



**Program Directory for
IBM DB2 High Performance Unload for z/OS**

V05.01.00

Program Number 5655-HP5

FMID HINZ510

for Use with
z/OS

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Note

Before using this information and the product it supports, be sure to read the general information under 7.0, "Notices" on page 24.

Contents

1.0 Introduction	1
1.1 DB2 High Performance Unload Description	1
1.2 DB2 High Performance Unload FMID	2
2.0 Program Materials	3
2.1 Basic Machine-Readable Material	3
2.2 Optional Machine-Readable Material	4
2.3 Program Publications	4
2.3.1 Optional Program Publications	4
2.4 Program Source Materials	5
2.5 Publications Useful During Installation	5
3.0 Program Support	6
3.1 Program Services	6
3.2 Preventive Service Planning	6
3.3 Statement of Support Procedures	7
4.0 Program and Service Level Information	8
4.1 Program Level Information	8
4.2 Service Level Information	9
5.0 Installation Requirements and Considerations	10
5.1 Driving System Requirements	10
5.1.1 Machine Requirements	10
5.1.2 Programming Requirements	10
5.2 Target System Requirements	11
5.2.1 Machine Requirements	11
5.2.2 Programming Requirements	11
5.2.2.1 Installation Requisites	11
5.2.2.2 Operational Requisites	12
5.2.2.3 Toleration/Coexistence Requisites	12
5.2.2.4 Incompatibility (Negative) Requisites	13
5.2.3 DASD Storage Requirements	13
5.3 FMIDs Deleted	15
5.4 Special Considerations	16
6.0 Installation Instructions	17
6.1 Installing DB2 High Performance Unload	17
6.1.1 SMP/E Considerations for Installing DB2 High Performance Unload	17
6.1.2 SMP/E Options Subentry Values	17
6.1.3 SMP/E CALLLIBS Processing	18
6.1.4 Sample Jobs	18

6.1.5 Allocate SMP/E CSI (Optional)	20
6.1.6 Initialize CSI zones (Optional)	20
6.1.7 Perform SMP/E RECEIVE	20
6.1.8 Allocate SMP/E Target and Distribution Libraries	20
6.1.9 Create DDDEF Entries	21
6.1.10 Perform SMP/E APPLY	21
6.1.11 Perform SMP/E ACCEPT	22
6.1.12 Run REPORT CROSSZONE	23
6.2 Activating DB2 High Performance Unload	23
6.2.1 Product Customization	23
7.0 Notices	24
7.1 Trademarks	24
Reader's Comments	25

Figures

1. Program File Content	3
2. Basic Material: Unlicensed	4
3. Publications Useful During Installation	5
4. PSP Upgrade and Subset ID	6
5. Component IDs	7
6. Driving System Software Requirements	11
7. Target System Mandatory Operational Requisites	12
8. Total DASD Space Required by DB2 High Performance Unload	13
9. Storage Requirements for DB2 High Performance Unload Target Libraries	14
10. Storage Requirements for DB2 High Performance Unload Distribution Libraries	15
11. SMP/E Options Subentry Values	17
12. Sample Installation Jobs	18

1.0 Introduction

This program directory is intended for system programmers who are responsible for program installation and maintenance. It contains information about the material and procedures associated with the installation of IBM DB2 High Performance Unload for z/OS. This publication refers to IBM DB2 High Performance Unload for z/OS as DB2 High Performance Unload.

The Program Directory contains the following sections:

- 2.0, “Program Materials” on page 3 identifies the basic program materials and documentation for DB2 High Performance Unload.
- 3.0, “Program Support” on page 6 describes the IBM support available for DB2 High Performance Unload.
- 4.0, “Program and Service Level Information” on page 8 lists the APARs (program level) and PTFs (service level) that have been incorporated into DB2 High Performance Unload.
- 5.0, “Installation Requirements and Considerations” on page 10 identifies the resources and considerations that are required for installing and using DB2 High Performance Unload.
- 6.0, “Installation Instructions” on page 17 provides detailed installation instructions for DB2 High Performance Unload. It also describes the procedures for activating the functions of DB2 High Performance Unload, or refers to appropriate publications.

Before installing DB2 High Performance Unload, read the *CBPDO Memo To Users* and the *CBPDO Memo To Users Extension* that are supplied with this program in softcopy format and this program directory; then keep them for future reference. Section 3.2, “Preventive Service Planning” on page 6 tells you how to find any updates to the information and procedures in this program directory.

DB2 High Performance Unload is supplied in a Custom-Built Product Delivery Offering (CBPDO, 5751-CS3). The program directory that is provided in softcopy format on the CBPDO tape is identical to the hardcopy format if one was included with your order. All service and HOLDDATA for DB2 High Performance Unload are included on the CBPDO tape.

Do not use this program directory if you install DB2 High Performance Unload with a SystemPac or ServerPac. When you use one of those offerings, use the jobs and documentation supplied with the offering. The offering will point you to specific sections of this program directory as needed.

1.1 DB2 High Performance Unload Description

IBM DB2 High Performance Unload for z/OS, V5.1 (5655-HP5) enhancements include:

- Performance:
 - Thanks to an optimized new architecture and a partial 64-bit implementation, the mean CPU cost of DB2 High Performance Unload jobs may be decreased.

- zIIP exploitation: DB2 High Performance Unload can exploit the zIIP processor. The unload jobs involving complex formatting, that is, the typical unloads that do not request `FORMAT INTERNAL`, offload a significant part of their processing load to the zIIP processors.
 - DB2 part range table exploitation: The performance of logical unloads run in native mode involving a partitioned table, and a `WHERE` clause is enhanced by not processing the partitions not matching the `WHERE` clause. This enhancement exploits the DB2 for z/OS part range table populated by the `EXPLAIN PLAN` command.
 - Information about processing of SQL mode unloads: In order to help understand the performance of unloads ran in SQL mode, messages are issued to list the parameters or attributes that have a potential influence on the DB2 performance. Both the user-handled parameter and the implicit attributes added by DB2 HPU to the user-specified `SELECT` statement when it defers the data selection to DB2.
- Input:
 - DB2 V12.1 exploitation: This release of DB2 High Performance Unload natively exploits the DB2 for z/OS, V12.1 specific features except for the DB2 for z/OS LOB compression.
 - Unloading from FlashCopy not referenced in the DB2 for z/OS catalog: The unload of the data from FlashCopy data sets no longer requires the image copies to be referenced by the DB2 for z/OS catalog: the `COPYDDN LAST_IC` or `COPYDDN` integer was formerly mandatory to unload from FlashCopy data sets. The FlashCopy data set can be directly allocated by the DB2 High Performance Unload step and used through the `COPYDDN ddname` option.
 - Unloading from concatenation of a FIC and IICs: DB2 High Performance Unload is able to unload the data from a set of image copies made of a full Image Copy and one of several Incremental Image Copies allocated under a single DD name.
 - Output:
 - A new flexible date, time, and timestamp format is described by a string that specifies the sequence of the fields (year, month, date, hour) from the date, time, and timestamp to be displayed and the separators to be used.
 - Troubleshooting:
 - DB2 for z/OS status is displayed when `QUIESCE` is impossible. The text of the messages `INZU176I` and `INZU406E (QUIESCE IMPOSSIBLE)` now display the restricted state of the unloaded object that prevented the `QUIESCE` to be performed.

1.2 DB2 High Performance Unload FMID

DB2 High Performance Unload consists of the following FMID:

HINZ510

2.0 Program Materials

An IBM program is identified by a program number. The program number for DB2 High Performance Unload is 5655-HP5.

Basic Machine-Readable Materials are materials that are supplied under the base license and are required for the use of the product.

The program announcement material describes the features supported by DB2 High Performance Unload. Ask your IBM representative for this information if you have not already received a copy.

2.1 Basic Machine-Readable Material

The distribution medium for this program is physical media or downloadable files. This program is in SMP/E RELFILE format and is installed by using SMP/E. See 6.0, "Installation Instructions" on page 17 for more information about how to install the program.

You can find information about the physical media for the basic machine-readable materials for DB2 High Performance Unload in the *CBPDO Memo To Users Extension*.

Figure 1 describes the program file content for DB2 High Performance Unload. You can refer to the *CBPDO Memo To Users Extension* to see where the files reside on the tape.

Notes:

1. The data set attributes in this table must be used in the JCL of jobs that read the data sets. However, because the data sets are in IEBCOPY unloaded format, their actual attributes might be different.
2. If any RELFILEs are identified as PDSEs, ensure that SMPTLIB data sets are allocated as PDSEs.

Figure 1 (Page 1 of 2). Program File Content

Name	O R G	R E C F M	L R E C L	BLK SIZE
SMPMCS	SEQ	FB	80	6400
IBM.HINZ510.F1	PDS	FB	80	8800
IBM.HINZ510.F2	PDS	U	0	6144
IBM.HINZ510.F3	PDSE	U	0	6144
IBM.HINZ510.F4	PDSE	U	0	6144
IBM.HINZ510.F5	PDS	FB	80	8800

Figure 1 (Page 2 of 2). Program File Content

Name	O R G	R E C F M	L R E C L	BLK SIZE
IBM.HINZ510.F6	PDS	FB	80	8800
IBM.HINZ510.F7	PDS	FB	80	8800
IBM.HINZ510.F8	PDS	FB	80	8800
IBM.HINZ510.F9	PDS	FB	80	8800
IBM.HINZ510.F10	PDS	FB	80	8800
IBM.HINZ510.F11	PDS	FB	80	8800
IBM.HINZ510.F12	PDS	FB	80	8800

2.2 Optional Machine-Readable Material

No optional machine-readable materials are provided for DB2 High Performance Unload.

2.3 Program Publications

The following sections identify the basic publications for DB2 High Performance Unload.

Figure 2 identifies the basic unlicensed publications for DB2 High Performance Unload. Those that are in softcopy format publications can be obtained from the IBM Publications Center website at: <http://www.ibm.com/shop/publications/order/>

Figure 2. Basic Material: Unlicensed

Publication Title	Form Number	Media Format
IBM DB2 High Performance Unload for z/OS License Information	GC27-9130	http://www.ibm.com/software/sla/sladb.nsf
DB2 High Performance Unload User's Guide	SC27-9131	http://www.ibm.com/software/data/db2imstools/library.html

2.3.1 Optional Program Publications

No optional publications are provided for DB2 High Performance Unload.

2.4 Program Source Materials

No program source materials or viewable program listings are provided for DB2 High Performance Unload.

2.5 Publications Useful During Installation

You might want to use the publications listed in Figure 3 during the installation of DB2 High Performance Unload.

<i>Figure 3. Publications Useful During Installation</i>		
Publication Title	Form Number	Media Format
<i>IBM SMP/E for z/OS User's Guide</i>	SA23-2277	http://www.ibm.com/shop/publications/order/
<i>IBM SMP/E for z/OS Commands</i>	SA23-2275	http://www.ibm.com/shop/publications/order/
<i>IBM SMP/E for z/OS Reference</i>	SA23-2276	http://www.ibm.com/shop/publications/order/
<i>IBM SMP/E for z/OS Messages, Codes, and Diagnosis</i>	GA32-0883	http://www.ibm.com/shop/publications/order/

3.0 Program Support

This section describes the IBM support available for DB2 High Performance Unload.

3.1 Program Services

Contact your IBM representative for specific information about available program services.

3.2 Preventive Service Planning

Before you install DB2 High Performance Unload, make sure that you have reviewed the current Preventive Service Planning (PSP) information. Review the PSP Bucket for General Information, Installation Documentation, and the Cross Product Dependencies sections. For the Recommended Service section, instead of reviewing the PSP Bucket, it is recommended you use the IBM.ProductInstall-RequiredService fix category in SMP/E to ensure you have all the recommended service installed. Use the **FIXCAT(IBM.ProductInstall-RequiredService)** operand on the **APPLY CHECK command**. See 6.1.10, "Perform SMP/E APPLY" on page 21 for a sample APPLY command.

If you obtained DB2 High Performance Unload as part of a CBPDO, HOLDDATA is included.

If the CBPDO for DB2 High Performance Unload is older than two weeks by the time you install the product materials, you can obtain the latest PSP Bucket information by going to the following website:

<http://www14.software.ibm.com/webapp/set2/psearch/search?domain=psp>

You can also use S/390 SoftwareXcel or contact the IBM Support Center to obtain the latest PSP Bucket information.

For program support, access the Software Support Website at <http://www-01.ibm.com/software/support/>.

PSP Buckets are identified by UPGRADEs, which specify product levels; and SUBSETs, which specify the FMIDs for a product level. The UPGRADE and SUBSET values for DB2 High Performance Unload are included in Figure 4.

Figure 4. PSP Upgrade and Subset ID

UPGRADE	SUBSET	Description
5655HP5	HINZ510	IBM DB2 High Performance Unload for z/OS

3.3 Statement of Support Procedures

Report any problems which you feel might be an error in the product materials to your IBM Support Center. You may be asked to gather and submit additional diagnostics to assist the IBM Support Center in their analysis.

Figure 5 on page 7 identifies the component IDs (COMPID) for DB2 High Performance Unload.

<i>Figure 5. Component IDs</i>			
FMID	COMPID	Component Name	RETAIN Release
HINZ510	5697F4400	IBM DB2 High Performance Unload for z/OS	510

4.0 Program and Service Level Information

This section identifies the program and relevant service levels of DB2 High Performance Unload. The program level refers to the APAR fixes that have been incorporated into the program. The service level refers to the PTFs that have been incorporated into the program.

4.1 Program Level Information

The following APAR fixes against previous releases of DB2 High Performance Unload have been incorporated into this release. They are listed by FMID.

- FMID HINZ430

PI38442	PI47438	PI56162	PI64634	PI71036
PI40661	PI47610	PI56401	PI64902	PI71885
PI41195	PI47723	PI56404	PI64904	PI71973
PI41365	PI47724	PI57122	PI65342	PI71977
PI41559	PI47725	PI57958	PI65449	PI72114
PI41560	PI47987	PI58083	PI65461	PI72450
PI41562	PI47988	PI58263	PI65463	PI72828
PI42495	PI48086	PI58390	PI65560	PI73002
PI42497	PI48131	PI58501	PI65721	PI73468
PI42498	PI49040	PI58502	PI65722	PI74106
PI42736	PI49693	PI58503	PI65723	PI74158
PI42739	PI50023	PI58803	PI67064	PI74203
PI43497	PI50988	PI60031	PI67455	PI74387
PI43979	PI51058	PI60117	PI67459	PI74438
PI44221	PI51321	PI61522	PI68502	PI74439
PI44241	PI51997	PI61545	PI68906	PI75681
PI45632	PI52079	PI62205	PI69123	PI75993
PI45640	PI52402	PI62921	PI69203	PI77025
PI46003	PI53068	PI62936	PI70006	PI77027
PI46781	PI53302	PI63160	PI70588	PI77028
PI46782	PI54678	PI63170	PI70774	PI77029
PI47096	PI55738	PI64271		

4.2 Service Level Information

No PTFs against this release of DB2 High Performance Unload have been incorporated into the product package.

Frequently check the DB2 High Performance Unload PSP Bucket for HIPER and SPECIAL attention PTFs against all FMIDs that you must install. You can also receive the latest HOLDDATA, then add the **FIXCAT(IBM.PRODUCTINSTALL-REQUIRESERVICE)** operand on your APPLY CHECK command. This will allow you to review the recommended and critical service that should be installed with your FMIDs.

5.0 Installation Requirements and Considerations

The following sections identify the system requirements for installing and activating DB2 High Performance Unload. The following terminology is used:

- *Driving system*: the system on which SMP/E is executed to install the program.

The program might have specific operating system or product level requirements for using processes, such as binder or assembly utilities during the installation.

- *Target system*: the system on which the program is configured and run.

The program might have specific product level requirements, such as needing access to the library of another product for link-edits. These requirements, either mandatory or optional, might directly affect the element during the installation or in its basic or enhanced operation.

In many cases, you can use a system as both a driving system and a target system. However, you can make a separate IPL-able clone of the running system to use as a target system. The clone must include copies of all system libraries that SMP/E updates, copies of the SMP/E CSI data sets that describe the system libraries, and your PARMLIB and PROCLIB.

Use separate driving and target systems in the following situations:

- When you install a new level of a product that is already installed, the new level of the product will replace the old one. By installing the new level onto a separate target system, you can test the new level and keep the old one in production at the same time.
- When you install a product that shares libraries or load modules with other products, the installation can disrupt the other products. By installing the product onto a separate target system, you can assess these impacts without disrupting your production system.

5.1 Driving System Requirements

This section describes the environment of the driving system required to install DB2 High Performance Unload.

5.1.1 Machine Requirements

The driving system can run in any hardware environment that supports the required software.

5.1.2 Programming Requirements

Figure 6. Driving System Software Requirements

Program Number	Product Name	Minimum VRM	Minimum Service Level will satisfy these APARs	Included in the shipped product?
5650-ZOS	z/OS	V02.01.00	N/A	No

Note: SMP/E is a requirement for Installation and is an element of z/OS but can also be ordered as a separate product, 5655-G44, minimally V03.06.00.

Note: Installation might require migration to new z/OS releases to be service supported. See http://www-03.ibm.com/systems/z/os/zos/support/zos_eos_dates.html.

5.2 Target System Requirements

This section describes the environment of the target system required to install and use DB2 High Performance Unload.

DB2 High Performance Unload installs in the DBS (P115) SREL.

5.2.1 Machine Requirements

The target system can run in any hardware environment that supports the required software.

5.2.2 Programming Requirements

5.2.2.1 Installation Requisites: Installation requisites identify products that are required and *must* be present on the system or products that are not required but *should* be present on the system for the successful installation of this product.

Mandatory installation requisites identify products that are required on the system for the successful installation of this product.

DB2 High Performance Unload has no mandatory installation requisites.

Conditional installation requisites identify products that are *not* required for successful installation of this product but can resolve such things as certain warning messages at installation time.

DB2 High Performance Unload has no conditional installation requisites.

5.2.2.2 Operational Requisites: Operational requisites are products that are required and *must* be present on the system or products that are not required but *should* be present on the system for this product to operate all or part of its functions.

Mandatory operational requisites identify products that are required for this product to operate its basic functions.

<i>Figure 7. Target System Mandatory Operational Requisites</i>	
Program Number	Product Name and Minimum VRM/Service Level
Any one of the following:	
5655-V93	IBM Tools Base for z/OS V01.05.00 or lower *
5697-P31	IBM Tools Customizer for z/OS V01.01.00 or later *
Any one of the following:	
5605-DB2	DB2 for z/OS V10.01.00
5697-P31	DB2 Value Unit Edition for z/OS V10.01.00
5615-DB2	DB2 for z/OS V11.01.00
5697-P43	DB2 Value Unit Edition for z/OS V11.01.00
5650-DB2	DB2 for z/OS V12.01.00
5697-P43	DB2 Value Unit Edition for z/OS V12.01.00

Note: *FMID HTCZ110, which is delivered either with IBM Tools Base for z/OS V01.05.00 or earlier, or, IBM Tools Customizer for z/OS, is required to customize DB2 Administration Tool. Both IBM Tools Base for z/OS V01.05.00 and IBM Tools Customizer for z/OS are no-charge products that must be separately ordered.

Conditional operational requisites identify products that are *not* required for this product to operate its basic functions but are required at run time for this product to operate specific functions.

DB2 High Performance Unload has no conditional operational requisites.

5.2.2.3 Toleration/Coexistence Requisites: Toleration/coexistence requisites identify products that must be present on sharing systems. These systems can be other systems in a multisystem environment (not necessarily sysplex), a shared DASD environment (such as test and production), or systems that reuse the same DASD environment at different time intervals.

DB2 High Performance Unload has no toleration/coexistence requisites.

5.2.2.4 Incompatibility (Negative) Requisites: Negative requisites identify products that must *not* be installed on the same system as this product.

DB2 High Performance Unload has no negative requisites.

5.2.3 DASD Storage Requirements

DB2 High Performance Unload libraries can reside on all supported DASD types.

Figure 8 lists the total space that is required for each type of library.

Library Type	Total Space Required in 3390 Trks
Target	822 tracks
Distribution	822 tracks

Notes:

1. For non-RECFM U data sets, IBM recommends using system-determined block sizes for efficient DASD utilization. For RECFM U data sets, IBM recommends using a block size of 32760, which is most efficient from the performance and DASD utilization perspective.
2. Abbreviations used for data set types are shown as follows.
 - U** Unique data set, allocated by this product and used by only this product. This table provides all the required information to determine the correct storage for this data set. You do not need to refer to other tables or program directories for the data set size.
 - S** Shared data set, allocated by this product and used by this product and other products. To determine the correct storage needed for this data set, add the storage size given in this table to those given in other tables (perhaps in other program directories). If the data set already exists, it must have enough free space to accommodate the storage size given in this table.
 - E** Existing shared data set, used by this product and other products. This data set is *not* allocated by this product. To determine the correct storage for this data set, add the storage size given in this table to those given in other tables (perhaps in other program directories). If the data set already exists, it must have enough free space to accommodate the storage size given in this table.

If you currently have a previous release of this product installed in these libraries, the installation of this release will delete the old release and reclaim the space that was used by the old release and any service that had been installed. You can determine whether these libraries have enough space by deleting the old release with a dummy function, compressing the libraries, and comparing the space requirements with the free space in the libraries.

For more information about the names and sizes of the required data sets, see 6.1.8, "Allocate SMP/E Target and Distribution Libraries" on page 20.

3. All target and distribution libraries listed have the following attributes:
 - The default name of the data set can be changed.
 - The default block size of the data set can be changed.
 - The data set can be merged with another data set that has equivalent characteristics.
 - The data set can be either a PDS or a PDSE, except for SINZLINK, SINZLLIB, AINZLINK, and AINZLLIB which must be PDSEs.
4. All target libraries listed have the following attributes:
 - These data sets can be SMS-managed, but they are not required to be SMS-managed.
 - These data sets are not required to reside on the IPL volume.
 - The values in the "Member Type" column are not necessarily the actual SMP/E element types that are identified in the SMPMCS.
5. All target libraries that are listed and contain load modules have the following attributes:
 - These data sets can be in the LPA, but they are not required to be in the LPA.
 - These data sets can be in the LNKLIST.
 - These data sets are not required to be APF-authorized, except the SINZLINK library that requires APF-authorization before using DB2 High Performance Unload in batch mode.
 - DB2 High Performance Unload requires that the SMPLTS data set must be a PDSE. If your existing SMPLTS is a PDS, you will need to allocate a new PDSE and copy your existing SMPLTS into it and then change the SMPLTS DDDEF entry to indicate the new PDSE data set.

The following figures describe the target and distribution libraries required to install DB2 High Performance Unload. The storage requirements of DB2 High Performance Unload must be added to the storage required by other programs that have data in the same library.

Note: Use the data in these tables to determine which libraries can be merged into common data sets. In addition, since some ALIAS names may not be unique, ensure that no naming conflicts will be introduced before merging libraries.

Figure 9 (Page 1 of 2). Storage Requirements for DB2 High Performance Unload Target Libraries

Library DDNAME	Member Type	Target Volume	T Y P E	O R G	R E C O R D S	L E N G T H	No. of 3390 Trks	No. of DIR Blks
SINZCLST	CLIST	Any	U	PDS	FB	80	8	5
SINZDBRM	DATA	Any	U	PDS	FB	80	10	5
SINZDENU	DATA	Any	U	PDS	FB	80	18	5
SINZLINK	MOD	Any	U	PDSE	U	0	525	n/a
SINZLLIB	MOD	Any	U	PDSE	U	0	150	n/a
SINZLOAD	MOD	Any	U	PDS	U	0	13	5
SINZMLIB	MSG	Any	U	PDS	FB	80	9	5

Figure 9 (Page 2 of 2). Storage Requirements for DB2 High Performance Unload Target Libraries

Library DDNAME	Member Type	Target Volume	T Y P E	O R G	R E C F M	L R E C L	No. of 3390 Trks	No. of DIR Blks
SINZPANL	PNL	Any	U	PDS	FB	80	50	20
SINZSAMP	SAMP	Any	U	PDS	FB	80	17	5
SINZSLIB	SKL	Any	U	PDS	FB	80	13	5
SINZTLIB	TBL	Any	U	PDS	FB	80	9	5

Figure 10. Storage Requirements for DB2 High Performance Unload Distribution Libraries

Library DDNAME	T Y P E	O R G	R E C F M	L R E C L	No. of 3390 Trks	No. of DIR Blks
AINZCLST	U	PDS	FB	80	8	5
AINZDBRM	U	PDS	FB	80	10	5
AINZDENU	U	PDS	FB	80	18	5
AINZLINK	U	PDSE	U	0	525	n/a
AINZLLIB	U	PDSE	U	0	150	n/a
AINZLOAD	U	PDS	U	0	13	5
AINZMLIB	U	PDS	FB	80	9	5
AINZPANL	U	PDS	FB	80	50	20
AINZSAMP	U	PDS	FB	80	17	5
AINZSLIB	U	PDS	FB	80	13	5
AINZTLIB	U	PDS	FB	80	9	5

5.3 FMIDs Deleted

Installing DB2 High Performance Unload might result in the deletion of other FMIDs. To see which FMIDs will be deleted, examine the ++VER statement in the SMPMCS of the product.

If you do not want to delete these FMIDs at this time, install DB2 High Performance Unload into separate SMP/E target and distribution zones.

Note: These FMIDs are not automatically deleted from the Global Zone. If you want to delete these FMIDs from the Global Zone, use the SMP/E REJECT NOFMID DELETEFMID command. See the SMP/E Commands book for details.

5.4 Special Considerations

PDSE Considerations:

DB2 High Performance Unload uses the "partitioned data set extended" or PDSE format for the SINZLINK, and SINZLLIB target libraries.

There are some operational differences between PDS and PDSE data sets. The PDS format may be shared by more than one z/OS system and no special precautions are necessary. However the PDSE format may only be shared by z/OS systems which are part of a sysplex or which are connected using Global Resource Serialization (are in a GRS complex). If z/OS systems share use of a PDSE data set outside of a sysplex or GRS environment, you may experience severe problems when the data set is updated. This is due to the fact that PDSE directory information is cached in storage, and when the data set is updated from one system the other system(s) have no knowledge of the update, and their cached directory information will be incorrect.

You must take care not to share the SINZLINK, and SINZLLIB data sets between z/OS systems unless they are in a sysplex or are connected in a GRS complex. If you need to share the content of the SINZLINK, and SINZLLIB data sets, a separate copy must be created for each z/OS system.

6.0 Installation Instructions

This chapter describes the installation method and the step-by-step procedures to install and to activate the functions of DB2 High Performance Unload.

Please note the following points:

- If you want to install DB2 High Performance Unload into its own SMP/E environment, consult the SMP/E manuals for instructions on creating and initializing the SMPCSI and the SMP/E control data sets.
- You can use the sample jobs that are provided to perform part or all of the installation tasks. The SMP/E jobs assume that all DDDEF entries that are required for SMP/E execution have been defined in appropriate zones.
- You can use the SMP/E dialogs instead of the sample jobs to accomplish the SMP/E installation steps.

6.1 Installing DB2 High Performance Unload

6.1.1 SMP/E Considerations for Installing DB2 High Performance Unload

Use the SMP/E RECEIVE, APPLY, and ACCEPT commands to install this release of DB2 High Performance Unload.

6.1.2 SMP/E Options Subentry Values

The recommended values for certain SMP/E CSI subentries are shown in Figure 11. Using values lower than the recommended values can result in failures in the installation. DSSPACE is a subentry in the GLOBAL options entry. PEMAX is a subentry of the GENERAL entry in the GLOBAL options entry. See the SMP/E manuals for instructions on updating the global zone.

Subentry	Value	Comment
DSSPACE	(200,200,500)	3390 DASD tracks
PEMAX	SMP/E Default	IBM recommends using the SMP/E default for PEMAX.

6.1.3 SMP/E CALLLIBS Processing

DB2 High Performance Unload uses the CALLLIBS function provided in SMP/E to resolve external references during installation. When DB2 High Performance Unload is installed, ensure that DDDEFs exist for the following libraries:

- CSSLIB
- SISpload
- SCEELIB
- SCEELKED
- SCEEBND2

Note: CALLLIBS uses the previous DDDEFs only to resolve the link-edit for DB2 High Performance Unload. These data sets are not updated during the installation of DB2 High Performance Unload.

6.1.4 Sample Jobs

The following sample installation jobs are provided as part of the product to help you install DB2 High Performance Unload:

<i>Figure 12. Sample Installation Jobs</i>			
Job Name	Job Type	Description	RELFILE
INZALA	SMP/E	Sample job to allocate and initialize a new SMP/E CSI data set (Optional)	IBM.HINZ510.F5
INZALB	SMP/E	Sample job to allocate SMP/E data sets (Optional)	IBM.HINZ510.F5
INZRECEV	RECEIVE	Sample RECEIVE job	IBM.HINZ510.F5
INZALLOC	ALLOCATE	Sample job to allocate target and distribution libraries	IBM.HINZ510.F5
INZDDDEF	DDDEF	Sample job to define SMP/E DDDEFs	IBM.HINZ510.F5
INZAPPLY	APPLY	Sample APPLY job	IBM.HINZ510.F5
INZACCEP	ACCEPT	Sample ACCEPT job	IBM.HINZ510.F5

You can access the sample installation jobs by performing an SMP/E RECEIVE (refer to 6.1.7, “Perform SMP/E RECEIVE” on page 20) then copy the jobs from the RELFILES to a work data set for editing and submission. See Figure 12 to find the appropriate relfile data set.

You can also copy the sample installation jobs from the tape or product files by submitting the following job. Depending on your distribution medium, use either the //TAPEIN or the //FILEIN DD statement and comment out or delete the other statement. Before you submit the job, add a job card and change the lowercase parameters to uppercase values to meet the requirements of your site.

```

//STEP1 EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=*
//*****
/* Make the //TAPEIN DD statement below active if you install*
/* from a CBPDO tape by uncommenting the DD statement below. *
//*****
/*TAPEIN DD DSN=IBM.HINZ510.F5,UNIT=tunit,
/* VOL=SER=volser,LABEL=(x,SL),
/* DISP=(OLD,KEEP)
//*****
/* Make the //TAPEIN DD statement below active if you install*
/* from a product tape received outside the CBPDO process *
/* (using the optional SMP/E RECEIVE job) by uncommenting *
/* the DD statement below. *
//*****
/*TAPEIN DD DSN=IBM.HINZ510.F5,UNIT=tunit,
/* VOL=SER=INZ510,LABEL=(6,SL),
/* DISP=(OLD,KEEP)
//*****
/* Make the //FILEIN DD statement below active for *
/* downloaded DASD files. *
//*****
/*FILEIN DD DSN=IBM.HINZ510.F5,UNIT=SYSALLDA,DISP=SHR,
/* VOL=SER=filevol
//OUT DD DSNAME=jcl-library-name,
// DISP=(NEW,CATLG,DELETE),
// VOL=SER=dasdvol,UNIT=SYSALLDA,
// SPACE=(TRK,(20,10,5))
//SYSUT3 DD UNIT=SYSALLDA,SPACE=(CYL,(1,1))
//SYSIN DD *
COPY INDD=xxxxIN,OUTDD=OUT
SELECT MEMBER=(INZALA,INZALB,INZRECEV,INZALLO)
SELECT MEMBER=(INZDDDEF,INZAPPLY,INZACCEP)
/*

```

See the following information to update the statements in the previous sample:

TAPEIN:

tunit is the unit value that matches the product package.

volser is the volume serial that matches the product package.

x is the tape file number that indicates the location of the data set name on the tape.

See the documentation that is provided by CBPDO for the location of IBM.HINZ510.F5 on the tape.

FILEIN:

filevol is the volume serial of the DASD device where the downloaded files reside.

OUT:

jcl-library-name is the name of the output data set where the sample jobs are stored.

dasdvol is the volume serial of the DASD device where the output data set resides.

SYSIN:

xxxxIN is either TAPEIN or FILEIN depending on your input DD statement.

6.1.5 Allocate SMP/E CSI (Optional)

If you are using an existing CSI, do not execute this job.

If you are allocating a new SMP/E data set for this install, edit and submit sample job INZALA to allocate the SMP/E data set for DB2 High Performance Unload. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: You will receive a return code of 0 if this job runs correctly.

6.1.6 Initialize CSI zones (Optional)

If you are using an existing CSI, do not execute this job.

Edit and submit sample job INZALB to initialize SMP/E zones for DB2 High Performance Unload. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: You will receive a return code of 0 if this job runs correctly.

6.1.7 Perform SMP/E RECEIVE

If you have obtained DB2 High Performance Unload as part of a CBPDO, use the RCVPDO job in the CBPDO RIMLIB data set to receive the DB2 High Performance Unload FMIDs, service, and HOLDDATA that are included on the CBPDO package. For more information, see the documentation that is included in the CBPDO.

You can also choose to edit and submit sample job INZRECEV to perform the SMP/E RECEIVE for DB2 High Performance Unload. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: You will receive a return code of 0 if this job runs correctly.

6.1.8 Allocate SMP/E Target and Distribution Libraries

Edit and submit sample job INZALLOC to allocate the SMP/E target and distribution libraries for DB2 High Performance Unload. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: You will receive a return code of 0 if this job runs correctly.

6.1.9 Create DDDEF Entries

Edit and submit sample job INZDDDEF to create DDDEF entries for the SMP/E target and distribution libraries for DB2 High Performance Unload. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: You will receive a return code of 0 if this job runs correctly.

6.1.10 Perform SMP/E APPLY

1. Ensure that you have the latest HOLDDATA; then edit and submit sample job INZAPPLY to perform an SMP/E APPLY CHECK for DB2 High Performance Unload. Consult the instructions in the sample job for more information.

The latest HOLDDATA is available through several different portals, including <http://service.software.ibm.com/holddata/390holddata.html>. The latest HOLDDATA may identify HIPER and FIXCAT APARs for the FMIDs you will be installing. An APPLY CHECK will help you determine if any HIPER or FIXCAT APARs are applicable to the FMIDs you are installing. If there are any applicable HIPER or FIXCAT APARs, the APPLY CHECK will also identify fixing PTFs that will resolve the APARs, if a fixing PTF is available.

You should install the FMIDs regardless of the status of unresolved HIPER or FIXCAT APARs. However, do not deploy the software until the unresolved HIPER and FIXCAT APARs have been analyzed to determine their applicability. That is, before deploying the software either ensure fixing PTFs are applied to resolve all HIPER or FIXCAT APARs, or ensure the problems reported by all HIPER or FIXCAT APARs are not applicable to your environment.

To receive the full benefit of the SMP/E Causer SYSMOD Summary Report, do *not* bypass the PRE, ID, REQ, and IFREQ on the APPLY CHECK. The SMP/E root cause analysis identifies the cause only of *errors* and not of *warnings* (SMP/E treats bypassed PRE, ID, REQ, and IFREQ conditions as warnings, instead of errors).

Here are sample APPLY commands:

- a. To ensure that all recommended and critical service is installed with the FMIDs, receive the latest HOLDDATA and use the APPLY CHECK command as follows

```
APPLY S(fmid,fmid,...) CHECK
FORFMID(fmid,fmid,...)
SOURCEID(RSU*)
FIXCAT(IBM.ProductInstall-RequiredService)
GROUPEXTEND .
```

Some HIPER APARs might not have fixing PTFs available yet. You should analyze the symptom flags for the unresolved HIPER APARs to determine if the reported problem is applicable to your environment and if you should bypass the specific ERROR HOLDS in order to continue the installation of the FMIDs.

This method requires more initial research, but can provide resolution for all HIPERs that have fixing PTFs available and are not in a PE chain. Unresolved PEs or HIPERs might still exist and require the use of BYPASS.

- b. To install the FMIDs without regard for unresolved HIPER APARs, you can add the BYPASS(HOLDCLASS(HIPER)) operand to the APPLY CHECK command. This will allow you to install FMIDs even though one or more unresolved HIPER APARs exist. After the FMIDs are installed, use the SMP/E REPORT ERRSYSMODS command to identify unresolved HIPER APARs and any fixing PTFs.

```
APPLY S(fmid,fmid,...) CHECK
FORFMID(fmid,fmid,...)
SOURCEID(RSU*)
FIXCAT(IBM.ProductInstall-RequiredService)
GROUPEXTEND
BYPASS(HOLDCLASS(HIPER),HOLDFIXCAT) .
..any other parameters documented in the program directory
```

This method is quicker, but requires subsequent review of the Exception SYSMOD report produced by the REPORT ERRSYSMODS command to investigate any unresolved HIPERs. If you have received the latest HOLDDATA, you can also choose to use the REPORT MISSINGFIX command and specify Fix Category IBM.ProductInstall-RequiredService to investigate missing recommended service.

If you bypass HOLDs during the installation of the FMIDs because fixing PTFs are not yet available, you can be notified when the fixing PTFs are available by using the APAR Status Tracking (AST) function of ServiceLink or the APAR Tracking function of ResourceLink.

2. After you take actions that are indicated by the APPLY CHECK, remove the CHECK operand and run the job again to perform the APPLY.

Note: The GROUPEXTEND operand indicates that SMP/E applies all requisite SYSMODs. The requisite SYSMODS might be applicable to other functions.

Expected Return Codes and Messages from APPLY CHECK: You will receive a return code of 0 if this job runs correctly.

Expected Return Codes and Messages from APPLY: You will receive a return code of 4 if this job runs correctly. The following message can be ignored: IEW2646W.

6.1.11 Perform SMP/E ACCEPT

Edit and submit sample job INZACCEP to perform an SMP/E ACCEPT CHECK for DB2 High Performance Unload. Consult the instructions in the sample job for more information.

To receive the full benefit of the SMP/E Causer SYSMOD Summary Report, do *not* bypass the PRE, ID, REQ, and IFREQ on the ACCEPT CHECK. The SMP/E root cause analysis identifies the cause of *errors* but not *warnings* (SMP/E treats bypassed PRE, ID, REQ, and IFREQ conditions as warnings rather than errors).

Before you use SMP/E to load new distribution libraries, it is recommended that you set the ACCJCLIN indicator in the distribution zone. In this way, you can save the entries that are produced from JCLIN in the distribution zone whenever a SYSMOD that contains inline JCLIN is accepted. For more information about the ACCJCLIN indicator, see the description of inline JCLIN in the SMP/E Commands book for details.

After you take actions that are indicated by the ACCEPT CHECK, remove the CHECK operand and run the job again to perform the ACCEPT.

Note: The GROUPEXTEND operand indicates that SMP/E accepts all requisite SYSMODs. The requisite SYSMODS might be applicable to other functions.

Expected Return Codes and Messages from ACCEPT CHECK: You will receive a return code of 0 if this job runs correctly.

If PTFs that contain replacement modules are accepted, SMP/E ACCEPT processing will link-edit or bind the modules into the distribution libraries. During this processing, the Linkage Editor or Binder might issue messages that indicate unresolved external references, which will result in a return code of 4 during the ACCEPT phase. You can ignore these messages, because the distribution libraries are not executable and the unresolved external references do not affect the executable system libraries.

Expected Return Codes and Messages from ACCEPT: You will receive a return code of 0 if this job runs correctly.

6.1.12 Run REPORT CROSSZONE

The SMP/E REPORT CROSSZONE command identifies requisites for products that are installed in separate zones. This command also creates APPLY and ACCEPT commands in the SMPPUNCH data set. You can use the APPLY and ACCEPT commands to install those cross-zone requisites that the SMP/E REPORT CROSSZONE command identifies.

After you install DB2 High Performance Unload, it is recommended that you run REPORT CROSSZONE against the new or updated target and distribution zones. REPORT CROSSZONE requires a global zone with ZONEINDEX entries that describe all the target and distribution libraries to be reported on.

For more information about REPORT CROSSZONE, see the SMP/E manuals.

6.2 Activating DB2 High Performance Unload

6.2.1 Product Customization

The publication *DB2 High Performance Unload User's Guide* (SC27-9131) contains the necessary information to customize and use DB2 High Performance Unload.

7.0 Notices

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