DFSURIT0; error_type,
PID=partition_id, RC=return_code,
RSN=reason_code|CC=comp_code**

Explanation

An error was found when DFSURIT0 was called to end the process for ILDS of Partition ID *partition_id*. DFSURIT0 either ended with a return code of *return_code* and a reason code of *reason_code* or ended abnormally with a completion code of *comp_code*.

error_type	Description
01	GETMAIN error
02	FREEMAIN error
03	VSAM error
04	Load error
05	Sort error
06	Data space error
07	DFSURIT0 ended abnormally

System action

The Reload task issues a user 3735 abend.

User response

For the data space error (*error_type*=06), the return code and the reason code that are shown in the message are from the DSPSERV macro. See the *MVS Assembler Services Reference* and check the meaning. Otherwise, this error is likely to be an internal system error. Record the message and contact IBM Software Support.

**HPSR3736E DD ddname IS USING DATA SET
NOT REGISTERED WITH DBRC**

Explanation

DBRC is called to create a REORG record for the database, but the data set name of *ddname* is not registered with DBRC.

System action

IMS HP Load issues a user 3736 abend and a dump.

User response

Ensure that the correct RECON data sets are used. Correct the error, and rerun the job.

**HPSR3737E xxxxxx SIZE OF DDN: ddname OUT
OF RANGE AS DL/I DB: reason**

Explanation

The allocation information of the data set to be reloaded does not meet the specification of IMS.

xxxxxx is one of the following values:

- CI
- BLOCK
- RECORD

Reason (reason)	Description
CI SIZE > 30720	The specified CI size exceeds 30720.
CI SIZE NOT EQUAL LRECL+7	The CI size must be equal to the RECORD size plus 7 bytes.
BLOCK SIZE > 32767	The specified BLOCK size exceeds 32767.
RECORD SIZE > 32760	The specified RECORD size exceeds 32760.
RECORD SIZE IS ODD-SIZE	The RECORD size cannot be an odd value.

System action

IMS HP Load issues a user 3737 abend.

User response

Correct the error, and rerun the job.

HPSR3738E IGGCSI00 MODULE ERROR: text

Explanation

Catalog Search Interface IGGCSI00 caused an error. *text* describes the error.

text represents:

- LINK ERROR
- RETURN CODE ERROR
- ERROR OCCUR FOR ENTRY

System action

Module HPSRCILE issues a user 3738 abend and a dump.

User response

Contact IBM Software Support.

To improve the performance of rebuilding ILDS by making the VSAM load mode in effect, specify the REUSE parameter in your ILDS CLUSTER definition, and specify the ILDSBLD=YES control statement.

HPSR3739E THE EXTENT NUMBER OF OSAM EXCEEDS THE LIMIT NUMBER

Explanation

The extension number of a reorganized data set is larger than the number that you specified for EXTENT.

System action

A user 3739 abend and a dump are issued.

User response

Check the SPACE parameter in the allocation information of the OSAM data set, and increase the allocation size of the primary or secondary definition if needed. Rerun the job.

HPSR3740E NONZERO RETURN CODE FROM HPSRFIG1, RC=return_code

Explanation

An error occurred when HPSRFIG1 was called. Return code from HPSRFIG1 was *return_code*.

System action

The Reload task issues a user 3740 abend.

User response

This problem is likely to be an internal system error. Contact IBM Software Support.

HPSR3741E DSNAM FOR DDNAME xxxxxxxx IS NOT REGISTERED TO DBRC.

Explanation

Data set name for DD name xxxxxxxx is not registered to DBRC.

System action

IMS HP Load issues a user 3741 abend.

User response

Correct the error and rerun the job.

HPSR3742W AN INTERNAL xxxxxxxxxx COMMAND FAILURE OCCURRED.

Explanation

An error was encountered while the xxxxxxxxxx command was running for DSG check.

System action

Processing continues; DSG check was ignored.

User response

This problem is an internal system error. If necessary, contact IBM Software Support.

HPSR3743W DYNALOC FAILURE OCCURRED FOR xxxxxxxx: RETURN CODE=return_code REASON CODE=reason_code

Explanation

An attempt to dynamically allocate data set xxxxxxxx failed. xxxxxxxx is used for the DSG check or BLKSIZE check internally. *Return_code* and *reason_code* are the return code and the reason code from the SVC99 routine.

System action

Processing continues; DSG check or BLKSIZE check is bypassed. When DSG check is bypassed, message HPSR3744W follows. When BLKSIZE check is bypassed, message HPSR3699W follows.

User response

If necessary, correct the error and rerun the job or contact IBM Software Support.

HPSR3744W xxxxxxxx OPEN FAILURE OCCURRED

Explanation

An attempt to open the data set xxxxxxxx failed. xxxxxxxx is used for DSG check internally.

System action

Processing continues; DSG check was ignored.

User response

If necessary, correct the error and rerun the job or contact IBM Software Support.

**HPSR3745W LOAD FAILED FOR MODULE:
 module**

Explanation

An error was encountered while the module named *module* was being loaded.

System action

Processing continues; DSG check is ignored.

User response

If necessary, correct the error and rerun the job or contact IBM Software Support.

**HPSR3746I ALLOC RECORD FOUND FOR
 DBD: *dbdname* DDN: *ddname*
 TIMESTAMP: *yyyydddhhmmsst***

Explanation

An ALLOC record is found for database *dbdname* DD name *ddname* with time stamp *yyyydddhhmmsst*, which is newer than that of the unloaded data set creation.

System action

Processing continues.

User response

None. This message is informational.

**HPSR3747E ABEND REQUESTED BY UPDATE
 CHECK PROCESS**

Explanation

An ALLOC record is found for the database with the time stamp that is newer than that of the unloaded data set creation. The job step ended abnormally as requested by the CHKUPDT control statement.

System action

IMS HP Load issues a user 3747 abend and a dump.

User response

Ensure that you are not using a back level unloaded data set mistakenly. Correct the error and rerun the job.

**HPSR3748I UPDATE CHECK NOT PROCESSED.
 REASON CODE: *reason_code***

Explanation

A check for DBRC to verify that there are no updates between unload and reload processes cannot be done.

Reason code	Description
01	DBRC is not active.
02	DBDS record is not registered to DBRC RECON.
03	Format of unloaded data set is not either of HD, SH, or PHD.
04	Timestamp is not found in the unloaded data set.

System action

Processing continues. No check is done for updates between unload and reload.

User response

If you want to check updates, correct the error and rerun the job.

**HPSR3749E AN INTERNAL *dbrccmd* COMMAND
 FAILURE OCCURRED. RC:
 *return_code***

Explanation

An internal DBRC command *dbrccmd* failed with return code *return_code*.

System action

IMS HP Load issues a user 3749 abend and a dump.

User response

Correct the error and rerun the job.

HPSR3750E HPIO INIT CALL ERROR

Explanation

The INIT call for the High Performance I/O Driver failed.

System action

IMS HP Load issues a user 3750 abend and a dump.

User response

Register 15 contains the address of the diagnostic information.

If necessary, contact IBM Software Support.

HPSR3751E HPIO OPEN CALL ERROR

Explanation

The OPEN call for the High Performance I/O Driver failed.

System action

IMS HP Load issues a user 3751 abend and a dump.

User response

Register 15 contains the address of the diagnostic information.

If necessary, contact IBM Software Support.

HPSR3752E CLUSTER NOT EMPTY

Explanation

The OPEN call for the High Performance I/O Driver found that the specified database data set is not empty.

System action

IMS HP Load issues a user 3752 abend and a dump.

User response

Correct the error and rerun the job.

HPSR3753E HPIO POINT CALL ERROR

Explanation

The POINT call for the High Performance I/O Driver failed.

System action

IMS HP Load issues a user 3753 abend and a dump.

User response

Register 15 contains the address of the diagnostic information.

If necessary, contact IBM Software Support.

HPSR3754E HPIO WRITE CALL ERROR

Explanation

The WRITE call for the High Performance I/O Driver failed.

System action

IMS HP Load issues a user 3754 abend and a dump.

User response

Register 15 contains the address of the diagnostic information.

If necessary, contact IBM Software Support.

HPSR3755E HPIO CLOSE CALL ERROR

Explanation

The CLOSE call for the High Performance I/O Driver failed.

System action

IMS HP Load issues a user 3755 abend and a dump.

User response

Register 15 contains the address of the diagnostic information.

If necessary, contact IBM Software Support.

HPSR3756E HPIO EXTEND FAILURE

Explanation

The High Performance I/O Driver detected an extend error for the database data set. There is a shortage of space.

System action

IMS HP Load issues a user 3756 abend and a dump.

User response

Correct the error and rerun the job.

HPSR3757E HPIO TERM CALL ERROR

Explanation

The TERM call for the High Performance I/O Driver failed.

System action

IMS HP Load issues a user 3757 abend and a dump.

User response

Register 15 contains the address of the diagnostic information.

If necessary, contact IBM Software Support.

HPSR3758E HPIO GETBUF CALL ERROR

Explanation

The GETBUF call for the High Performance I/O Driver failed.

System action

IMS HP Load issues a user 3758 abend and a dump.

User response

Register 15 contains the address of the diagnostic information.

If necessary, contact IBM Software Support.

**HPSR3759I HPIO IS NOT USED BECAUSE
AT LEAST ONE LIBRARY IS NOT
AUTHORIZED**

Explanation

High Performance I/O (HPIO) is not used in subtasks because at least one library is not APF authorized.

System action

IMS HP Load continues processing.

User response

If you want to use HPIO, you must APF-authorize all libraries that are in the STEPLIB DD concatenation.

HPSR3760E LOAD FAILED FOR "module"

Explanation

Load failed for the indicated module.

System action

IMS HP Load issues a user 3760 abend and a dump.

User response

Check the contents of the load module library. Correct the error and rerun the job.

HPSR3761E LIBRARY NOT AUTHORIZED

Explanation

A load library of STEPLIB is not APF-authorized.

System action

IMS HP Load sets a return code of 8.

User response

Correct the error and rerun the job.

**HPSR3762E OSAM DATA SET OPEN FAILURE
OCCURRED**

Explanation

An error occurred while an OSAM data set was being opened.

System action

Module HPSROSAM issues a user 3762 abend and a dump.

User response

If you specified DBALLABOVE in DFSVSAM DD and message IEC133I appears in the job log, specify NON_VSAM_XTIOT=YES in the DEVSUPxx PARMLIB member and rerun the job.

**HPSR3763E PARTITION ASSIGNED IS
OUTSIDE THE RANGE FOR
REORGANIZATION**

Explanation

The assigned partition is outside the range of the partitions that are specified by the PARTITION control statement in the REORG block.

System action

Module HPSRRLDM issues a user 3763 abend.

User response

Review the PARTITION control statement and rerun the job.

**HPSR3764E KEY FIELD IS NOT DEFINED FOR
THE ROOT SEGMENT OF HALDB**

Explanation

IMS HP Load found no sequence field in the root segment of the HALDB.

System action

IMS HP Load issues a user 3764 abend.

User response

Correct the error and rerun the job.

HPSR3765E	IDCAMS COULD NOT DEFINE A GDG
------------------	--------------------------------------

Explanation

IDCAMS failed in defining a GDG. The error messages that are issued by IDCAMS are shown in the GDG Base Information report.

System action

IMS HP Load issues a user 3765 abend.

User response

Locate the IDCAMS messages, correct any errors, and rerun the job.

HPSR3766E	GDG BASE ENTRY FOR DFSURWF1 WAS NOT FOUND (R15=register15, R0=register0)
------------------	---

Explanation

IMS HP Load tried to create a generation data set. However, the GDG base entry was not found by the LOCATE macro. *register15* and *register0* show the returned information from the LOCATE macro.

System action

IMS HP Load issues a user 3766 abend.

User response

Ensure that the specifications of WF1DSN and GDGBASE are correct. If you specify a symbolic parameter &GDG on the WF1DSN statement and if you want to create a DFSURWF1 data set together with a new generation data set group, specify GDGBASE=YES. Otherwise, contact IBM Software Support.

HPSR3767E	THE IDCAMS PROGRAM RETURNED AN ERROR
------------------	---

Explanation

The IDCAMS program that is internally called by IMS HP Load returned an error return code. The detailed error messages are shown in the Database Data Set Allocation report.

System action

IMS HP Load issues a user 3767 abend.

User response

Locate the IDCAMS messages in the report, correct any errors, and rerun the job.

HPSR3768W	THE RELOADED PARTITION (partition) IS NOT SPECIFIED ON THE LPART STATEMENT
------------------	---

Explanation

The partitions to be reloaded are specified on the LPART control statement. However, IMS HP Load reloaded the indicated partition, which is not specified on the LPART control statement.

System action

IMS HP Load continues processing.

User response

Ensure that the LPART statement contains all the partitions that you want to reload. If necessary, correct the LPART statement and rerun the job.

HPSR3769E	PARTINIT=YES,LPART CANNOT BE SPECIFIED BECAUSE LPART STATEMENT IS NOT SPECIFIED
------------------	--

Explanation

PARTINIT=YES,LPART is specified; however, the LPART control statement is not specified. To specify PARTINIT=YES,LPART, you must also specify the LPART control statement.

System action

IMS HP Load issues a user 3769 abend.

User response

Correct the control statement and rerun the job.

HPSR3770E	SORT PROCESSING ENDED ABNORMALLY
------------------	---

Explanation

Sort processing ended abnormally.

System action

Module HPSRSRT0 issues a user 3770 abend.

User response

See the accompanying error messages.

**HPSR3771E DO NOT USE A LARGE FORMAT
D/S: *dsname***

Explanation

The *dsname* data set is a large format data set that is supported by z/OS 1.7 and later. IMS HP Load cannot process large format data sets in z/OS 1.6 or that of prior versions.

System action

IMS HP Load issues a user 3771 abend and a dump.

User response

Check the level of z/OS.

HPSR3772E GETDSAB FAILED FOR *ddname*

Explanation

The GETDSAB macro failed for DD name *ddname*.

System action

IMS HP Load issues a user 3772 abend and a dump.

User response

This problem is likely to be an internal system error. Contact IBM Software Support.

HPSR3773E SWAREQ FAILED FOR *ddname*

Explanation

The SWAREQ macro failed for DD name *ddname*.

System action

IMS HP Load issues a user 3773 abend and a dump.

User response

This problem is likely to be an internal system error. Contact IBM Software Support.

HPSR3774E OBTAIN FAILED FOR *ddname*

Explanation

The OBTAIN macro failed for DD name *ddname*.

System action

IMS HP Load issues a user 3774 abend and a dump.

User response

This problem is likely to be an internal system error. Contact IBM Software Support.

**HPSR3775E DBRC COMMAND PROCESSING
ENDED ABNORMALLY**

Explanation

DBRC command processing ended abnormally. An error occurred while detaching a DBRC command task.

System action

IMS HP Load issues a user 3775 abend.

User response

Contact IBM Software Support.

**HPSR3777E DDEFPSDS CANNOT BE USED
BECAUSE AT LEAST ONE LIBRARY
IS NOT AUTHORIZED**

Explanation

Database data sets cannot be created by using the DDEFPSDS DD statement because at least one library is not APF authorized.

System action

IMS HP Load issues a user 3777 abend.

User response

To use the IDCAMS commands with the DDEFPSDS DD statement, APF-authorize all the libraries that are in the STEPLIB DD concatenation, and rerun the job.

**HPSR3778E SEGMENT LENGTH IN PSINDEX
DB (DBDNAME=*dbdname*) IS TOO
LONG**

Explanation

IMS High Performance Load cannot create WFP data sets because the segment length that is defined in the DBD definition of the indicated database is too long.

System action

IMS HP Load issues a user 3778 abend and a dump.

User response

Remove the WFPHLQ control statement, or make the sum of the segment length and the root key length of the PSINDEX less or equal to 7189.

HPSR3779E	WFP DATA SET (DDNAME=ddname) FOR partition IS NOT EMPTY
------------------	--

Explanation

The data set that is specified by the indicated DD name is not empty. The indicated DD name is one of the DD names that are used to specify the WFP data sets for the indicated partition.

System action

IMS HP Load issues a user 3779 abend and a dump.

User response

Ensure that the correct data set is specified on the indicated DD name.

HPSR3780E	DUMMY SPECIFIED FOR ddname DD
------------------	--

Explanation

The DUMMY parameter is specified for the indicated DD name. However, the DUMMY parameter is not allowed for this DD statement.

System action

IMS HP Load issues a user 3780 abend and a dump.

User response

Ensure that the DD statement exists and that it specifies the correct data set. Correct the error and rerun the job.

HPSR3781E	WFP DATA SET NAME (DDNAME=ddname) FOR partition IS INCORRECT
------------------	---

Explanation

The data set name that is assigned to the indicated DD name is incorrect. WFP data set names must follow the naming convention.

System action

IMS HP Load issues a user 3781 abend and a dump.

User response

Ensure that the correct data set name is specified on the DD statement.

HPSR3782E	LOCATE FAILED(R15=register15,R0=registe r0), DSN=dsname
------------------	--

Explanation

An error occurred while the LOCATE macro was processing the indicated data set. *register15* and *register0* show the returned information from the LOCATE macro.

System action

IMS HP Load issues a user 3782 abend and a dump.

User response

See *z/OS DFSMS Managing Catalogs* to interpret the returned information from the LOCATE macro. Correct the error and rerun the job. If the error persists, contact IBM Software Support.

HPSR3783E	DBDS CANNOT BE EXNTEDED DUE TO THE LIMIT OF RBA
------------------	--

Explanation

IMS HP Load attempted to extend the VSAM database data set, but the data set could not be extended because the high-allocated RBA reached the 4 GB size limit.

System action

Module HPSRIOIN issues a user 0004 abend.

User response

Decrease the total size of the database by one of the following methods:

- Archive old data.
- Use segment compression.
- Divide the database data set into two or more data set groups.
- Convert to OSAM or HALDB.

If you are reloading an HDAM/PHDAM database, decrease the total size of the database by one of the following methods:

- Adjust the SEARCH control statement value to decrease the number of segments that will be directed to the overflow portion of the database.

- Decrease the number of RAA blocks if there are many unused RAPs and the RAA has a high percentage of free space.

HPSR3784E VSAM EXTEND FAILURE OCCURRED IN HPIO

Explanation

An error occurred while extending the VSAM data set (EXTEND VSAM) with HPIO. This error could be the result from one of the following causes:

- The new allocation amount exceeds the maximum RBA.
- All space is used on the current volume and no more volumes are specified.

For more information, see the IEC message that is printed before this message.

System action

Module HPSRIOIN issues a user 0004 abend.

User response

If the new allocation amount exceeds the maximum RBA, decrease the total size of the database by one of the following methods:

- Archive old data.
- Use segment compression.
- Divide the database data set into two or more data set groups.
- Convert to OSAM or HALDB.

If you are reloading an HDAM or a PHDAM database, you can also decrease the total size of the database by one of the following methods:

- Adjust the SEARCH control statement value to decrease the number of segments that will be directed to the overflow portion of the database.
- Decrease the number of RAA blocks if there are many unused RAPs and the RAA has a high percentage of free space.

If you are reloading an HIDAM or a PHIDAM database, this message likely indicates that the size of the database data set exceeds 4 GB.

If necessary, contact IBM Software Support.

HPSR3785E LOAD FAILED FOR GEXAPI00

Explanation

IMS HP Load attempted to load the GEXAPI00 module but it could not find the module.

System action

IMS HP Load issues a user 3785 abend.

User response

Ensure that GEXAPI00 in the SGLXLOAD library of IMS Tools Base is available. If it is not available, make it available and rerun the job.

HPSR3786I ZIIP TIME (HH:MM:SS.THMIJU) WAS: hh:mm:ss.thmiju

Explanation

This informational message shows the CPU time consumed by ZIIP processors for the IMS HP Load job.

System action

Processing continues.

User response

None. This message is informational.

HPSR3787I CATALOG SEARCH FEEDBACK: RC=rc (yy-zz) DSN=dsname

Explanation

A call to the DFSMS Catalog Search Interface (IGGCSI00), which is for checking the existence of a database data set, received a nonzero return code. The value *rc* is the return code in hexadecimal, and the value *dsname* is the data set name to be searched in the catalog.

When RC=04, the values *yy* and *zz* are the return code and the reason code in hexadecimal that are passed back from the DFSMS Catalog Manager. The meanings of the return code and reason code are described in message IDC3009I in *z/OS MVS System Messages*.

System action

IMS HP Load continues processing without checking the existence of the data set.

User response

None. This message is informational.

HPSR3788E DATA SET NOT FOUND: dsname (DDN=ddname)

Explanation

An entry for the VSAM or OSAM database data set *dsname* for *ddname* DD was not found in the catalog.

System action

IMS HP Load issues a user 3788 abend and a dump.

User response

Make sure that the data set is defined correctly, and rerun the job.

HPSR3801E	PARAMETER ERROR DETECTED ON PARM: <i>parm_string</i>
------------------	---

Explanation

An incorrect parameter is detected. The incorrect parameter string is listed as *parm_string*.

System action

The IPR Reload utility issues a user 3801 abend.

User response

Check the parameter specification that is listed as *parm_string*. Correct the parameter, and rerun the job.

HPSR3810E	OPEN FAILED FOR DDNAME: <i>ddname</i>
------------------	--

Explanation

After an OPEN macro was issued to open the non-VSAM data set that is associated with *ddname*, DCBOFLGS was not zero.

System action

IMS HP Load issues a user 3810 abend.

User response

Ensure that the DD statement associated with *ddname* specifies the correct data set. Correct the error and rerun the job.

HPSR3811E	BLDL MACRO FAILED FOR MEMBER <i>member</i> IN LIBRARY <i>ddname</i> (RC=<i>return_code</i>, RSN=<i>reason_code</i>)
------------------	--

Explanation

The BLDL macro for member *member* in library *ddname* failed. The return code from the macro call is *return_code*, and the reason code is *reason_code*.

System action

The IPR Reload utility issues user 3811 abend.

User response

This error is likely an internal system error. Contact IBM Software Support.

HPSR3812E	OPEN FAILED FOR DDNAME: <i>ddname</i> (ACBERFLG=<i>xxx</i>)
------------------	--

Explanation

When an OPEN macro was issued to open the VSAM data set that is associated with *ddname*, an error occurred. The value *xxx* is the decimal OPEN reason code in the ACBERFLG field of the ACB for the data set in error.

System action

The Reload task issues user 3812 abend.

User response

Check the reason code in the ACBERFLG field. The reason codes are explained in *DFSMS/MVS Macro Instructions for Data Sets*. Correct the error and rerun the job.

If necessary, contact IBM Software Support.

HPSR3813E	CLOSE FAILED FOR DDNAME: <i>ddname</i> (ACBERFLG=<i>xxx</i>)
------------------	---

Explanation

An error occurred while the VSAM data set that is allocated to the DD *ddname* was being closed. The value *xxx* is the decimal CLOSE reason code in the ACBERFLG field of the ACB for the data set in error.

System action

The Reload task issues user 3813 abend.

User response

Check the reason code in the ACBERFLG field. The reason codes are explained in *DFSMS/MVS Macro Instructions for Data Sets*. Correct the error and rerun the job.

If necessary, contact IBM Software Support.

HPSR3814E	VSAM GET FAILED FOR DDNAME: <i>ddname</i> (RC=<i>return_code</i>, RSN=<i>reason_code</i>)
------------------	--

Explanation

An error occurred when a VSAM GET was issued for the VSAM data set that is allocated to DD *ddname*. The

value *return_code* is the return code in the RPLRTNCD field of the RPL used for the VSAM GET request. The value *reason_code* is the decimal reason code in the RPLERRCD field of the RPL.

System action

The Reload task issues a user 3814 abend.

User response

Check the return and reason codes. These codes are explained in *DFSMS/MVS Macro Instructions for Data Sets*. Correct the error and rerun the job.

If necessary, contact IBM Software Support.

HPSR3815E	LOAD FAILED FOR MODULE: mod_name DDNAME: ddname
------------------	--

Explanation

After a LOAD macro was issued to load the module *mod_name* from the library that is specified by the *ddname* DD statement, register 15 contained a nonzero return code.

System action

IMS HP Load issues a user 3815 abend.

User response

Ensure that the DD statement associated with *ddname* specifies the correct data set. Correct the error and rerun the job. If the problem persists, save the entire run listing (including the dump and the JCL) and contact IBM Software Support.

HPSR3816E	UNSUCCESSFUL VSAM SHOWCB FOR ACB
------------------	---

Explanation

After a SHOWCB macro was issued for an ACB control block, register 15 contained a nonzero return code.

System action

The Reload task issues a user 3816 abend.

User response

This error is likely an internal system error. Contact IBM Software Support.

HPSR3817E	UNSUCCESSFUL VSAM SHOWCB FOR RPL
------------------	---

Explanation

After a SHOWCB macro was issued for an RPL control block, register 15 contained a nonzero return code.

System action

The Reload task issues a user abend 3817.

User response

This error is likely an internal system error. Contact IBM Software Support.

HPSR3818E	ERROR RETURNED FROM IGWASYS (RC=return_code, RSN=reason_code)
------------------	--

Explanation

IMS HP Load called IGWASYS, but received an error return code from IGWASYS. Here, RC shows the return code, and RSN shows the reason code.

System action

IMS HP Load issues a user 3818 abend and a dump.

User response

See *DFSMSdfp Advanced Services* and check the meaning of the return code and reason code of IGWASYS. Correct the error and rerun the job.

HPSR3819E	RDJFCB MACRO FAILED ON DDNAME: ddname (RC=return_code)
------------------	---

Explanation

The RDJFCB macro failed for DD name *ddname*. The return code from the macro call is *return_code*.

System action

IMS HP Load issues a user 3819 abend and a dump.

User response

This problem is likely an internal system error. Contact IBM Software Support.

HPSR3820E	DYNAMIC ALLOCATION FAILURE OCCURRED FOR DB: dbdname DD: ddname. RC=return_code RSN=reason_code
------------------	---

Explanation

An attempt to dynamically allocate *ddname* of *dbdname* failed. *Return_code* is the return code in register 15, and *reason_code* is the associated hexadecimal reason code from the SVC99 routine.

System action

IMS HP Load issues a user 3820 abend.

User response

The return code and reason code from the SVC99 routine are explained in the *MVS Authorized Assembler Services Guide*. Correct the error and rerun the job.

HPSR3821E	VSAM ERASE FAILED FOR DDNAME: <i>ddname</i> (RC=<i>return_code</i>, RSN=<i>reason_code</i>)
------------------	--

Explanation

An error occurred when a VSAM ERASE command was issued for the VSAM data set that is allocated to DD *ddname*. Value *return_code* is the return code in the RPLRTNCD field of the RPL used for the VSAM ERASE request. Value *reason_code* is the decimal reason code in the RPLERRCD field of the RPL.

System action

The Reload task issues a user 3821 abend.

User response

Check the return and reason codes. These codes are explained in *DFSMS/MVS Macro Instructions for Data Sets*. Correct the error and rerun the job.

If necessary, contact IBM Software Support.

HPSR3822E	CSVQUERY MACRO FAILED FOR <i>entry_name</i> (RC=<i>return_code</i>)
------------------	--

Explanation

The CSVQUERY macro failed for a name of entry point: *entry_name*. RC shows the return code from the macro call.

System action

IMS HP Load issues a user 3822 abend and a dump.

User response

This problem is likely an internal system error. Contact IBM Software Support.

HPSR3823E	ATTACHX MACRO FAILED FOR <i>module</i> (RC=<i>return_code</i>)
------------------	---

Explanation

The ATTACHX macro for *module* failed. RC shows the return code from the macro call.

System action

IMS HP Load issues a user 3823 abend and a dump.

User response

See *MVS Auth Assm Services Reference ALE-DYN: 1.0* and check the meaning of the return code and the reason code of ATTACHX.

If necessary, contact IBM Software Support.

HPSR3825E	DEVTYPE MACRO FAILED ON DDNAME: <i>ddname</i> RC=<i>return_code</i>
------------------	--

Explanation

After a DEVTYPE macro was issued to check the data set that is specified for the *ddname* DD statement, the return code indicated that the attempt to do so was unsuccessful. *Return_code* is the DEVTYPE return code.

System action

IMS HP Load issues a user 3825 abend.

User response

Ensure that the DD statement associated with *ddname* specifies the correct data set. Correct the error and rerun the job.

HPSR3826E	ERROR RETURNED FROM CATALOG API (FUNC=<i>function</i> RC=<i>return_code</i> RSN=<i>reason_code</i>)
------------------	--

Explanation

IMS HP Load received an error return code from IMS Tools Catalog Interface.

System action

IMS HP Load issues a user 3826 abend and a dump.

User response

Contact IBM Software Support.

HPSR3827E	DBD <i>dbdname</i> IS NOT FOUND IN THE IMS DIRECTORY DATA SETS
------------------	---

Explanation

IMS HP Load could not find the indicated DBD in the IMS directory data sets.

System action

IMS HP Load issues a user 3827 abend and a dump.

User response

Ensure that the correct DBD name is specified on the EXEC statement and rerun the job.

**HPSR3830E INCORRECT DFSMDA MEMBER:
 member**

Explanation

Member is loaded as a DFSMDA member, but it is not in correct DFSMDA format. The eye-catcher MDA is not found in the loaded member (*member*).

System action

IMS HP Load issues a user 3830 abend.

User response

If a library that contains a member with the same name as *member* is specified in the higher order of the STEPLIB or JOBLIB concatenation, this problem can occur.

Ensure that the correct DFSMDA library is concatenated to the STEPLIB or JOBLIB. Correct the error and rerun the job.

**HPSR3840E DD: *ddname* INFORMATION OF
 DB: *dbdname* IS NOT FOUND IN
 DFSMDA MEMBER**

Explanation

The DD information that is associated with *ddname* DD is not found in the DFSMDA member. The IPR Reload utility cannot attempt dynamic allocation for the *ddname* of database (*dbdname*).

System action

IMS HP Load issues a user 3840 abend.

User response

Ensure that the DFSMDA member *dbdname* contains the appropriate information for database *dbdname*. Correct the error and rerun the job.

**HPSR3841E INVALID ALLOCATE REQUEST FOR
 DATABASE. DDN=*ddname***

Explanation

Some, but not all, of the data sets of a database were allocated by JCL. The entire database must be allocated by JCL or by the DFSMDA member, but not both. Mixed allocations are invalid.

System action

IMS HP Load issues a user 3841 abend.

User response

Correct the JCL and rerun the job.

**HPSR3845E DDNAME SPECIFIED IN DBD DOES
 NOT HAVE A CORRESPONDING
 MATCH WITH A DD STATEMENT**

Explanation

The IPR Reload utility tried to allocate a database data set, but an MDA member that corresponds to the specified DBD or a DD statement for the DD name that is specified in the DBD was not found.

System action

IMS HP Load issues a user 3845 abend.

User response

Either add a DD statement for the database data set or specify (on the STEPLIB or JOBLIB) a PDS data set that contains the MDA member for the DBD.

**HPSR3850E LOAD-MODULE *xxxxxxx* IS NOT
 REENTRANT**

Explanation

The IPR Reload utility requires that *xxxxxxx* be link-edited with the link-editor attribute RENT. This was not done.

System action

The IPR Reload utility issues a user 3850 abend.

User response

Correct the error and rerun the job. If the error persists, contact IBM Software Support.

**HPSR3855E NONZERO RETURN CODE FROM
 IDENTIFY: RC=*return_code***

Explanation

The IPR Reload utility issued an IDENTIFY macro, but the IDENTIFY failed. This must not occur. *Return_code* is the IDENTIFY return code.

System action

The IPR Reload utility issues a user 3855 abend.

User response

Contact IBM Software Support.

HPSR3860E HPSRFCA0 IS NOT REUSABLE

Explanation

The load module HPSRFCA0 does not have the link-editor attribute REUS, which is required.

System action

The runtime initializer ends abnormally.

User response

Identify why HPSRFCA0 or its submodule is not reusable. If necessary, contact IBM Software Support.

**HPSR3865E COMPRESSION EXIT ROUTINE
nnnnnnnn function ERROR - Uaaaa
REASON rrrrrrrr**

Explanation

An error was detected by a Segment Edit/Compression exit routine. In the message text:

nnnnnnnn

Name of the exit routine.

function

The function of the exit routine that caused the error.

Uaaaa

The user abend code generated by the exit routine.

rrrrrrrr

The unique label at which the error was detected. This label corresponds to the error reason code. Find the reason code in the user's guide of the Segment Edit/Compression exit routine or contact the supplier of the Segment Edit/Compression exit routine.

System action

IMS HP Load issues a user 3865 abend and a dump.

User response

Determine the cause of the error and correct the problem.

**HPSR3870E NAME/TOKEN SERVICE xxxxxxxx
FAILED. NAME: nametoken
RC=return_code**

Explanation

The process failed in the z/OS MVS Name/Token Service. xxxxxxxx shows the service name. *Return_code* is the return code of the Name/Token service.

System action

IMS HP Load issues a user 3870 abend.

User response

Find the cause of the error. For the return code, see *z/OS MVS Programming: Assembler Services Reference, Volume 2 (IARR2V-XCTLX)*. If necessary, correct the warning condition and rerun the job.

**HPSR3871I RDE CREATED FOR DBD/PART:
dbdname/partname**

Explanation

The registered DMB entry (RDE) is successfully created for database *dbdname/partname*.

System action

Processing continues.

User response

None. This message is informational.

**HPSR3872W LIU API FUNCTION ERROR.
DBD/PART=dbdname/partname
FUNC=xxxxxx RC=return_code
RSN=reason_code**

Explanation

The API function of Integrity Checker of IMS Library Integrity Utilities (LIU) ended with an error. The registered DMB entry (RDE) was not created or updated.

System action

Processing continues.

User response

Create the RDE after the reload process, or correct the warning condition and rerun the job.

HPSR3873E	THE INPUT DATA IS COMPRESSED BY THE OLD COMP ROUTINE.
------------------	--

Explanation

The input data was compressed by a compression routine other than that is defined in the DBD. The data cannot be decompressed.

System action

IMS HP Load issues a user 3873 abend.

User response

If you change the compression routine, use a decompressed unload data set for input.

HPSR3874E	THE INFORMATION ABOUT RDE CREATION WAS NOT FOUND. DBD/PART=<i>dbdname/partname</i>
------------------	---

Explanation

IMS HP Load must obtain information about the creation of the registered DMB entry (RDE) from IMS Library Integrity Utilities (LIU). However, IMS HP Load could not find the information for database *dbdname/partname*.

System action

IMS HP Load issues a user 3874 abend.

User response

Contact IBM Software Support.

HPSR3875E	DBRC REQUIRED FOR THIS EXECUTION
------------------	---

Explanation

The target database is a HALDB database or an IMS catalog database, but DBRC=N is specified in the JCL.

System action

IMS HP Load issues a user 3875 abend and a dump.

User response

Specify DBRC=Y and rerun the job.

If you want to process an IMS catalog database without using DBRC, complete either of the following steps and rerun the job:

- Update the DFSDFxxx member of the IMS PROCLIB data set so that DBRC is not used. For more information, see the topic "DFSDFxxx member of the IMS PROCLIB data set" in *IMS System Definition*.
- Ensure that the catalog definition exit routine (DFS3CDX0) is specified correctly. For more information, see the topic "IMS Catalog Definition exit routine (DFS3CDX0)" in *IMS Exit Routines*.

HPSR3876I	COMPAUTH=YES CANNOT BE USED BECAUSE ONE OR MORE LIBRARIES ARE NOT AUTHORIZED
------------------	---

Explanation

IMS HP Load ignored COMPAUTH=YES because one or more libraries are not APF authorized.

System action

Processing continues; the keyword parameter is ignored.

User response

To use COMPAUTH=YES, APF-authorize all the libraries that are in the STEPLIB DD concatenation.

HPSR3901E	OPEN FAILED FOR DDNAME: <i>ddname</i>
------------------	--

Explanation

After an OPEN macro was issued to open the non-VSAM data set that is associated with *ddname*, DCBOFLGS was not zero.

System action

Processing stops.

User response

Ensure that the DD statement associated with *ddname* indicates the correct data set. Correct the error and rerun the job.

HPSR3902E	CONTROL STATEMENT SYNTAX ERROR
------------------	---------------------------------------

Explanation

An incorrect control statement is detected by control statement syntax checking.

System action

Processing stops or IMS HP Load issues a user 3902 abend.

User response

Check the control statement. Correct the error and rerun the job.

HPSR3903E	INVALID PARAMETER SPECIFIED: <i>parm_string</i> .
------------------	---

Explanation

An incorrect parameter is detected. The incorrect parameter string is listed as *parm_string*.

System action

Processing stops.

User response

Check the parameter specification that is listed as *parm_string*. Correct the parameter error, and rerun the job.

HPSR3905E	NUMBER OF OPERANDS FOR <i>parm_name</i> PARAMETER EXCEEDED THE LIMIT: <i>nnn</i>
------------------	---

Explanation

An incorrect control statement is detected by control statement syntax checking.

System action

Processing stops.

User response

Check the control statement. Correct the error and rerun the job.

HPSR3906E	LENGTH ERROR IN <i>n-th</i> OPERAND OF PARAMETER: <i>parm_name</i>
------------------	---

Explanation

An incorrect control statement is detected by control statement syntax checking.

System action

Processing stops.

User response

Check the control statement. Correct the error and rerun the job.

HPSR3907E	ATTRIBUTE ERROR IN <i>n-th</i> OPERAND OF PARAMETER: <i>parm_name</i>
------------------	--

Explanation

An incorrect control statement is detected by control statement syntax checking.

System action

Processing stops.

User response

Check the control statement. Correct the error and rerun the job.

HPSR3908E	NUMBER OF VALUES FOR <i>n-th</i> OPERAND EXCEEDED THE LIMIT: <i>nnn</i>
------------------	--

Explanation

An incorrect control statement is detected by control statement syntax checking.

System action

Processing stops.

User response

Check the control statement. Correct the error and rerun the job.

HPSR3909E	<i>n-th</i> OPERAND IS REQUIRED FOR PARAMETER: <i>parm_name</i>
------------------	--

Explanation

An incorrect control statement is detected by control statement syntax checking.

System action

Processing stops.

User response

Check the control statement. Correct the error and rerun the job.

HPSR3910I	BLANK LINE IN DDNAME: <i>ddname</i>
------------------	--

Explanation

A blank line is read in the FRRIN or HPSIN data set.

System action

Processing continues.

User response

None. This message is informational.

**HPSR3911E "keyword" IS NOT APPLIED TO
LOAD API.**

Explanation

Incorrect keyword is specified. The keyword is not supported for the Load API.

System action

Processing stops.

User response

Correct the parameter error, and rerun the job.

**HPSR3999E UNKNOWN ERROR OCCURRED IN
module-name MODULE (CC = nnn)**

Explanation

An internal error occurred in the indicated module of IMS HP Load *module-name*.

System action

IMS HP Load issues a user 3999 abend.

User response

Save the entire listing (including the dump, JCL, and reports) and contact IBM Software Support.

**HPSR4000E LOAD API PROCESS FAILED.
DBD=dbdname, PCB#=nnnn,
PCBNAME=pcbname.**

Explanation

The Load API processing failed when the application program processed the DL/I call to the PCB that is

specified with the control statement. *dbdname* shows the name of the DBD to which the PCB refers to, *nnnn* shows the PCB number in the PSB, and *pcbname* shows the label of the PCB. If the PCB name is not specified in the PSB, it will be blank. For details, see the HPSRnnnnE and DFSnnnn messages that are issued before this message.

System action

IMS HP Load issues a user 4000 abend.

User response

See the accompanying error messages and follow the required user response sections for those messages. Correct the error and rerun the job.

**HPSR4001W TOO FEW PARAMETERS WERE
DETECTED IN THE CALL(function)**

Explanation

Function shows the DL/I call function. The number of the specified parameters for this function is insufficient. The call is passed to IMS and the program abends.

System action

The task issues IMS abends.

User response

Correct the error and rerun the job.

**HPSR4002W ROLL CALL IS ISSUED FROM
APPLICATION PROGRAM.**

Explanation

IMS HP Load received a ROLL call from your application program.

System action

IMS HP Load passes the ROLL call to IMS.

User response

If necessary, check the reason why your application issues the ROLL call.

PSSR messages

These topics provide FABS messages, which are issued by the Physical Sequence Sort for Reload (PSSR) utility.

FABS3501E **LOAD FAILED FOR "xxxxxxx" IN
"yyyy" DATA SET**

Explanation

A LOAD macro was issued for the specified module, but no module could be loaded. If the load module should be loaded from the STEPLIB (or JOBLIB) data set, the data set name is not displayed on the message text.

System action

PSSR issues a user 3501 abend.

User response

Ensure that the indicated member exists in the data set that is specified by the indicated ddname. Correct the error and rerun the job.

FABS3502E **FAILURE IN DEVTYPE MACRO FOR
THE CTL DATA SET**

Explanation

When the DEVTYPE macro was issued for the CTL data set, it generated a return code of 8.

System action

PSSR issues a user 3502 abend.

User response

Ensure that the CTL DD statement is correct. Correct any JCL errors and rerun the job.

FABS3503E **"ddname" DD DATA SET OPEN
FAILED**

Explanation

OPEN processing failed for the data set that is specified by the *ddname* DD statement.

System action

PSSR issues a user 3503 abend.

User response

Ensure that the *ddname* DD statement exists, and that it specifies the correct DD parameter. Correct any errors, and rerun the job.

FABS3504I **DBRC REQUIRED FOR HIGH
AVAILABILITY LARGE DATABASE
"dbname"**

Explanation

This message notifies that the database is a HALDB and the PSSR processes it internally with DBRC=Y.

System action

PSSR continues processing.

User response

None. This message is informational.

FABS3505E **"module" COULD NOT BE FOUND**

Explanation

A FIND macro was issued for the specified module. No module with that name was in the library that is specified in the IMS2 DD statement.

System action

PSSR issues a user 3505 abend.

User response

Ensure that the correct partitioned data set is specified in the IMS2 DD statement. Correct the error and rerun the job.

FABS3506E **LOAD MODULE FABSSC00 IS NOT
REENTRANT**

Explanation

The FABSSC00 is not a re-entrant module.

System action

PSSR issues a user 3506 abend.

User response

PSSR might have been installed incorrectly.

Re-link the FABSSC00 load module with the re-entrant attribute.

FABS3507E **NONZERO RETURN CODE FROM
IDENTIFY**

Explanation

The IDENTIFY macro generated a nonzero return code. When IDENTIFY macro issued for DFSRRC00, it failed.

System action

PSSR issues a user 3507 abend.

User response

Contact IBM Software Support.

FABS3508E	FAILURE IN LINK MACRO FOR DFSORT MODULE
------------------	--

Explanation

When the LINK macro was issued for the DFSORT module, it failed.

System action

PSSR issues a user 3508 abend.

User response

Ensure that the DFSORT module is in the system library correctly. Correct the error and rerun the job.

FABS3509E	PART STATEMENT IS SPECIFIED FOR PSSR OF PDB NON-SUPPORT VERSION
------------------	--

Explanation

A PART statement for the Partition Data Base (PDB) is specified for PSSR of PDB non-supported version.

System action

PSSR issues a user 3509 abend.

User response

Check the PSSR CTL statement. Remove the PART statement, and rerun the job.

FABS3510E	INVALID STATEMENT FOUND IN PSSRIN DATA SET
------------------	---

Explanation

A PSSRIN data set contains an incorrect statement.

System action

PSSR issues a user 3510 abend.

User response

Check the syntax of the PSSRIN data set. Correct the errors, and rerun the job.

FABS3511E	INPUT UNLOAD RECORD FORMAT UNMATCHED FOR INPUT DBD
------------------	---

Explanation

The database organization of the unload record does not match that of the DBD.

System action

PSSR issues a user 3511 abend.

User response

Ensure that the unload files and DBD are correct. Correct the error and rerun the job.

FABS3512E	GETMAIN FAILURE OCCURRED
------------------	---------------------------------

Explanation

A GETMAIN macro was issued, but it failed.

System action

PSSR issues a user 3512 abend.

User response

Storage space might not be enough for GETMAIN. Check the region size of the PSSR job. Increase the region size in the PSSR JCL, and rerun the job.

FABS3513E	LISTCAT FAILED FOR DSN=data_set_name
------------------	---

Explanation

PSSR attempted to issue a LISTCAT command for the database data set, but it failed.

System action

PSSR issues a user 3513 abend.

User response

Ensure that input DBDS exists, or that the IDCAMS module is in the system library correctly. Correct the error and rerun the job.

FABS3514E	AN INCORRECT SORT EXIT FOR THE DATABASE ORGANIZATION
------------------	---

Explanation

The specified name of the sort exit module is not applicable for the database organization, or the database organization is not supported by PSSR.

System action

PSSR issues a user 3514 abend.

User response

Ensure that the database organization is appropriate and whether the sort exit module that is specified on the SYSIN or SORTCTL DD is applicable for the database organization. Correct the error and rerun the job.

FABS3515E	IMSPLEX NAME EXCEEDS MAXIMUM ALLOWABLE LENGTH
------------------	--

Explanation

The IMSplex name that is specified by the IMSPLEX parameter on the EXEC parameter for FABSMAN exceeds the maximum allowable length.

System action

PSSR issues a user 3515 abend.

User response

Correct the error and rerun the job.

FABS3516E	DBRCGRP ID EXCEEDS MAXIMUM ALLOWABLE LENGTH
------------------	--

Explanation

The DBRCGRP name that is specified by the DBRCGRP parameter on the EXEC parameter for FABSMAN exceeds the maximum allowable length.

System action

PSSR issues a user 3516 abend.

User response

Correct the error and rerun the job.

FABS3518E	DFSDF PARAMETER LENGTH IS INCORRECT
------------------	--

Explanation

The suffix length of the DFSDFxxx member that is specified on the EXEC parameter for FABSMAN is incorrect.

System action

PSSR issues a user 3518 abend and a dump.

User response

Correct the suffix portion of the DFSDFxxx member name on the EXEC parameter and rerun the job.

FABS3519E	DBRC PARAMETER LENGTH IS INCORRECT
------------------	---

Explanation

The length of the value that is specified for the EXEC DBRC parameter of the FABSMAN program is incorrect.

System action

PSSR issues a user 3519 abend and a dump.

User response

Correct the value of the EXEC DBRC parameter and rerun the job.

FABS3520E	DBRC REQUIRED FOR THIS EXECUTION
------------------	---

Explanation

The target database is a HALDB database. However, DBRC=N is specified in the JCL.

System action

PSSR issues a user 3520 abend and a dump.

User response

Specify DBRC=Y and rerun the job.

FABS3521E	value IS INVALID FOR DBRC PARAMETER
------------------	--

Explanation

The specified value is not valid for the EXEC DBRC parameter of the FABSMAN program.

System action

PSSR issues a user 3521 abend and a dump.

User response

Correct the value of the EXEC DBRC parameter and rerun the job.

FABS3560I SORTOUT3 DD STATEMENT IS OMITTED

Explanation

PSSR received a return code of 4 from the randomizing routine, and the corresponding root segment and its dependent segments were discarded because the SORTOUT3 DD statement is not defined in the JCL.

System action

PSSR continues processing.

User response

If you want to keep the segment records that received a return code 4 from the randomizing routine, specify a SORTOUT3 DD statement in the JCL, and rerun the job.

FABS3561I DUMMY SPECIFIED FOR SORTOUT3 FILE

Explanation

PSSR received a return code 4 from the randomizing routine, and the corresponding root segment and its dependent segments were discarded because the SORTOUT3 DD statement is defined as DUMMY in the JCL.

System action

PSSR continues processing.

User response

If you want to keep the segment records that received a return code 4 from the randomizing routine, correct the SORTOUT3 DD statement in the JCL, and rerun the job.

FABS3562I BLKSIZE OR LRECL OF SORTOUT3 FILE IS '0'; MAX ALLOWABLE SIZE FOR DEVICE IS USED

Explanation

Either BLKSIZE or LRECL is not specified on the SORTOUT3 DD statement.

System action

PSSR continues processing, using the maximum record size for the device assigned to the SORTOUT3 DD statement as the BLKSIZE. It uses BLKSIZE-4 as the LRECL.

User response

None, unless the program ends because of to an IMS or MVS error. In that case, code both LRECL and BLKSIZE on the DD statement, and rerun the job.

Tip: For some DASD devices (such as 3375 or 3380), the default block size and record length result in wasted space. If the maximum record size for the device is considerably smaller than the maximum track length, it is desirable to code BLKSIZE and LRECL on the DD statement.

FABS3563W xxxxxxxxxx SEGMENTS WERE COPIED INTO SORTOUT3 FILE BECAUSE OF RECEIVE RC=4 FROM RANDOMIZER (yyyyyyyyyyy root segments)

Explanation

PSSR received a return code 4 from the randomizing routine. The unloaded database (output) does not contain the corresponding root segment and all of its dependent segments. xxxxxxxxxx indicates the total number of segments that have been copied into SORTOUT3 file, and yyyyyyyyyy indicates the number of root segments that received a return code 4 from the randomizing routine.

System action

PSSR continues processing.

User response

If the user intended the segments to be discarded, no response is required. Otherwise, check why the user's randomizer returned a return code of 4 for those segments and take an appropriate action. Rerun the PSSR job if necessary.

FABS3564W xxxxxxxxxx SEGMENTS WERE DISCARDED DUE TO RECEIVE RC=4 FROM RANDOMIZER (yyyyyyyyyyy ROOT SEGMENTS)

Explanation

PSSR received a return code 4 from the randomizing routine. The unloaded database (output) does not contain the corresponding root segment and all of its dependent segments. xxxxxxxxxx indicates the total number of segments that have been discarded, and yyyyyyyyyy indicates the number of root segments that received a return code 4 from the randomizing routine.

System action

PSSR continues processing.

User response

If the user intended the segments to be discarded, no response is required. Otherwise, check why the user's randomizer returned a return code of 4 for those segments and take an appropriate action. Rerun the PSSR job if necessary.

FABS3565W	xxxxxxxxxx SEGMENTS WERE COPIED INTO SORTOUTD FILE (yyyyyyyyyy ROOT SEGMENTS)
------------------	--

Explanation

PSSR detected duplicate records, and has stored them in the SORTOUTD data set. The unloaded database (output) does not contain the corresponding root segment and all of its dependent segments. xxxxxxxxxxxx indicates the total number of segments that have been stored into the SORTOUTD data set, and yyyyyyyyyy indicates the number of root segments that the root keys are duplicated.

System action

PSSR continues processing.

User response

If the user intended the segments to be unloaded, no response is required. Otherwise, check why these root keys were duplicated, and take an appropriate action. Rerun the PSSR job if necessary.

FABS3566W	xxxxxxxxxx SEGMENTS WERE DISCARDED (yyyyyyyyyy ROOT SEGMENTS)
------------------	--

Explanation

PSSR detected duplicate records and discarded them because DUMMY is specified in the SORTOUTD DD. The unloaded database (output) does not contain the corresponding root segment and all of its dependent segments. xxxxxxxxxxxx indicates the total number of segments that are discarded, and yyyyyyyyyy indicates the number of root segments that the root keys are duplicated.

System action

PSSR continues processing.

User response

If the user intentionally expected that the segments to be discarded, then no response is required. Otherwise, check why these root keys were duplicated and take an appropriate action. Rerun the PSSR job if necessary.

FABS3568E	ERROR RETURN CODE RECEIVED FROM PARTITION SELECTION
------------------	--

Explanation

When PSSR issued an IEXIT or TEXT call to a partition selection (DFSPSEL), it received a non-zero return code.

System action

PSSR issues a user 3568 abend.

User response

Ensure that the DFSPSEL module or your partition selection exit is correct. Correct the error and rerun the job.

FABS3569E	PARTITION SELECTION EXIT NOT SELECTED ALL PARTITIONS
------------------	---

Explanation

Some partitions are not selected during partition selection by the partition selection exit.

System action

PSSR issues a user 3569 abend.

User response

Ensure that when the partition selection exit is called by the NEXT function, it establishes partition chaining with all of partition ID. Correct the error and rerun the job.

FABS3570E	DBD NAME ON CONTROL STATEMENT COULD NOT BE FOUND IN "IMS" DATA SET
------------------	---

Explanation

A FIND macro was issued for the DBD name that the FABSR15 control statement specifies. No module with that name is in the library on your IMS DD statement.

System action

FABSR15 issues a user 3570 abend.

User response

Check the FABSR15 control statement (in the CTL DD statement) for spelling errors in the *dbdname* (column 1) field. Make sure that the correct partitioned data set is specified on your IMS DD statement. Correct the error and rerun the job.

FABS3571E	INVALID VALUE SPECIFIED ON DB STATEMENT AT COLUMN <i>xx</i> ("yyyyyyyy")
------------------	---

Explanation

An incorrect value is specified at column *xx* for the DB statement. *yyyyyyyy* indicates the specified incorrect value.

System action

PSSR issues a user 3571 abend.

User response

Check the PSSR control statement (in the CTL DD statement) for an error in column *xx*. Correct the error and rerun the job.

FABS3572W	INVALID OPTION SPECIFIED ON DB STATEMENT AT COLUMN <i>xx</i>
------------------	---

Explanation

An incorrect value is specified at column *xx* of the DB statement (in the CTL DD statement). PSSR discards the incorrect value and treats it as if a blank is specified on that field. It might cause the Record Size Distribution report to be printed unexpectedly.

System action

PSSR continues processing as if a blank is specified on that column.

User response

If the action of PSSR is not acceptable, check the PSSR control statement (in the CTL DD statement) for an error in the indicated column, and rerun the job.

FABS3573E	INVALID VALUE SPECIFIED ON PART STATEMENT FOR <i>partname</i> AT COLUMN <i>xx</i> ("yyyyyyyy")
------------------	---

Explanation

An incorrect value is specified at column *xx* of the PART statement (in the CTL DD statement) *partname*. *yyyyyyyy* indicates the specified value.

System action

PSSR issues a user 3573 abend.

User response

Check the specification of the PART statement. Specify a correct value for the parameter and rerun the job.

FABS3574W	INVALID VALUE SPECIFIED ON DB STATEMENT
------------------	--

Explanation

An incorrect value is specified on the DB statement (in the CTL DD statement). PSSR ignores the incorrect value.

System action

PSSR continues processing.

User response

None.

FABS3575E	PARTITION SELECTION EXIT NAME WAS NOT SPECIFIED
------------------	--

Explanation

This message indicates a PSSR CTL statement error. "S" is specified in column 72 on DB statement (in the CTL DD statement), but the name of the partition selection exit is not specified.

System action

PSSR issues a user 3575 abend.

User response

Check the CTL DD statement. Correct the errors, and rerun the job.

FABS3576E	PARTITION <i>partname</i> IS NOT FOUND IN THE DB: <i>dbdname</i>
------------------	---

Explanation

The partition *partname* specified in column 2 of the PART statement is not found in database *dbdname*.

System action

PSSR issues a user 3576 abend.

User response

Check that the partition name specified on the PART statement for your PSSR job is correct. Correct the errors, and rerun the job.

FABS3577W	INVALID VALUE SPECIFIED ON PART STATEMENT FOR PHIDAM
------------------	---

Explanation

An incorrect value is specified on the PART statement (in the CTL DD statement). PSSR ignores the incorrect value.

System action

PSSR continues processing.

User response

None.

FABS3578E	PARTITION SELECTION STRING OR HIGH KEY WAS NOT SPECIFIED
------------------	---

Explanation

"+" is specified in column 72 in the PART statement (in the CTL DD statement), but, the partition selection string or high key was not specified correctly.

System action

PSSR issues a user 3578 abend.

User response

Check the PART statement. Remove "+" from column 72 in the PART statement, or specify the partition selection string or high key.

FABS3579W	INVALID OPTION SPECIFIED ON PART STATEMENT AT COLUMN xx
------------------	--

Explanation

An incorrect value is specified in column xx of the control statement (in the CTL DD statement). PSSR discards the incorrect option that is specified in column xx and treats it as if a blank is specified in that field.

System action

PSSR continues processing as if a blank is specified in column xx.

User response

If the action of PSSR is not acceptable, check the PSSR control statement (in the CTL DD statement) for an error in column xx. Correct the value in the column and rerun the job.

FABS3580E	"CTL" FILE CONTAINS NO INPUT CONTROL STATEMENTS
------------------	--

Explanation

The data set that is specified on the CTL DD statement is empty.

System action

FABSR15 issues a user 3580 abend.

User response

Check the CTL DD statement for JCL errors. Correct the error and rerun the job.

FABS3581E	FAILURE IN DEVTYPE MACRO FOR THE SORTOUT3 FILE
------------------	---

Explanation

The DEVTYPE macro generated a return code 8 when it was issued for the SORTOUT3 data set.

System action

PSSR issues a user 3581 abend.

User response

Check the SORTOUT3 DD statement for JCL errors. Correct the error and rerun the job.

FABS3582E	SORTOUT3 DD DATA SET OPEN FAILED
------------------	---

Explanation

OPEN processing failed for the data set that is specified by the SORTOUT3 DD statement.

System action

PSSR issues a user 3582 abend.

User response

Ensure that the SORTOUT3 DD statement exists, and that it specifies the correct DD parameter. Correct any errors, and rerun the job.

**FABS3583E RANDOMIZING ROUTINE
RETURNED WITH RC=8**

Explanation

PSSR received a return code 8 from the randomizing routine.

System action

PSSR issues a user 3583 abend.

User response

None.

**FABS3584E SORTOUT3 DD DATA SET CLOSE
FAILED**

Explanation

CLOSE processing failed for the data set that is specified by the SORTOUT3 DD statement.

System action

PSSR issues a user 3584 abend.

User response

Check the SORTOUT3 DD statement.

**FABS3585E INVALID LENGTH OF PARTITION
SELECTION STRING OR HIGH KEY**

Explanation

The partition selection string or the high key in the PART statement is not equal to the key.

System action

PSSR issues a user 3585 abend.

User response

Check the PART statement from the second line on, in the DBD. Correct the errors, and rerun the job.

**FABS3586E INVALID VALUE SPECIFIED FOR
PARTITION SELECTION STRING
OR HIGH KEY**

Explanation

The partition selection string or the high key in the PART statement is incorrect.

System action

PSSR issues a user 3586 abend.

User response

Check the PART statement from the second line on. Correct the errors and rerun the job.

**FABS3587E DUPLICATE VALUE SPECIFIED
FOR PARTITION SELECTION
STRING OR HIGH KEY**

Explanation

The same value is specified for two partitions as the partition selection string or the partition high key.

System action

PSSR issues a user 3587 abend.

User response

Check the PART statement (in the CTL DD statement) and the actual HALDB definitions for the partition selection string or the partition high key. Correct the error and rerun the job.

**FABS3590E INVALID FIRST RECORD ON
"HDHEADER" FILE**

Explanation

The second byte in the first record in the HDHEADER data set contained a value not equal to X'00'.

System action

FABSRT35 issues a user 3590 abend.

User response

Check the HDHEADER DD statement for JCL errors. Correct the error and rerun the job.

**FABS3591E UNEXPECTED END-OF-DATA ON
"HDHEADER" FILE**

Explanation

An end-of-data is reached on the HDHEADER data set. It contained less than two records.

System action

FABSRT35 issues a user 3591 abend.

User response

Check the HDHEADER DD statement for JCL errors.
Correct the error and rerun the job.

FABS3592E	DO NOT USE A LARGE FORMAT D/S: <i>dsname</i>
------------------	---

Explanation

The *dsname* data set is a large format data set that is supported by z/OS 1.7 and later. IMS HP Load cannot process large format data sets in z/OS 1.6 or that of prior versions.

System action

PSSR issues a user 3588 abend and a dump.

User response

Check the level of z/OS.

FABS3593E	GETDSAB FAILED FOR <i>ddname</i>
------------------	---

Explanation

The GETDSAB macro failed for DD name *ddname*.

System action

PSSR issues a user 3589 abend and a dump.

User response

This problem is likely to be an internal system error.
Contact IBM Software Support.

FABS3594E	SWAREQ FAILED FOR <i>ddname</i>
------------------	--

Explanation

The SWAREQ macro failed for DD name *ddname*.

System action

PSSR issues a user 3590 abend and a dump.

User response

This problem is likely to be an internal system error.
Contact IBM Software Support

FABS3595E	OBTAIN FAILED FOR <i>ddname</i>
------------------	--

Explanation

The OBTAIN macro failed for DD name *ddname*.

System action

PSSR issues a user 3591 abend and a dump.

User response

This problem is likely to be an internal system error.
Contact IBM Software Support.

FABS3596E	ERROR RETURN FROM IGWASYS (RC=<i>return_code</i>, RSN=<i>reason_code</i>)
------------------	--

Explanation

IGWASYS returned an error return code. Here, RC shows the return code and RSN shows the reason code.

System action

PSSR issues a user 3592 abend and a dump.

User response

See *DFSMSdfp Advanced Services* and check the meaning of the return code and reason code.

FABS3600E	KEY BLOCK NUMBERS ARE NOT IN ASCENDING SEQUENCE
------------------	--

Explanation

DFSORT (output phase) returned a record that was out of sequence. The block number (that was added by FABSRT15) was out of sequence.

System action

FABSRT35 issues a user 3600 abend.

User response

Check the SYSIN DD statement for JCL or control statement errors. Check for a system failure that is external to PSSR. Correct the error and rerun the job.

FABS3610E	RBA OF THE KEY BLOCK IS LESS THAN THE RBA OF THE CURRENT BEGINNING BLOCK
------------------	---

Explanation

Data got out of sequence while creating the PR9X data set.

System action

FABSRT35 issues a user 3610 abend.

User response

Check for a system failure that is external to PSSR.
Correct the error and rerun the job.

**FABS3611I HALDB *ddname* IS DEFINED AS
OSAM8G**

Explanation

The indicated HALDB is defined as OSAM8G in the RECON data set. The maximum capacity of OSAM data sets is 8 GB of data.

System action

PSSR continues processing.

User response

None. This message is informational.

FABS3617E KEY RAP NUMBER IS ZERO

Explanation

DFSORT (output phase) returned a record in which the RAP number (that was added by FABSRT15) is zero.

System action

FABSRT35 issues a user 3617 abend.

User response

Check the SYSIN DD statement for JCL or control statement errors. Check for a system failure that is external to PSSR. Correct the error and rerun the job.

**FABS3620E RAP NUMBER IS GREATER THAN
THE MAXIMUM NUMBER OF RAPS
IN A BLOCK**

Explanation

DFSORT returned, in the output phase, a record in which the RAP number added by PSSR was greater than the maximum number of RAPS in a block.

System action

FABSRT35 issues a user 3620 abend.

User response

Check the HDHEADER DD statement for JCL errors. Check for a system failure that is external to PSSR. Correct the error and rerun the job.

**FABS3624I DUMMY SPECIFIED FOR THE
SORTOUTD FILE**

Explanation

The DD statement for SORTOUTD is specified as DUMMY. If duplicated root key segments are detected by PSSR, the database segment records are discarded.

System action

PSSR continues processing.

User response

If you want to keep the duplicate root key segment records, correct the SORTOUTD DD statement in the JCL and rerun the job.

**FABS3625E *ddname* DD STATEMENT IS
MISSING**

Explanation

The DD statement for *ddname* is not specified on the JCL.

System action

PSSR issues a user 3625 abend.

User response

Specify the DD statement and rerun the job.

**FABS3626E FAILURE IN DEVTYPE MACRO FOR
ddname FILE**

Explanation

The DEVTYPE macro returned RC=08 for the DD *ddname*.

System action

PSSR issues a user 3626 abend.

User response

Check if the DD statement for *ddname* is correct. Correct your JCL and rerun the job.

**FABS3627E DUMMY SPECIFIED FOR THE
ddname FILE**

Explanation

The DD statement for *ddname* is specified as DUMMY. For the SORTOUT2 DD, this message is issued only

when the byte limit is specified for the partitioned database.

System action

PSSR issues a user 3627 abend.

User response

SORTOUT2 DD must be specified as non-DUMMY if you specify the byte limit. For the partition DD statement:

- Specify a data set name for the DD if you want the segment records for the partition identified by the *ddname* to be put into the data set.
- Remove the DD statement if you want the segment records for the partition to be put into the SORTOUT data set.

FABS3629I	BLKSIZE OR LRECL OF <i>ddname</i> FILE IS '0'; MAX ALLOWABLE SIZE FOR DEVICE IS USED
------------------	---

Explanation

BLKSIZE or LRECL is not coded on the DD statement for *ddname*.

System action

PSSR uses the maximum record size for the device assigned to the DD as its BLKSIZE. It uses (BLKSIZE - 4) as the LRECL. Processing continues.

User response

If PSSR ends normally and your subsequent IMS HD Reorganization Reload utility steps work, no response is needed. Otherwise, make sure that the SORTIN data set and the data set that is specified on the *ddname* DD statement have the same DCB values. Rerun the job.

FABS3630E	DBD ERROR - ROOT SEGMENT NOT FOUND IN DBD SEG TAB
------------------	--

Explanation

PSSR attempted to process a DBD that was invalid.

System action

PSSR issues a user 3630 abend.

User response

Check the FABSRT15 control statement (in the CTL DD statement) for spelling errors in the *dbdname* (column 1) field. Ensure that the correct partitioned data set is

specified on the IMS DD statement. Correct the error and rerun the job.

FABS3631E	ERROR RETURNED FROM CATALOG API (FUNC=<i>function</i> RC=<i>return_code</i> RSN=<i>reason_code</i>)
------------------	--

Explanation

PSSR received an error return code from IMS Tools Catalog Interface.

System action

PSSR issues a user 3631 abend and a dump.

User response

Contact IBM Software Support.

FABS3632E	DBD <i>dbdname</i> IS NOT FOUND IN THE IMS DIRECTORY DATA SETS
------------------	---

Explanation

PSSR could not find the indicated DBD in the IMS directory data sets.

System action

PSSR issues a user 3632 abend and a dump.

User response

Ensure that the correct DBD name is specified in the CTL data set and rerun the job.

FABS3633I	IMS CATALOG IS FOUND (HLQ=<i>hlq</i>)
------------------	--

Explanation

PSSR detected that the IMS catalog is enabled and that the ACBs are managed by IMS.

System action

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

User response

None. This message is informational.

FABS3640E	UNLOADED DATABASE (INPUT) CONTAINS A RECORD OF WHICH TYPE IS NOT RECOGNIZABLE
------------------	--

Explanation

The data set that is specified on the SORTIN DD statement contains an invalid record. The PSSR can accept an unloaded file that is created in either the *HD or the *SH format. The CS format is applicable when the input DBD is defined as a non-HALDB.

System action

PSSR issues a user 3640 abend.

User response

Check the SORTIN DD statement for JCL errors. Correct the PSSR JCL. Rerun DFSURGU0 to recreate the SORTIN data set, if necessary. Then, rerun the PSSR job.

If no JCL errors are found, then the data set is probably corrupted.

FABS3641E	DUPLICATE KEY CHECKING CANNOT BE SPECIFIED TO THE COMPRESSED ROOT KEY
------------------	--

Explanation

The SORTOUTD DD statement is specified in the PSSR JCL, but the data set that is specified on the SORTIN DD statement contains a compressed root key. PSSR cannot check duplicate root keys when the root keys are compressed.

System action

PSSR issues a user 3641 abend.

User response

If the duplicate root keys checking is not necessary, remove the SORTOUTD from the PSSR JCL. If the duplicate root keys checking is necessary, submit the reload job again with decompressing, and rerun the PSSR job with the decompressed unloaded file.

FABS3642E	A SEGMENT NAME: nnnnnnnn IN UNLOAD DATA SET IS NOT FOUND IN DBD
------------------	--

Explanation

PSSR is unable to find a segment name *nnnnnnnn* in the DBD that matches one from the unloaded data set.

System action

PSSR issues a user 3642 abend and dump.

User response

Ensure that you are running with the correct DBD. Correct the error and rerun the job.

FABS3650E	UNLOADED DATABASE (INPUT) CONTAINS A RECORD WITH AN INVALID SEGMENT CODE
------------------	---

Explanation

The data set that is specified on the SORTIN DD statement contains a record whose first byte is larger than the largest segment code that is in the DBD.

System action

FABSRT15 issues a user 3650 abend.

User response

Check the SORTIN DD statement for JCL errors. Ensure that you are using the correct data set and the correct DBD (check the IMS DD statement). Correct the PSSR JCL. If necessary, rerun DFSURGU0 to recreate the SORTIN data set. Rerun the PSSR job.

If no JCL errors are found, then the data set might be corrupted.

FABS3651E	NO HEADER RECORD IN SORTIN
------------------	-----------------------------------

Explanation

No header record is found in the SORTIN data set.

System action

PSSR issues a user 3651 abend.

User response

Check that the data set name specified on the SORTIN DD statement is correct. If it is correct, check that the content of the data set is the one you have created by using the IMS HD Reorganization Unload utility or an equivalent program, such as the IMS High Performance Unload for z/OS unload utilities. Correct the error and rerun the job.

FABS3652E	NO TRAILER RECORD IN SORTIN
------------------	------------------------------------

Explanation

No trailer record is found in the SORTIN data set.

System action

PSSR issues a user 3652 abend.

User response

Check if the data set name specified on the SORTIN DD statement is correct. If it is correct, check if the content of the data set is the one you have created using the IMS HD Reorganization Unload utility or an equivalent program, such as the IMS High Performance Unload for z/OS unload utilities. Correct the error and rerun the job.

FABS3653E	SEGMENT COUNT IN TRAILER IS NOT EQUAL TO REAL SEGMENT COUNT
------------------	--

Explanation

The segment count stored in the trailer record in the SORTIN data set is not equal to the actual segment count.

System action

PSSR issues a user 3653 abend.

User response

Check if the data set name specified on the SORTIN DD statement is correct. If it is correct, check if the content of the data set is the one you have created using the IMS HD Reorganization Unload utility or an equivalent program, such as the IMS High Performance Unload for z/OS unload utilities. Correct the error and rerun the job.

FABS3654E	UNABLE TO PROCESS THE UNLOAD FILE DUE TO INVALID STAT RECORD
------------------	---

Explanation

The statistics records in the unload data set are not recognizable by PSSR.

System action

PSSR issues a user 3654 abend.

User response

Contact IBM Software Support.

FABS3660I	SORTOUT4 DD STATEMENT IS OMITTED
------------------	---

Explanation

PSSR received a nonzero return code from the partition selection, and the root segment and its

dependent segments were discarded because the SORTOUT4 DD statement is not defined in the JCL.

System action

PSSR continues processing.

User response

If you want to keep the segment records that received a nonzero return code from the partition selection, specify a SORTOUT4 DD statement in the JCL and rerun the job.

FABS3661I	DUMMY SPECIFIED FOR THE SORTOUT4 FILE
------------------	--

Explanation

PSSR received a nonzero return code from the partition selection, and the corresponding root segment and its dependent segments were discarded because the SORTOUT4 DD statement is defined as DUMMY in the JCL.

System action

PSSR continues processing.

User response

If you want to keep the segment records that received a nonzero return code from the partition selection, correct the SORTOUT4 DD statement in the JCL and rerun the job.

FABS3662I	BLKSIZE OR LRECL OF SORTOUT4 FILE IS '0'; MAX ALLOWABLE SIZE FOR DEVICE IS USED
------------------	--

Explanation

Either BLKSIZE or LRECL is not specified on the SORTOUT4 DD statement.

System action

PSSR continues processing, using the maximum record size for the device assigned to the SORTOUT4 DD statement as BLKSIZE. It uses BLKSIZE minus 4 as LRECL.

User response

If the program ends because of an IMS or MVS error, code both LRECL and BLKSIZE on the DD statement and rerun the job. Otherwise, none.

Tip: For some DASD devices (such as 3375 or 3380), the default block size and record length result in wasted space. If the maximum record size for the device is considerably smaller than the maximum track length, it is desirable to code BLKSIZE and LRECL on the DD statement.

FABS3663W **xxxxxxxxxx SEGMENTS WERE COPIED INTO SORTOUT4 FILE BECAUSE PARTITION SELECTION FAILURE (yyyyyyyyyy ROOT SEGMENTS)**

Explanation

PSSR received an error return code from the partition selection exit or error status because of outside the range of partition high key selection. The unloaded database (output) does not contain the corresponding root segment and all of its dependent segments. xxxxxxxxxx is the total number of segments that have been copied to SORTOUT4 file, and yyyyyyyyyy is the number of root segments that received the error return codes from the partition selection.

System action

PSSR continues processing.

User response

Check why the partition selection for those segments failed, and take appropriate action. Rerun the PSSR job, if necessary.

FABS3664W **xxxxxxxxxx SEGMENTS WERE DISCARDED BECAUSE TO PARTITION SELECTION FAILURE (yyyyyyyyyy ROOT SEGMENTS)**

Explanation

PSSR received an error return code from the partition selection exit or error status because of outside the range of partition high key selection. The unloaded database (output) does not contain the corresponding root segment and all of its dependent segments. xxxxxxxxxx is the total number of segments that have been discarded, and yyyyyyyyyy is the number of root segments that received error return code from the partition selection.

System action

PSSR continues processing.

User response

Check why the partition selection for the segments failed, and take appropriate action. Rerun the PSSR job, if necessary.

FABS3665E **FAILURE IN DEVTYPE MACRO FOR SORTOUT4 FILE**

Explanation

The DEVTYPE macro returned the nonzero return code for the SORTOUT4.

System action

PSSR issues a user 3665 abend.

User response

Ensure that the DD statement for SORTOUT4 is correct. Rerun the job.

FABS3666E **SORTOUT4 DD DATA SET OPEN FAILED**

Explanation

OPEN processing failed for the data set that is specified by the SORTOUT4 DD statement.

System action

PSSR issues a user 3666 abend.

User response

Check the SORTOUT4 DD statement for JCL errors. Ensure that the SORTOUT4 DD statement exists, and that it specifies the correct DD parameter. Correct any errors, and rerun the job.

FABS3667E **SORTOUT4 DD DATA SET CLOSE FAILED**

Explanation

CLOSE processing failed for the data set that is specified by the SORTOUT4 DD statement.

System action

PSSR issues a user 3667 abend.

User response

Check the SORTOUT4 DD statement.

FABS3670E **RANDOMIZING ROUTINE COULD NOT BE FOUND IN "IMS2" FILE**

Explanation

A FIND macro was issued for the HDAM randomizing routine that is specified either on the FABSR15 control statement or in the DBD load module. No module with that name is in the library on your IMS2 DD statement.

System action

FABSR15 issues a user 3670 abend.

User response

Check the FABSR15 control statement (in the CTL DD statement) for spelling errors in the *mod* (column 11) field. Ensure that the correct partitioned data set is specified on the IMS2 DD statement. Correct the error and rerun the job.

FAB3671E	PARTITION SELECTION EXIT COULD NOT BE FOUND IN IMS2 DD
-----------------	---

Explanation

A FIND macro was issued for the partition selection exit routine specified in the PSSR control statement. No module with that name is found in the library on the IMS2 DD statement.

System action

PSSR issues a user 3671 abend.

User response

Check the PSSR control statement (in the CTL DD statement) for spelling errors, or make sure the correct data set is specified on the IMS2 DD statement. Correct the error and rerun the job.

FAB3680W	RAA SIZE IS LARGER THAN OR EQUAL TO 4 GIGABYTES
-----------------	--

Explanation

PSSR attempted to process a PSSR control statement that contained inconsistent values in the *blk* or *rbn* field. The product of these two values was larger than or equal to 4 GB for OSAM database.

System action

Processing continues.

User response

If your subsequent reload step allows to process an OSAM database of size larger than or equal to 4 GB, no

response is needed. If not, reduce the size of the root addressable area.

FAB3681E	RAA SIZE IS LARGER THAN OR EQUAL TO 4GB FOR THE PARTITION: <i>ddname</i>
-----------------	---

Explanation

The size of the root addressable area, which is calculated from the *rbn* and *blksz* values that are specified on the PART statement for the partition *ddname* or specified in the DBD, is larger than or equal to 4 GB. For the partitioned database, the size of the root addressable area of a partition must be less than 4 GB.

System action

PSSR issues a user 3681 abend.

User response

Check the *rbn* or *blksz* value specified on the PART statement. Correct the error and rerun the job.

FAB3699E	"BLKSZIN" OR "NBLKSIN" (ON CONTROL STATEMENT) IS TOO LARGE
-----------------	---

Explanation

PSSR attempted to process a FABSR15 control statement that contained inconsistent values in the *blk* or *rbn* field but it failed.

For the following database data sets, the product of these two values must be less than 4 GB.

- VSAM (ESDS) database data set
- OSAM database data set with odd block size
- OSAM LDS database data set without the extended addressability attribute

For the following database data sets, the product of these two values must be less than 8 GB.

- OSAM database data set with even block size
- OSAM LDS database data set with the extended addressability attribute

System action

PSSR issues a user 3699 abend.

User response

Check the FABSR15 control statement (in the CTL DD statement) for errors in the *blk* or *rbn* (column 34 or 20) fields. Correct the error and rerun the job.

**FABS3700E KEY POSITION OR LENGTH
SPECIFIED ON CTL IS INVALID**

Explanation

PSSR attempted to process a PSSR control statement that contains inconsistent values in the *kstr* or *klen* fields. The key field which is determined by *kstr* or *klen* must be inside the root segment.

System action

PSSR issues a user 3700 abend.

User response

Check the PSSR control statement (in the CTL DD statement) for errors in the *kstr* or *klen* (column 41 or 46) field. Correct any errors and rerun the job.

**FABS3710E DBD-OVERRIDE FLAG MUST BE
SPECIFIED FOR PARTITIONED DB**

Explanation

A value that overrides a (default) DBD parameter value is specified, although the "+" sign is not specified at column 72 of the DB statement.

System action

PSSR issues a user 3710 abend.

User response

If you want to override the parameter value, specify the "+" sign on column 72 of the DB statement. If you do not want to override the parameter values, remove all overriding values. Then, rerun the PSSR job.

**FABS3711E 'RBN' ON DB STATEMENT MUST BE
BLANK FOR PARTITIONED DB**

Explanation

The *rbn* field of the DB statement is not blank although the database you are processing is a partitioned database. The *rbn* field on the DB statement cannot be specified for a partitioned database.

System action

PSSR issues a user 3711 abend.

User response

If you want to change the *rbn* values for the partitioned database, specify the new values on each PART statement.

**FABS3712E PARTITION *ddname* IS NOT
FOUND IN THE DBD: *dbdname***

Explanation

The DD name *ddname* specified on column 11 of a PART statement is not found in any PART definitions in the DBD *dbdname*.

System action

PSSR issues a user 3712 abend.

User response

Ensure that the DD name specified on the PART statement for your PSSR job is correct. Correct any errors and rerun the job.

**FABS3713E THE NUMBER OF TOTAL BLOCKS
EXCEEDS THE MAXIMUM**

Explanation

The total number of blocks in the root addressable area of all partitions exceeds the allowable maximum. The maximum is 16,777,215.

System action

PSSR issues a user 3713 abend.

User response

Reduce the *rbn* value on each PART statement of the partition specified in the CTL data set so that the total RBN value throughout the database does not exceed the allowable maximum.

**FABS3714E 'BLKSZ' ON PART STATEMENT IS
NOT AN EVEN NUMBER**

Explanation

The block size that is specified on a PART control statement is not an even number. For the partitioned database, the block size or CI size of each partition data set must be even.

System action

PSSR issues a user 3714 abend.

User response

Specify an even block size and rerun the job.

**FABS3715E PART STATEMENT IS SPECIFIED
FOR NON-PARTITIONED DB**

Explanation

A PART statement is specified for a nonpartitioned database.

System action

PSSR issues a user 3715 abend.

User response

Check whether the specified DBD is for a nonpartitioned database.

If you specified the incorrect DBD, specify the correct one and rerun the job. If you specified the correct DBD, remove the PART statement and rerun the job.

FABS3716E	DUPLICATED PART STATEMENTS ARE FOUND
------------------	---

Explanation

The PART statement for a partition is specified more than once. Only one PART statement is allowed for each partition.

System action

PSSR issues a user 3716 abend.

User response

Correct the error and rerun the job.

FABS3717E	DUPLICATED DB STATEMENTS ARE FOUND
------------------	---

Explanation

The DB statement is specified more than once. Only one DB statement is allowed.

System action

PSSR issues a user 3717 abend.

User response

Correct the error and rerun the job.

FABS3718E	INVALID STATEMENT IS SPECIFIED IN CTL DATA SET
------------------	---

Explanation

An incorrect statement is specified in the CTL data set. Only the DB statement and the PART statements are allowed.

System action

PSSR issues a user 3718 abend.

User response

Correct the error and rerun the job.

FABS3719E	DB STATEMENT IS NOT SPECIFIED IN CTL DATA SET
------------------	--

Explanation

No DB statement is specified in the CTL data set. The DB statement is required.

System action

PSSR issues a user 3719 abend.

User response

Specify a DB statement and rerun the job.

FABS3720E	BLKSZ ON DB STATEMENT MUST BE BLANK FOR PARTITIONED DB
------------------	---

Explanation

The *blksz* field of the DB statement is not blank although the database you are processing is a partitioned database. The *blksz* field on the DB statement must not be specified for a partitioned database.

System action

PSSR issues a user 3720 abend.

User response

If you want to change the *blksz* values for a partitioned database, specify the new values on each PART statement.

FABS3730E	INVALID PARTITION NUMBER 'xxxxxxx' RETURNED FROM RANDOMIZER: DBFyyyyy'
------------------	---

Explanation

An incorrect partition number is returned in Register 1 from the randomizer DBFyyyyy. xxxxxxxx shows the content of Register 1 in hexadecimal.

System action

PSSR issues a user 3730 abend.

User response

Check the logic of your randomizer. For the partitioned database, the randomizing routine with the load module name that begins with "DBF" is assumed to have the DEDB interface.

If there is an error in your randomizer logic or in the naming of the randomizer, correct the error and rerun the job.

FABS3731E	INVALID RAP NUMBER 'xxxxxxx' RETURNED FROM RANDOMIZER: DBFyyyyy'
------------------	---

Explanation

An incorrect relative RAP number is returned in Register 0 from the randomizer DBFyyyyy. xxxxxxxx shows the content of Register 0 in hexadecimal.

System action

PSSR issues a user 3731 abend.

User response

Check the logic of your randomizer. For the partitioned database, the randomizing routine with the load module name that begins with "DBF" is assumed to have the DEDB interface.

If there is an error in your randomizer logic or in the naming of the randomizer, correct the error and rerun the job.

FABS3740I	USEREXIT STATEMENT IS IGNORED BECAUSE OF NON-IMS ENVIRONMENT
------------------	---

Explanation

USEREXIT in the PSSRIN data set is ignored because the environment is not IMS. The PSSRIN data set can be specified only in the IMS environment.

System action

PSSR continues processing.

User response

None. This message is informational.

FABS3741E	DUPLICATED USEREXIT STATEMENTS ARE FOUND
------------------	---

Explanation

The USEREXIT statement is specified more than once in the PSSRIN control statement. Only one USEREXIT statement is allowed.

System action

PSSR issues a user 3741 abend.

User response

Check the USEREXIT specifications in the PSSRIN data set of the PSSR JCL. Correct any errors and rerun the job.

FABS3742E	USER EXIT ROUTINE "uuuuuuuu" COULD NOT BE FOUND IN IMS2 DD
------------------	---

Explanation

A FIND macro was issued for the user exit routine that is specified on the PSSRIN control statement. No module with that name is found in the library on the IMS2 DD statement.

System action

PSSR issues a user 3742 abend.

User response

Check the PSSRIN control statement (in the PSSRIN DD statement) for spelling errors, and ensure that the correct partitioned data set is specified on the IMS2 DD statement. Correct any errors and rerun the job.

FABS3743E	INVALID RETURN CODE FROM USER EXIT ROUTINE, RETURN (CODE=xxx or RETURN CODE=GREATER THAN 999)
------------------	--

Explanation

A return code xxx, or greater than 999, was returned by the user exit routine.

System action

PSSR issues a user 3743 abend and a dump.

User response

Correct the errors and rerun the job.

FABS3744E	TERMINATION REQUESTED BY USER EXIT ROUTINE, RETURN CODE=xxx
------------------	--

Explanation

The job step terminated and returned a returned code of xxx.

System action

The PSSR job ends immediately with a return code of xxx.

User response

Check the return code of the user exit routine. If the return code is not acceptable, correct the errors and rerun the job.

FABS3745E	INVALID SEGMENT LENGTH RETURNED FROM USER EXIT ROUTINE
------------------	---

Explanation

A user exit routine changed the length of a database segment to a value greater than the allowed maximum segment length.

System action

PSSR issues a user 3745 abend and a dump.

User response

Correct the errors and rerun the job.

FABS3746E	INVALID LANGUAGE ENVIRONMENT IS SPECIFIED ON USEREXIT STATEMENT
------------------	--

Explanation

An incorrect value is specified for the language of the user exit in the PSSRIN data set.

System action

PSSR issues a user 3746 abend.

User response

Check the PSSRIN data set. Correct any errors and rerun the job.

FABS3750I	DATXEXIT=YES IS IGNORED BECAUSE OF NON-IMS ENVIRONMENT
------------------	---

Explanation

DATXEXIT=YES in the PSSR data set is ignored because the environment is not IMS. The

DATXEXIT=YES can be specified only in IMS environments.

System action

PSSR continues processing as DATXEXIT=NO.

User response

None. This message is informational.

FABS3752E	INVALID DATXEXIT STATEMENT SPECIFIED
------------------	---

Explanation

The DATXEXIT statement must be specified as either YES or NO.

System action

PSSR issues a user 3752 abend.

User response

Correct the error and rerun the job.

FABS3753E	LOAD FAILED FOR DFSDBUX1 ROUTINE
------------------	---

Explanation

While processing a database that requires data conversion by the DATXEXIT=YES parameter in a DBD, PSSR attempted to load the DFSDBUX1 exit routine, but the load module is not found in the STEPLIB.

System action

PSSR issues a user 3753 abend and a dump.

User response

Ensure that the correct DFSDBUX1 module exists in the STEPLIB. Correct any errors and rerun the job.

FABS3754E	NONZERO RETURN CODE FROM DFSDBUX1 ROUTINE RC=<i>return_code</i>
------------------	--

Explanation

Return code *return_code* was returned by the DFSDBUX1 exit routine.

System action

PSSR issues a user 3754 abend and a dump.

User response

Correct the errors and rerun the job.

FABS3755E	SPECIFIED DATABASE "dddddddd" IS NOT A TARGET FOR CONVERSION
------------------	---

Explanation

While processing the database "dddddddd" requiring data conversion by the DATXEXIT=YES parameter in a DBD, PSSR called the DFSDBUX1 exit routine and found that none of the segments required conversion.

System action

PSSR issues a user 3755 abend and a dump.

User response

Ensure that definition of translation table is correct or the correct translation table module exists in STEPLIB. Correct any errors and rerun the job.

FABS3756I	DBDGEN REQUIRED FOR DATABASE "dddddddd" TO SET DATXEXIT INDICATOR
------------------	--

Explanation

PSSR called the DFSDBUX1 exit routine and found that some of the database segments required conversion, but the DATXEXIT=YES parameter was not specified in the DBD "dddddddd". This message notifies you that a DBDGEN with DATXEXIT=YES specified needs to be done for this database.

System action

PSSR continues processing as specified.

User response

Notify the database administrator that a DBDGEN is required for this database.

Bitmap Resetter messages

These topics provide HPSB messages, which are issued by the Bitmap Resetter utility.

HPSB0100E	- NO DBRC=Y OR DBRC=N IN PARAMETER STRING
------------------	--

Explanation

Incorrect DBRC parameter is specified. Only Y or N is valid.

FABS3761E	INVALID SEGMENT LENGTH RETURNED FROM COMPRESSION ROUTINE
------------------	---

Explanation

The database segment length that is returned from the segment edit/compression exit routine is larger than the allowed maximum value.

System action

PSSR issues a user 3761 abend and a dump.

User response

Check and correct the DBD definition or the segment edit/compression exit routine, and rerun the job.

FABS3762E	CEEPIPI ERROR OCCURRED. FUNC="function " RC="return_code"
------------------	--

Explanation

PSSR called CEEPIPI for processing the user exit routine, specified to run in Language Environment (LE), but received a nonzero return code.

System action

PSSR issues a user 3762 abend and a dump.

User response

When *function* shows INIT, the function of CEEPIPI is *init_sub* or *identify_entry*. When *function* shows CALLSUB, the function of CEEPIPI is *call_sub*. For the return codes, see the topic about using preinitialization services in the *Language Environment Programming Guide* (SA22-7561).

Correct the error and rerun the job.

System action

Processing stops with a return code of 8.

User response

Correct the error and rerun the job.

**HPSB0101E - INCORRECT DBDNAME IN
PARAMETER STRING**

Explanation

Incorrect DBDNAME is specified.

System action

Processing stops with a return code of 8.

User response

Correct the error and rerun the job.

**HPSB0102E - INCORRECT NUMERIC IN
BMSETDSG CONTROL STATEMENT:
reason**

Explanation

Incorrect value is specified for the BMSETDSG control statement or the control statement is not specified. You can specify '*', 'NO', or a numerical character in the range of 16 - 32000. *Reason* shows the cause of the error as follows:

- *LESS THAN 16
- *GREATER THAN 32000
- *NEGATIVE MISSING

System action

Processing stops with return code 8.

User response

Correct the error and rerun the job.

**HPSB0103E - GETMAIN FAILED FOR GLOBAL
BLOCK. TERMINATING**

Explanation

GETMAIN failed while the Bitmap Resetter utility was attempting to get storage for the global block.

System action

Processing stops with a return code of 12.

User response

Increase the region size and rerun the job.

**HPSB0104E - OPEN FAILED FOR
DDNAME: [HPSOUT | HPSOUT2].
TERMINATING**

Explanation

The open failed for the data set that is shown in the message.

System action

Processing stops with a return code of 12.

User response

Correct the error and rerun the job.

**HPSB0105E - [HPSOUT | HPSOUT2]
DD STATEMENT MISSING.
TERMINATING**

Explanation

The required HPSOUT or HPSOUT2 DD is not specified.

System action

Processing stops with a return code of 12.

User response

Correct the error and rerun the job.

**HPSB0106E - CREATE PC NUMBER PROCESS
FAILED. ALL LIBRARIES IN
STEPLIB CONCATENATION HAVE
TO BE APF AUTHORIZED**

Explanation

A load library of STEPLIB is not APF-authorized.

System action

Processing stops with a return code of 8.

User response

Correct the error and rerun the job.

**HPSB0107E - GETMAIN FAILED FOR DATA
BASE DATA BLOCK**

Explanation

A GETMAIN failed while attempting to get storage for the database data block.

System action

Processing stops with a return code of 8.

User response

Increase the region size and rerun the job.

**HPSB0108E - LOAD FAILED FOR DFSBSCD0.
TERMINATING**

Explanation

After a LOAD macro was issued to load the module DFSBSCD0, the register 15 contained a nonzero return code.

System action

Processing stops with a return code of 12.

User response

Ensure that DFSBSCD0 in IMS library is available, if not, correct the error and rerun the job.

**HPSB0109E - ERROR RETURN FROM DBD
MODULE**

Explanation

The module which gets DBD information returned an error internally.

System action

Processing stops with a return code of 8.

User response

The message which explains the cause of the error is displayed before this message. Locate that message and correct the error, then rerun the job.

**HPSB0110E - IMS RELEASE ERROR -
IMS RELEASE NOT SUPPORTED.
TERMINATING**

Explanation

The release level or maintenance level of IMS is lower than the level that is required for IMS HP Load.

System action

Processing stops with a return code of 12.

User response

Apply the required maintenance of IMS.

**HPSB0111E - ERROR RETURN FROM DYNAMIC
ALLOCATION PROGRAM "\$"**

Explanation

The database data set allocation program failed in allocation of the database data set which is displayed at "\$", and returned an error.

System action

Processing is stopped with a return code of 8.

User response

Correct the error and rerun the job. If necessary, contact IBM Software Support.

**HPSB0112E - ERROR IN FREE SPACE CONTROL
PROCESS PROGRAM**

Explanation

The bitmap I/O program returned an error.

System action

Processing is stopped with a return code of 8.

User response

The message which explains the cause of the error is displayed before this message. See the message and correct the error, then rerun the job. See the user response of the IMS message. Then, correct the error and rerun the job.

HPSB0113E - ERROR IN HPIO INIT CALL

Explanation

The INIT call of HPIO driver issued an error.

System action

Processing is stopped with a return code of 8.

User response

Contact IBM Software Support.

**HPSB0114E - ERROR IN HPIO TERMINATION
CALL**

Explanation

The termination call of HPIO driver issued an error.

System action

Processing is stopped with a return code of 8.

User response

Contact IBM Software Support.

**HPSB0116E - ERROR RETURN FROM LIST.DB
SCANNING PROGRAM**

Explanation

The LIST.DB program returned an error.

System action

Processing is stopped with a return code of 8.

User response

The message which explains the cause of the error is displayed before this message. See the message and correct the error, then rerun the job. See the user response of the IMS message. Then, correct the error and rerun the job.

**HPSB0118E ERROR IN DBRC CONTROL
PROCESS PROGRAM**

Explanation

HPSBDBRN, which controls DBRC process program, issued an error.

System action

Processing is stopped with a return code of 8.

User response

The message which explains the cause of the error is displayed before this message. See the message and correct the error, then rerun the job. See the user response of the IMS message. Then, correct the error and rerun the job.

**HPSB0119W - THE DUPLICATE PARTITION
NAME (PARTNAME) SPECIFIED
IN BMSETPART CONTROL
STATEMENT**

Explanation

A duplicate partition name is specified in the BMSETPART control statement.

System action

IMS HP Load continues processing.

User response

Correct the partition name and rerun the job if necessary.

**HPSB0120E - MORE THAN 20 PARTITION
NAMES ARE SPECIFIED IN
THE BMSETPART CONTROL
STATEMENT**

Explanation

Up to 20 partition names can be specified on the BMSETPART control statement; however, more than 20 names are specified.

System action

Processing stops with a return code of 8.

User response

Reduce the specification of partition names and rerun the job.

**HPSB0121E - YOU MUST SET DBRC=Y FOR
HALDB**

Explanation

DBRC=N is specified though it is a HALDB.

System action

Processing stops with a return code of 8.

User response

Correct the error and rerun the job.

**HPSB0122E - LOAD FAILED FOR HPSBRSTM.
TERMINATING**

Explanation

Bitmap Resetter attempted to load HPSBRSTM but could not find it.

System action

Processing stops with a return code of 12.

User response

Correct the error and rerun the job. If the error persists, contact IBM Software Support.

HPSB0123E - LOAD FAILED FOR HPSRMPC0

Explanation

Bitmap Resetter attempted to load HPSRMPC0 but could not find it.

System action

Processing stops with a return code of 8.

User response

Correct the error and rerun the job.

**HPSB0124E - CLOSE FAILED FOR DDNAME:
*ddname***

Explanation

An error occurred while the non-VSAM data set that is allocated to the DD *ddname* was being closed. Use this optional control statement for a HALDB.

System action

Processing stops with a return code of 8.

User response

Correct the error and rerun the job.

**HPSB0125E - THE BMSETPART CONTROL
STATEMENT CANNOT BE
SPECIFIED BY NON-HALDB**

Explanation

When you restrict the partitions to be reset, use this optional control statement for a HALDB.

System action

Processing stops with a return code of 8.

User response

Correct the error and rerun the job.

**HPSB0126E - THE VALUE FOR MORE THAN 10
DATA SET GROUPS IS SPECIFIED
IN THE BMSETDSG CONTROL
STATEMENT**

Explanation

Up to 10 data set groups can be specified on the BMSETDSG control statement; however, more than 10 groups are specified.

System action

Processing stops with a return code of 8.

User response

Reduce the specification of partition names and rerun the job.

**HPSB0127E - DO NOT USE A LARGE FORMAT
D/S: *dsname***

Explanation

The *dsname* data set is a large format data set that is supported by z/OS 1.7 and later. IMS HP Load cannot process large format data sets in z/OS 1.6 or that of prior versions.

System action

Processing stops with a return code of 8.

User response

Check the level of z/OS.

HPSB0128E - GETDSAB FAILED FOR *ddname*

Explanation

The GETDSAB macro failed for DD name *ddname*.

System action

Processing stops with a return code of 8.

User response

Contact IBM Software Support.

HPSB0129E - SWAREQ FAILED FOR *ddname*

Explanation

The SWAREQ macro failed for DD name *ddname*.

System action

Processing stops with a return code of 8.

User response

Contact IBM Software Support.

HPSB0130E - OBTAIN FAILED FOR *ddname*

Explanation

The OBTAIN macro failed for DD name *ddname*.

System action

Processing stops with a return code of 8.

User response

Contact IBM Software Support.

HPSB0131E - ERROR RETURN FROM
IGWASYS (RC=*return_code*,
RSN=*reason_code*)

Explanation

IGWASYS returned an error return code. Here, RC shows the return code and RSN shows the reason code.

System action

Processing stops with a return code of 12.

User response

See *DFSMSdfp Advanced Services* and check the meaning of the return code and reason code.

HPSB0132W - IMSDALIB/STEPLIB MISSING,
DYNAMIC ALLOCATION ERROR

Explanation

A database data set allocation error occurred because there is no specification of database data set and IMSDALIB or STEPLIB DD.

System action

Processing continues, return code 4.

User response

Correct the error and rerun the job.

HPSB0133W - NO MEMBER FOUND IN
IMSDALIB/STEPLIB: *member*

Explanation

Specification of database data set and IMSDALIB or STEPLIB DD is not found.

System action

Processing continues, return code 4.

User response

Correct the error and rerun the job.

HPSB0134E - DYNAMIC ALLOCATION FAILED
FOR DDNAME/DSNAME: *ddname*
dsname

Explanation

An attempt at dynamic allocation for *ddname* and *dsname* failed.

System action

Processing stops with a return code of 8.

User response

Correct the error and rerun the job.

HPSB0135E - OPEN FAILED FOR DDNAME:
ddname

Explanation

An open failure occurred because specification of the database data set is not found.

System action

Processing stops with a return code of 8.

User response

Correct the error and rerun the job.

HPSB0136E - MEMBER FOUND
- ERROR IN NAME: *member*

Explanation

The DBD name that is specified for the parameter of the program does not match that of IMSDALIB DD.

System action

Processing stops with a return code of 8.

User response

Correct the error and rerun the job.

HPSB0137E - MEMBER FOUND
- DDNAME MISSING: *ddname*

Explanation

The database data set name is not found in IMSDALIB DD.

System action

Processing stops with a return code of 8.

User response

Correct the error and rerun the job.

HPSB0138E	INVALID KEYWORD IN ZIIPMODE CONTROL STATEMENT
------------------	--

Explanation

An invalid keyword is detected in the ZIIPMODE control statement.

System action

Processing stops with a return code of 8.

User response

Review the ZIIPMODE control statement and correct the keyword. Then rerun the job.

HPSB0201E	- OPEN FAILED FOR IMS DD
------------------	---------------------------------

Explanation

The open failure of the IMS library occurred.

System action

Processing is stopped with a return code of 8.

User response

Contact IBM Software Support.

HPSB0202E	- LOAD FAILED FOR DBD: <i>dbdname</i>
------------------	--

Explanation

A DBD load failure occurred.

System action

Processing is stopped with a return code of 8.

User response

Contact IBM Software Support.

HPSB0203E	- DBD ORGANIZATION NOT HDAM/ HIDAM OR PHDAM/PHIDAM
------------------	---

Explanation

The DBD information indicates that the database is not HDAM/HIDAM or PHDAM/PHIDAM.

System action

Processing is stopped with a return code of 8.

User response

Correct the error and rerun the job.

HPSB0204E	- DBD NAME IN DBD NOT SAME AS MEMBER NAME
------------------	--

Explanation

The DBD name that is specified for the parameter of program is not the same as that of DBD definition.

System action

Processing is stopped with a return code of 8.

User response

Correct the error and rerun the job.

HPSB0301E	- HPIO ERROR RETURN CODE - OPEN ERROR FOR DDNAME: <i>ddname</i>
------------------	--

Explanation

The OPEN call of HPIO driver issued an error.

System action

Processing is stopped with a return code of 8.

User response

Contact IBM Software Support.

HPSB0302E	- HPIO ERROR RETURN CODE - CLOSE ERROR FOR DDNAME: <i>ddname</i>
------------------	---

Explanation

The CLOSE call of HPIO driver issued an error.

System action

Processing is stopped with a return code of 8.

User response

Contact IBM Software Support.

HPSB0303E	- HPIO ERROR RETURN CODE - POINT ERROR FOR DDNAME: <i>ddname</i>
------------------	---

Explanation

The POINT call of HPIO driver issued an error.

System action

Processing is stopped with a return code of 8.

User response

Contact IBM Software Support.

HPSB0304E	- HPIO ERROR RETURN CODE
	- READ ERROR FOR DDNAME:
	<i>ddname</i>

Explanation

The READ call of HPIO driver issued an error.

System action

Processing is stopped with a return code of 8.

User response

Contact IBM Software Support.

HPSB0305E	- GETMAIN ERROR RETURN CODE
	FOR FREE SPACE ELEMENT

Explanation

The GETMAIN call for work area to update the bitmap block issued an error.

System action

Processing is stopped with a return code of 8.

User response

Contact IBM Software Support.

HPSB0306E	- FREEMAIN ERROR RETURN
	CODE FOR FREE SPACE ELEMENT

Explanation

The FREEMAIN call for work area to update the bitmap block issued an error.

System action

Processing is stopped with a return code of 8.

User response

Contact IBM Software Support.

HPSB0307E	- DBD ACCESS ERROR
	- NOT OSAM/VSAM HDAM/HIDAM

Explanation

Unsupported database type is specified.

System action

Processing is stopped with a return code of 8.

User response

Contact IBM Software Support.

HPSB0311E	- VSAM ERROR RETURN CODE
	- GENRPL ERROR FOR DDNAME:
	<i>ddname</i>

Explanation

The GENRPL macro of VSAM issued an error.

System action

Processing is stopped with a return code of 8.

User response

Contact IBM Software Support.

HPSB0312E	- VSAM ERROR RETURN CODE
	- MODCB ERROR FOR DDNAME:
	<i>ddname</i>

Explanation

The MODCB macro of VSAM issued an error.

System action

Processing is stopped with a return code of 8.

User response

Contact IBM Software Support.

HPSB0313E	- VSAM ERROR RETURN CODE
	- GET ERROR FOR DDNAME:
	<i>ddname</i>

Explanation

The GET macro of VSAM issued an error.

System action

Processing is stopped with a return code of 8.

User response

Contact IBM Software Support.

HPSB0314E - VSAM ERROR RETURN CODE
 - PUT ERROR FOR DDNAME:
 ddname

Explanation

The PUT macro of VSAM issued an error.

System action

Processing is stopped with a return code of 8.

User response

Contact IBM Software Support.

HPSB0315E - BSAM ERROR RETURN CODE
 - OPEN ERROR FOR DDNAME:
 ddname

Explanation

The OPEN macro of BSAM issued an error.

System action

Processing is stopped with a return code of 8.

User response

Contact IBM Software Support.

HPSB0316E - VSAM ERROR RETURN CODE
 - OPEN ERROR FOR DDNAME:
 ddname

Explanation

The OPEN macro of VSAM issued an error.

System action

Processing is stopped with a return code of 8.

User response

Contact IBM Software Support.

HPSB0317E - CLOSE FAILED FOR DDNAME:
 ddname

Explanation

An error occurred while the database data set that is allocated to the DD *ddname* was being closed.

System action

Processing stops with a return code of 8.

User response

Correct the error and rerun the job.

HPSB0320E **LOAD FAILED FOR GEXAPI00**

Explanation

Bitmap Resetter attempted to load the GEXAPI00 module but it could not find the module.

System action

Bitmap Resetter issues a user 0320 abend.

User response

Ensure that GEXAPI00 in the SGLXLOAD library of IMS Tools Base is available. If it is not available, make it available and rerun the job.

HPSB0321I **ZIIP TIME (HH:MM:SS.THMIJU)**
 WAS: hh:mm:ss.thmiju

Explanation

This informational message shows the CPU time consumed by ZIIP processors for the Bitmap Resetter job.

System action

Processing continues.

User response

None. This message is informational.

HPSB0501E - OPEN FAILED FOR LIST RECON
 DATA SET
 -DDNAME: *ddname*

Explanation

A data set open error occurred for LIST.RECON.

System action

Processing is stopped with a return code of 8.

User response

Contact IBM Software Support.

HPSB0502E - NO INFORMATION FOUND IN
 RECON FOR DBD: *dbdname*

Explanation

No information is found in RECON for the DBD.

System action

Processing is stopped with a return code of 8.

User response

Contact IBM Software Support.

HPSB0504E - ALLOCATION ERROR FOR
DDNAME/DSNAME: *ddname*
dsname

Explanation

A data set allocation error occurred for LIST.RECON.

System action

Processing is stopped with a return code of 8.

User response

Contact IBM Software Support.

HPSB0505E - INCORRECT PARTNAME IN
BMSETPART: *partition*

Explanation

An incorrect partition name is specified in the BMSETPART control statement.

System action

Processing stops with a return code of 8.

User response

Correct the error and rerun the job.

HPSB0518E - HALDB PARTITION WITH OLR
CURSOR-ACTIVE STATUS IS NOT
SUPPORTED

Explanation

Bitmap Resetter does not support HALDB partitions whose OLR cursor is active (when both A-J and M-V data sets are active).

System action

Processing is stopped with a return code of 8.

User response

Run the Bitmap Resetter job after the HALDB OLR ends.

HPSB0601E - DBRC=N IN INPUT
PARAMETERS, DBRC=FORCED IN
SCD

Explanation

The DBRC=FORCE and DBRC=NO are mutually exclusive.

System action

Processing is stopped with a return code of 8.

User response

Correct the error and rerun the job.

HPSB0602E - BLDL FAILED FOR DBRC ROUTER
DFABRTR0

Explanation

The BLDL macro failed to check DFABRTR0.

System action

Processing is stopped with a return code of 8.

User response

Contact IBM Software Support.

HPSB0603E - DBRC REQUEST FAILED FOR
FUNCTION=INIT0

Explanation

The initialization call (FUNC=INIT0) of DBRC issued an error.

System action

Processing is stopped with a return code of 8.

User response

Contact IBM Software Support.

HPSB0604E - DBRC REQUEST FAILED FOR
FUNCTION=INIT1

Explanation

The initialization call (FUNC=INIT1) of DBRC issued an error.

System action

Processing is stopped with a return code of 8.

User response

Contact IBM Software Support.

HPSB0605E - DBRC REQUEST FAILED FOR FUNCTION=SIGNON

Explanation

The DBRC SIGNON CALL (FUNC=SIGNON) issued an error.

System action

Processing is stopped with a return code of 8.

User response

Contact IBM Software Support.

HPSB0606E - GETMAIN FAILED FOR DBRC WORK AREA

Explanation

GETMAIN failed while attempting to get storage for the DBRC work area.

System action

Processing stops with a return code of 8.

User response

Determine how much more storage must be allocated for the job step. Increase the job-step region size, and rerun the job.

HPSB0607E - GETMAIN FAILED FOR DBRC CONTROL AREA

Explanation

GETMAIN failed while attempting to get storage for the DBRC control area.

System action

Processing stops with a return code of 8.

User response

Determine how much more storage must be allocated for the job step. Increase the job-step region size, and rerun the job.

HPSB0608E - GETMAIN FAILED FOR DBRC PARAMETER AREA

Explanation

GETMAIN failed while attempting to get storage for the DBRC parameter area.

System action

Processing stops with a return code of 8.

User response

Determine how much more storage must be allocated for the job step. Increase the job-step region size, and rerun the job.

HPSB0609E - GETMAIN FAILED FOR DBRC AUTHORIZATION LIST

Explanation

GETMAIN failed while attempting to get storage for the DBRC authorization list.

System action

Processing stops with a return code of 8.

User response

Determine how much more storage must be allocated for the job step. Increase the job-step region size, and rerun the job.

HPSB0610E - DBRC REQUEST FAILED FOR FUNCTION=SIGNOFF

Explanation

The DBRC SIGNOFF call (FUNC=SIGNOFF) of DBRC issued an error.

System action

Processing is stopped with a return code of 8.

User response

Contact IBM Software Support.

HPSB0611E - DBRC REQUEST FAILED FOR FUNCTION=TERM

Explanation

The DBRC termination call (FUNC=TERM) of DBRC issued an error.

System action

Processing is stopped with a return code of 8.

User response

Contact IBM Software Support.

**HPSB0631E - DBRC REQUEST FAILED, ERROR
RETURN CODE FROM DFSDBAU0**

Explanation

The DBRC authorization call (DFSDBAU0) of DBRC issued an error.

System action

Processing is stopped with a return code of 8.

User response

Contact IBM Software Support.

**HPSB0641E - DBRC REQUEST FAILED FOR
FUNCTION=UNAUTHORIZE**

Explanation

The DBRC authorization call (FUNC=UNAUTH) of DBRC issued an error.

System action

Processing is stopped with a return code of 8.

User response

Contact IBM Software Support.

**HPSB3901E OPEN FAILED FOR DDNAME:
*ddname***

Explanation

After an OPEN macro is issued to open the non-VSAM data set that is associated with *ddname*, DCBOFLGS becomes nonzero.

System action

Processing stops.

User response

Ensure that the DD statement associated with *ddname* indicates the correct data set. Correct the error and rerun the job.

**HPSB3902E CONTROL STATEMENT SYNTAX
ERROR**

Explanation

An incorrect control statement is detected by control statement syntax checking.

System action

Processing stops.

User response

Check the control statement. Correct the error and rerun the job.

**HPSB3903E INCORRECT PARAMETER
SPECIFIED: *parm_string*.**

Explanation

An incorrect parameter is detected. The incorrect parameter string is listed as *parm_string*.

System action

Processing stops.

User response

Check the parameter specification that is listed as *parm_string*. Correct the parameter error and rerun the job.

**HPSB3904E NUMBER OF *parm_name*
PARAMETERS EXCEEDED THE
LIMIT: *nnn***

Explanation

An incorrect control statement is detected by control statement syntax checking.

System action

Processing stops.

User response

Check the control statement. Correct the error and rerun the job.

**HPSB3905E NUMBER OF OPERANDS
FOR *parm_name* PARAMETER
EXCEEDED THE LIMIT: *nnn***

Explanation

An incorrect control statement is detected by control statement syntax checking.

System action

Processing stops.

User response

Check the control statement. Correct the error and rerun the job.

HPSB3906E	LENGTH ERROR IN <i>n</i>-th OPERAND OF PARAMETER: <i>parm_name</i>
------------------	---

Explanation

An incorrect control statement is detected by control statement syntax checking.

System action

Processing stops.

User response

Check the control statement. Correct the error and rerun the job.

HPSB3907E	ATTRIBUTE ERROR IN <i>n</i>-th OPERAND OF PARAMETER: <i>parm_name</i>
------------------	--

Explanation

An incorrect control statement is detected by control statement syntax checking.

System action

Processing stops.

User response

Check the control statement. Correct the error and rerun the job.

HPSB3908E	NUMBER OF VALUES FOR <i>n</i>-th OPERAND EXCEEDED THE LIMIT: <i>nnn</i>
------------------	--

Explanation

An incorrect control statement is detected by control statement syntax checking.

System action

Processing stops.

User response

Check the control statement. Correct the error and rerun the job.

HPSB3909E	<i>n</i>-th OPERAND IS REQUIRED FOR PARAMETER: <i>parm_name</i>
------------------	--

Explanation

An incorrect control statement is detected by control statement syntax checking.

System action

Processing stops.

User response

Check the control statement. Correct the error and rerun the job.

HPSB3910I	BLANK LINE IN HPSIN
------------------	----------------------------

Explanation

A blank line is read in the HPSIN data set.

System action

Processing continues.

User response

None. This message is informational.

HPSB3999E	GETMAIN FAILED FOR WORK AREA
------------------	-------------------------------------

Explanation

Program GETMAIN failed while attempting to get storage for the work area.

System action

IMS HP Load issues a user 3999 abend.

User response

Determine how much more storage must be allocated for the job step. Increase the job-step region size, and rerun the job.

Chapter 20. Gathering diagnostic information

Before you report a problem with IMS HP Load to IBM Software Support, you need to gather the appropriate diagnostic information.

Procedure

Provide the following information for all IMS HP Load problems:

- A clear description of the problem and the steps that are required to re-create the problem
- The version of IMS that you are using and the version of the operating system that you are using
- A complete log of the job
- A Load Module/Macro APAR Status report

For information about creating a Load Module/Macro APAR Status report, see [Chapter 21, “Diagnostics Aid,”](#) on page 293.

Chapter 21. Diagnostics Aid

If you have a problem that you think is not a user error, run the Diagnostics Aid (FABFDIAG), obtain the Load Module/Macro APAR Status report, attach it to the other diagnostic documents (such as job dump list or I/O of the utility), and report the error to IBM.

The Diagnostics Aid generates Load Module/Macro APAR Status reports. These reports show the latest APAR fixes applied to each module and macro.

The Diagnostics Aid is not applicable for any other versions or releases.

Topics:

- [“Running the Diagnostics Aid with JCL” on page 293](#)
- [“Load Module/Macro APAR Status report” on page 294](#)
- [“Messages and codes” on page 295](#)

Running the Diagnostics Aid with JCL

To run the Diagnostics Aid program (FABFDIAG), supply an EXEC statement and DD statements that define the input and the output data sets.

Procedure

1. Specify the EXEC statement. It must be in the following form:

```
//stepname EXEC PGM=FABFDIAG
```

2. Specify the DD statements.

DD statement	Description
STEPLIB DD	This statement defines the library that contains the load modules (usually HPS.SHPSLMD0).
SHPSLMD DD	<p>This statement defines the library that contains the load modules (usually HPS.SHPSLMD0) for which you have a problem.</p> <p>The Load Module APAR Status report is not generated if this DD statement is not provided or if DD DUMMY is specified.</p> <p>It is always recommended that you specify this DD statement.</p>
SHPSMAC DD	<p>This statement defines the library that contains the provided macros (usually HPS.SHPSMAC0) for which you have a problem.</p> <p>The Macro APAR Status report is not generated if this DD statement is not provided or if DD DUMMY is specified.</p>
SYSPRINT DD	<p>This output data set contains the Load Module/Macro APAR Status report. The data set contains 133-byte, fixed-length records. It can reside on a tape, direct-access device, or printer; or it can be routed through the output stream. If BLKSIZE is coded in the DD statement, it must be a multiple of 133. However, it is recommended that you use:</p> <pre>//SYSPRINT DD SYSOUT=A</pre>

3. Run the job.

Load Module/Macro APAR Status report

The Diagnostics Aid generates two reports for maintenance by IBM.

The generated reports are:

- Load Module APAR Status report
- Macro APAR Status report

Load Module APAR Status report

The Load Module APAR Status report contains information about the modules and their applied APARs.

This report contains the following information:

MODULE LIBRARY

This field includes the data set names that are specified in the SHPSLMD DD statement. If more than 30 data sets are concatenated, only the first 30 data sets are listed.

MODULE NAME

This field shows the name of the load module member or the alias.

ALIAS-OF

This field shows the name of the original member of the alias. If the module name is not an alias, this field is left blank.

CSECT NAME

This field shows the name of the included CSECT in the module. The CSECT names are reported in the included order in the module.

APAR NUMBER

This field shows the latest APAR number that is applied to the module represented by the CSECT name. If no APAR is applied, NONE is shown.

APAR FIX-DATE

This field shows the date when the modification was prepared for the module that is represented by the CSECT name. If no APAR is applied, N/A is shown.

Notes:

1. If the CSECT name does not start with *FAB*, *HPS*, or the program structure of the CSECT does not conform to the IMS HP Load module standard to identify the APAR number and the APAR fixed date, the fields APAR NUMBER and APAR FIX-DATE are filled with asterisks (*).
2. If the load module is a member of the PDSE library, the following statement is shown on the report line and the job completes with a return code of 4.

```
** IT CAN NOT BE ANALYZED DUE TO PDSE LIBRARY MEMBER **
```

3. If the load macro fails for a utility member, the following statement is shown on the report line and the job completes with a return code of 8.

```
** IT CAN NOT BE ANALYZED DUE TO LOAD FAILED MEMBER **
```

Macro APAR Status report

The Macro APAR Status report contains information about macros and their applied APARs.

This report contains the following information:

MACRO LIBRARY

This field includes the data set names that are specified in the SHPSMAC DD statement. If more than 30 data sets are concatenated, only the first 30 data sets are listed.

MACRO NAME

This field shows the name of the macro member or the alias.

ALIAS-OF

This field shows the name of the original member of the alias. If the macro name is not an alias, this field is left blank.

APAR NUMBER

This field shows the latest APAR number that is applied to the macro. If no APAR is applied, NONE is shown.

APAR FIX-DATE

This field shows the date when the modification was prepared for the macro. If no APAR is applied, N/A is shown.

Note: If the macro source statement structure does not conform to the IMS HP Load macro standard to identify the APAR number and the APAR fixed date, the fields APAR NUMBER and APAR FIX-DATE are filled with asterisks (*).

Messages and codes

The following topics explain the messages and codes that are issued by the Diagnostics Aid (FABFDIAG).

Return codes

FABFDIAG contains the following return codes:

0

Successful completion of the program.

4

Warning messages were issued, but the requested operation was completed.

8

Error messages were issued, but the request operation was completed.

Abend codes

All 36xx abend codes are accompanied by an FABU36xx message. Locate the associated message for problem determination.

Messages

Use the information in these messages to help you diagnose and solve FABFDIAG problems.

FABU1001I DIAG ENDED NORMALLY
Explanation

This message is generated when trivial error conditions are encountered by Diagnostic Aid.

Explanation

This message is issued when Diagnostic Aid ends successfully.

System action

Diagnostic Aid ends with a return code of 4.

System action

Diagnostic Aid completes the job successfully with a return code of 0.

User response

See other messages that are generated by Diagnostic Aid to determine the nature and the cause of the detected errors. Correct the problem and rerun the job.

User response

None. This message is informational.

FABU1002W DIAG ENDED WITH WARNINGS

FABU1003E DIAG ENDED WITH ERRORS

Explanation

This message is generated when severe error conditions are encountered by Diagnostic Aid.

System action

Diagnostic Aid ends with a return code of 8.

User response

See other messages that are generated by Diagnostic Aid to determine the nature and the cause of the detected errors. Correct the problem and rerun the job.

FABU1005W	[SHPSLMD SHPSMAC] DD STATEMENT NOT FOUND
------------------	---

Explanation

Diagnostic Aid could not find the SHPSLMD/SHPSMAC DD statement.

System action

Diagnostic Aid sets an end-of-job return code of 4 and continues processing. Diagnostic Aid does not generate a report for the load module or the macro.

User response

If you intended to specify the indicated DD statement, correct the error and rerun the job.

FABU1006W	DUPLICATE <i>member name</i> IN LIBRARY DDNAME <i>ddname</i>
------------------	---

Explanation

Diagnostic Aid found a duplicated member in the concatenated libraries.

System action

Diagnostic Aid uses the member which is first found in the concatenated libraries. Diagnostic Aid sets an end-of-job return code of 4 and continues processing.

User response

Ensure that the libraries have correct module/macro libraries. Correct the error and rerun the job if necessary.

FABU1007W	DUMMY SPECIFIED FOR [SHPSLMD SHPSMAC] DD STATEMENT
------------------	---

Explanation

DUMMY is specified for the SHPSLMD/SHPSMAC DD statement.

System action

Diagnostic Aid sets an end-of-job return code of 4 and continues processing. Diagnostic Aid does not generate a report for the load module or the macro.

User response

If you did not intend to specify the dummy DD statement, correct the error and rerun the job.

FABU1008W	NO [MODULE MACRO] MEMBERS FOUND IN DDNAME [SHPSLMD SHPSMAC]
------------------	--

Explanation

Diagnostic Aid could not find any utility modules or macros members from the DD ddname data set.

System action

Diagnostic Aid sets an end-of-job return code of 4 and continues processing.

User response

Ensure that the libraries have correct utility module or macro libraries. Correct the error and rerun the job.

FABU2001E	LOAD FAILED FOR DDNAME <i>ddname</i> MODULE <i>member</i>
------------------	--

Explanation

Diagnostic Aid could not load the indicated member from *ddname*.

System action

Diagnostic Aid sets an end-of-job return code of 8 and continues processing.

User response

Ensure that the indicated member exists in the data set that is specified for the indicated *ddname*. Correct the error and rerun the job.

FABU3600E	OPEN FAILED FOR DDNAME <i>ddname</i>
------------------	---

Explanation

The named DCB could not be opened.

System action

Diagnostic Aid ends with an abend code of U3600.

User response

Ensure that a *ddname* DD statement exists, and that it specifies the correct DD parameter. Correct any errors, and rerun the job.

FABU3601E GET FAILED FOR DDNAME *ddname*

Explanation

The GET failed for a directory from the DD *ddname* data set.

System action

Diagnostic Aid ends with an abend code of U3601.

User response

See the MVS system message and its programmer response. Correct the error and rerun Diagnostic Aid. If the error persists, contact IBM Software Support.

**FABU3602E READ FAILED FOR DDNAME
 *ddname MEMBER member***

Explanation

The READ failed for a *member* from the DD *ddname* data set.

System action

Diagnostic Aid ends with an abend code of U3602.

User response

See the MVS system message and its programmer response. Correct the error and rerun Diagnostic Aid. If the error persists, contact IBM Software Support.

**FABU3603E BLDL FAILED FOR DDNAME
 *ddname MEMBER member***

Explanation

The *member* was not found when the BLDL macro searched the PDS directory for the *ddname*.

System action

Diagnostic Aid ends with an abend code of U3603.

User response

Ensure that the member indicated exists in the data set that is specified for the indicated *ddname*. Correct the error and rerun the job. If the error persists, contact IBM Software Support.

**FABU3604E LOAD FAILED FOR DDNAME
 *ddname MODULE member***

Explanation

Diagnostic Aid could not load the *member name* from the *ddname*.

System action

Diagnostic Aid ends with an abend code of U3604.

User response

See the MVS system message and its programmer response. Correct the error and rerun Diagnostic Aid. If the error persists, contact IBM Software Support.

**FABU3605E DELETE FAILED FOR MODULE
 *member***

Explanation

Diagnostic Aid could not delete a *member name*.

System action

Diagnostic Aid ends with an abend code of U3605.

User response

Contact IBM Software Support.

FABU3606E PUT FAILED FOR SYSPRINT

Explanation

Diagnostic Aid could not put report data in SYSPRINT.

System action

Diagnostic Aid ends with an abend code of U3606.

User response

See the MVS system message and its programmer response. Correct the error and rerun Diagnostic Aid. If the error persists, contact IBM Software Support.

FABU3607E OPEN FAILED FOR SYSPRINT

Explanation

SYSPRINT DCB could not be opened.

System action

Diagnostic Aid ends with an abend code of U3607.

User response

Ensure that a *ddname* SYSPRINT DD statement exists, and that it specifies the correct DD parameter. Correct any errors, and rerun the job.

FABU3608E FIND FAILED FOR DDNAME
ddname* MEMBER *member

Explanation

The FIND failed for a *member* from DDNAME *ddname* data set.

System action

Diagnostic Aid ends with an abend code of U3608.

User response

Ensure that the member indicated exists in the data set that is specified for the indicated *ddname*. Correct the error and rerun the job. If the error persists, contact IBM Software Support.

FABU3609E DEVTYPE FAILED FOR DDNAME
ddname

Explanation

The DEVTYPE failed for DDNAME *ddname* data set.

System action

Diagnostic Aid ends with an abend code of U3609.

User response

Contact IBM Software Support.

FABU3610E RDJFCB FAILED FOR DDNAME
ddname

Explanation

The READJFCB failed for DDNAME *ddname* data set.

System action

Diagnostic Aid ends with an abend code of U3610.

User response

Contact IBM Software Support.

FABU3611E GETMAIN FAILED. INSUFFICIENT
STORAGE TO RUN THE JOB

Explanation

Workspace for Diagnostic Aid could not be obtained.

System action

Diagnostic Aid ends with an abend code of U3611.

User response

Increase the region size and rerun the job.

FABU3612E TOO MANY [MODULE | MACRO]
MEMBERS DETECTED IN DDNAME
[SFABMOD | SHPSMAC]

Explanation

There are too many utility members in the SFABMOD/SHPSMAC DD data set.

System action

Diagnostic Aid ends with an abend code of U3612.

User response

Specify the correct data set for the indicated DD statement and rerun the job.

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