



**Program Directory for
IBM IMS Recovery Solution Pack for z/OS**

V02.01.00

Program Number 5655-ISR

FMIDs HAHM210, H1J0420, H22O310, HAEP220

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 26.

Contents

1.0 Introduction	1
1.1 IMS Recovery Solution Pack Description	2
1.2 IMS Recovery Solution Pack FMIDs	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
2.4 Program Source Materials	5
2.5 Publications Useful During Installation	5
3.0 Program Support	7
3.1 Program Services	7
3.2 Preventive Service Planning	7
3.3 Statement of Support Procedures	8
4.0 Program and Service Level Information	9
4.1 Program Level Information	9
4.2 Service Level Information	10
5.0 Installation Requirements and Considerations	11
5.1 Driving System Requirements	11
5.1.1 Machine Requirements	11
5.1.2 Programming Requirements	11
5.2 Target System Requirements	12
5.2.1 Machine Requirements	12
5.2.2 Programming Requirements	12
5.2.2.1 Installation Requisites	12
5.2.2.2 Operational Requisites	13
5.2.2.3 Toleration/Coexistence Requisites	14
5.2.2.4 Incompatibility (Negative) Requisites	14
5.2.3 DASD Storage Requirements	14
5.3 FMIDs Deleted	17
5.4 Special Considerations	17
6.0 Installation Instructions	19
6.1 Installing IMS Recovery Solution Pack	19
6.1.1 SMP/E Considerations for Installing IMS Recovery Solution Pack	19
6.1.2 SMP/E Environment	19
6.1.3 SMP/E Options Subentry Values	19
6.1.4 SMP/E CALLLIBS Processing	20
6.1.5 Sample Jobs	20

6.1.6 Allocate SMP/E CSI (Optional)	22
6.1.7 Initialize CSI zones (Optional)	22
6.1.8 Perform SMP/E RECEIVE	22
6.1.9 Allocate SMP/E Target and Distribution Libraries	22
6.1.10 Create DDDEF Entries	22
6.1.11 Perform SMP/E APPLY	23
6.1.12 Perform SMP/E ACCEPT	24
6.1.13 Run REPORT CROSSZONE	25
6.2 Activating IMS Recovery Solution Pack	25
6.2.1 Product Customization	25
7.0 Notices	26
7.1 Trademarks	26
Reader's Comments	27

Figures

1. Program File Content - IMS Recovery Solution Pack - HAHM210	3
2. Basic Material: Unlicensed	5
3. Publications Useful During Installation	6
4. PSP Upgrade and Subset ID for IMS Recovery Solution Pack	8
5. Component IDs for IMS Recovery Solution Pack	8
6. Driving System Software Requirements	12
7. Target System Mandatory Operational Requisites for IMS Recovery Solution Pack (HAHM210)	13
8. Target System Conditional Operational Requisites - IMS Recovery Solution Pack (HAHM210)	13
9. Total DASD Space Required by IMS Recovery Solution Pack (HAHM210)	14
10. Storage Requirements for IMS Recovery Solution Pack (HAHM210) Target Libraries	16
11. Storage Requirements for IMS Recovery Solution Pack (HAHM210) Distribution Libraries	16
12. SMP/E Options Subentry Values	19
13. Sample Installation Jobs - IMS Recovery Solution Pack.	20

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 IMS Recovery Solution Pack for z/OS. This publication refers to IBM IMS Recovery Solution Pack for z/OS as IMS Recovery Solution Pack.

Additionally, this publication refers to:

- IBM IMS High Performance Image Copy for z/OS as IMS HP Image Copy
- IBM IMS Index Builder for z/OS as IMS Index Builder
- IBM IMS Recovery Expert for z/OS as IMS Recovery Expert

The Program Directory contains the following sections:

- 2.0, “Program Materials” on page 3 identifies the basic program materials and documentation for IMS Recovery Solution Pack.
- 3.0, “Program Support” on page 7 describes the IBM support available for IMS Recovery Solution Pack.
- 4.0, “Program and Service Level Information” on page 9 lists the APARs (program level) and PTFs (service level) that have been incorporated into IMS Recovery Solution Pack.
- 5.0, “Installation Requirements and Considerations” on page 11 identifies the resources and considerations that are required for installing and using IMS Recovery Solution Pack.
- 6.0, “Installation Instructions” on page 19 provides detailed installation instructions for IMS Recovery Solution Pack. It also describes the procedures for activating the functions of IMS Recovery Solution Pack, or refers to appropriate publications.

Before installing IMS Recovery Solution Pack, 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 7 tells you how to find any updates to the information and procedures in this program directory.

IMS Recovery Solution Pack 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 IMS Recovery Solution Pack are included on the CBPDO tape.

Do not use this program directory if you install IMS Recovery Solution Pack 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 IMS Recovery Solution Pack Description

IMS Recovery Solution Pack for z/OS, V2.1 (5655-ISR) provides the following:

- Backup Processes
 - Allow high-speed creation of image copy data sets for multiple database data sets simultaneously
 - Back up entire IMS systems nearly instantaneously with a significantly reduced likelihood of application downtime
 - Support efforts to reduce storage costs by utilizing one backup for multiple purposes
 - Reduce use of CPU, I/O, and tape resources in backup processes
 - Automatically perform backup validation to achieve more successful recoveries
- Recovery Processes
 - Support the recovery of multiple database data sets and Fast Path areas simultaneously
 - Recover more quickly and more easily using Intelligent Recovery Managers for local and remote recovery support
 - Reduce recovery time and complexity with faster restore and parallel recovery (log apply)
 - Provide verification of recovery assets to support availability and usability
 - Allow integration of recovery tasks into a single job step which can include:
 - Rebuilding index data sets
 - Creating image copies
 - Offer automatic stop and start for databases around backup and recovery processes
 - Provide index rebuilding rather than recovery from image copy
 - Provide recovery point identification and creation
- Change Accumulation Processes
 - Offer high-speed creation of change accumulation data sets
- Disaster Recovery Processes
 - Reduce recovery time objectives by transforming disaster recovery into a disaster restart process
 - Identify assets and prepare files and JCL for a more successful disaster recovery or disaster restart
 - Provide RECON cleanup to prepare RECON data sets for the disaster recovery environment

The effort required to accomplish IMS backup and recovery management is greatly reduced through an easier-to-use ISPF user interface.

1.2 IMS Recovery Solution Pack FMIDs

IMS Recovery Solution Pack consists of the following FMIDs:

- HAHM210 - IMS Recovery Solution Pack
- H1J0420 - IMS HP Image Copy
- H22O310 - IMS Index Builder
- HAEP220 - IMS Recovery Expert

2.0 Program Materials

An IBM program is identified by a program number. The program number for IMS Recovery Solution Pack is 5655-ISR.

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 IMS Recovery Solution Pack. 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 19 for more information about how to install the program.

You can find information about the physical media for the basic machine-readable materials for IMS Recovery Solution Pack in the *CBPDO Memo To Users Extension*.

Figure 1 describes the program file content for IMS Recovery Solution Pack (HAHM210). 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 - IMS Recovery Solution Pack - HAHM210

Name	O R G	R E C F M	L R E C L	BLK SIZE
SMPMCS	SEQ	FB	80	6400
IBM.HAHM210.F1	PDS	FB	80	8800
IBM.HAHM210.F2	PDS	FB	80	8800
IBM.HAHM210.F3	PDS	FB	80	8800
IBM.HAHM210.F4	PDSE	U	0	6144
IBM.HAHM210.F5	PDS	FB	80	8800

Figure 1 (Page 2 of 2). Program File Content - IMS Recovery Solution Pack - HAHM210

Name	O R G	R E C F M	L R E C L	BLK SIZE
IBM.HAHM210.F6	PDS	FB	80	8800
IBM.HAHM210.F7	PDS	FB	80	8800
IBM.HAHM210.F8	PDS	FB	80	8800
IBM.HAHM210.F9	PDS	FB	80	8800
IBM.HAHM210.F10	PDS	FB	80	8800
IBM.HAHM210.F11	PDSE	U	0	6144
IBM.HAHM210.F12	PDS	FB	80	8800
IBM.HAHM210.F13	PDS	FB	80	8800
IBM.HAHM210.F14	PDS	FB	80	8800

To view the Program File Content of the products that constitute IMS Recovery Solution Pack, refer to the following Program Directories that are supplied with the product.

- Publication number GI10-8671 for IMS HP Image Copy
- Publication number GI10-8571 for IMS Index Builder
- Publication number GI10-8796 for IMS Recovery Expert

2.2 Optional Machine-Readable Material

No optional machine-readable materials are provided for IMS Recovery Solution Pack.

2.3 Program Publications

The following sections identify the basic publications for IMS Recovery Solution Pack.

Figure 2 identifies the basic unlicensed publications for IMS Recovery Solution Pack. 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 IMS High Performance Image Copy for z/OS Program Directory	GI10-8671	http://www.ibm.com/shop/publications/order/

Figure 2. Basic Material: Unlicensed

Publication Title	Form Number	Media Format
IBM IMS Index Builder for z/OS Program Directory	GI10-8571	http://www.ibm.com/shop/publications/order/
IBM IMS Recovery Expert for z/OS Program Directory	GI10-8796	http://www.ibm.com/shop/publications/order/
IBM IMS Recovery Solution Pack for z/OS License Information	GC27-8439	http://www.ibm.com/shop/publications/order/
IBM IMS Recovery Solution Pack for z/OS Overview and Customization	SC27-8440	http://www.ibm.com/shop/publications/order/
IBM IMS Recovery Solution Pack for z/OS IMS Database Recovery Facility User's Guide	SC27-8441	http://www.ibm.com/shop/publications/order/
IBM IMS Recovery Solution Pack for z/OS IMS Database Recovery Facility Extended Functions User's Guide	SC27-8442	http://www.ibm.com/shop/publications/order/
IBM IMS Recovery Solution Pack for z/OS IMS High Performance Change Accumulation Utility User's Guide	SC27-8443	http://www.ibm.com/shop/publications/order/
IBM IMS Solution Packs Database Sensor User's Guide	SC19-3283	http://www.ibm.com/shop/publications/order/

To view the unlicensed publications of the products that constitute IMS Recovery Solution Pack, refer to the following Program Directories that are supplied with the product.

- Publication number GI10-8671 for IMS HP Image Copy
- Publication number GI10-8571 for IMS Index Builder
- Publication number GI10-8796 for IMS Recovery Expert

2.4 Program Source Materials

No program source materials or viewable program listings are provided for IMS Recovery Solution Pack.

2.5 Publications Useful During Installation

You might want to use the publications listed in Figure 3 during the installation of IMS Recovery Solution Pack.

Figure 3. Publications Useful During Installation

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 IMS Recovery Solution Pack.

3.1 Program Services

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

3.2 Preventive Service Planning

The Preventive Service Planning (PSP) information for IMS Recovery Solution Pack (HAHM210) is listed below.

To review the Preventive Service Planning (PSP) information for the products that constitute IMS Recovery Solution Pack, refer to the following Program Directories that are supplied with the product.

- Publication number GI10-8671 for IMS HP Image Copy
- Publication number GI10-8571 for IMS Index Builder
- Publication number GI10-8796 for IMS Recovery Expert

Before you install IMS Recovery Solution Pack, 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 6.1.11, “Perform SMP/E APPLY” on page 23 for a sample APPLY command.

If you obtained IMS Recovery Solution Pack as part of a CBPDO, HOLDDATA is included.

If the CBPDO for IMS Recovery Solution Pack 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 IMS Recovery Solution Pack are included in Figure 4

Figure 4. PSP Upgrade and Subset ID for IMS Recovery Solution Pack

UPGRADE	SUBSET	Description
5655ISR	HAHM210	IMS Recovery Solution Pack

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.

To identify the component IDs (COMPID) for the products that constitute IMS Recovery Solution Pack, refer to the following Program Directories that are supplied with the product.

- Publication number GI10-8671 for IMS HP Image Copy
- Publication number GI10-8571 for IMS Index Builder
- Publication number GI10-8796 for IMS Recovery Expert

Figure 5 identifies the component IDs (COMPID) for IMS Recovery Solution Pack (HAHM210).

Figure 5. Component IDs for IMS Recovery Solution Pack

FMID	COMPID	Component Name	RETAIN Release
HAHM210	5655V8600	IMS Recovery Solution Pack	210

4.0 Program and Service Level Information

This section identifies the program and relevant service levels of IMS Recovery Solution Pack. 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

To view the list of APAR fixes against the previous releases of the products that constitute IMS Recovery Solution Pack, refer to the following Program Directories that are supplied with the product.

- Publication number GI10-8671 for IMS HP Image Copy
- Publication number GI10-8571 for IMS Index Builder
- Publication number GI10-8796 for IMS Recovery Expert

The following APAR fixes against previous releases of IMS Recovery Solution Pack (HAHM210) have been incorporated into this release. They are listed by FMID.

- FMID HAHM110

PI08973	PI37809	PM07071	PM13221	PM31937
PI14568	PI40493	PM07311	PM13824	PM32523
PI14752	PI41151	PM07317	PM13826	PM33069
PI15975	PI41586	PM07318	PM14116	PM34323
PI18815	PI41964	PM07319	PM14727	PM34613
PI22197	PI42234	PM07322	PM15455	PM34977
PI22370	PI42237	PM07325	PM15765	PM36306
PI23191	PI44433	PM07326	PM15804	PM36600
PI23847	PI45598	PM07338	PM16081	PM37080
PI27542	PI47350	PM07345	PM17639	PM38884
PI27543	PI47365	PM07346	PM17646	PM40317
PI27544	PI48471	PM07347	PM18288	PM40723
PI28229	PI48471	PM07348	PM20653	PM43940
PI28919	PI49282	PM07433	PM22139	PM44931
PI31673	PI49515	PM07742	PM22967	PM45409
PI31752	PI50236	PM08258	PM23052	PM46453
PI32180	PI50811	PM08717	PM23160	PM48405
PI33234	PI51810	PM10371	PM23403	PM51465
PI33650	PI53392	PM11292	PM25540	PM53260
PI34908	PI53392	PM11314	PM26171	PM54072
PI35323	PI56328	PM11329	PM26477	PM55825
PI35323	PI57606	PM12553	PM26909	PM56796
PI37626	PI62226	PM12806	PM30097	PM57729
PI37629	PI64713	PM13220	PM31377	PM60253

PM60331	PM67613	PM75720	PM83975	PM96638
PM61451	PM70085	PM75797	PM88323	PM96774
PM63281	PM72990	PM80752	PM92703	PM98264
PM63586	PM73744	PM82239	PM95420	PM98315
PM64775	PM74181	PM83891	PM95594	PM99605
PM67400	PM75717	PM83975	PM95734	

4.2 Service Level Information

To view the list of PTFs against the previous releases of the products that constitute IMS Recovery Solution Pack, refer to the following Program Directories that are supplied with the product.

- Publication number GI10-8671 for IMS HP Image Copy
- Publication number GI10-8571 for IMS Index Builder
- Publication number GI10-8796 for IMS Recovery Expert

No PTFs against this release of IMS Recovery Solution Pack (HAHM210) have been incorporated into the product package.

Frequently check the IMS Recovery Solution Pack 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 IMS Recovery Solution Pack. 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 IMS Recovery Solution Pack.

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 IMS Recovery Solution Pack.

All of the products that constitute IMS Recovery Solution Pack, install 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.

IMS Recovery Solution Pack (HAHM210) 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.

IMS Recovery Solution Pack (HAHM210) has no conditional installation requisites.

To review the Installation Requisites of the products that constitute IMS Recovery Solution Pack, refer to the following Program Directories that are supplied with the product.

- Publication number GI10-8671 for IMS HP Image Copy
- Publication number GI10-8571 for IMS Index Builder
- Publication number GI10-8796 for IMS Recovery Expert

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 for IMS Recovery Solution Pack (HAHM210)</i>	
Program Number	Product Name and Minimum VRM/Service Level
Any one of the following:	
5635-A03	IMS V12
5655-DSQ	IMS Database Value Unit Edition, V12, with PTF UK93908
5655-TM1	IMS Transaction Manager Value Unit Edition, V12
5635-A04	IMS V13
5655-DSM	IMS Database Value Unit Edition, V13
5655-TM2	IMS Transaction Manager Value Unit Edition, V13
5635-A05	IMS V14
5655-DSE	IMS Database Value Unit Edition, V14
5655-TM3	IMS Transaction Manager Value Unit Edition, V14

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.

<i>Figure 8. Target System Conditional Operational Requisites - IMS Recovery Solution Pack (HAHM210)</i>		
Program Number	Product Name and Minimum VRM/Service Level	Function
5655-V93	IBM Tools Base for z/OS V01.06.00 or higher	Enhanced report savings in IBM Knowledge Base, and enhanced autonomic capabilities
5655-W14	IBM IMS Fast Path Solution Pack for z/OS V01.03.00	For DEDB Hash Pointer Check, and for IMS FP Secondary Index Build

To review the Operational Requisites of the products that constitute IMS Recovery Solution Pack, refer to the following Program Directories that are supplied with the product.

- Publication number GI10-8671 for IMS HP Image Copy
- Publication number GI10-8571 for IMS Index Builder
- Publication number GI10-8796 for IMS Recovery Expert

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.

IMS Recovery Solution Pack 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.

IMS Recovery Solution Pack has no negative requisites.

5.2.3 DASD Storage Requirements

IMS Recovery Solution Pack libraries can reside on all supported DASD types.

To review the individual DASD Storage Requirements of each of the products that constitute IMS Recovery Solution Pack, refer to the Program Directories that are supplied with the product.

- Publication number GI10-8671 for IMS HP Image Copy
- Publication number GI10-8571 for IMS Index Builder
- Publication number GI10-8796 for IMS Recovery Expert

Figure 9 lists the total space that is required for each type of library, for IMS Recovery Solution Pack (HAHM210).

<i>Figure 9. Total DASD Space Required by IMS Recovery Solution Pack (HAHM210)</i>	
Library Type	Total Space Required in 3390 Trks
Target	443
Distribution	443

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 6.1.9, "Allocate SMP/E Target and Distribution Libraries" on page 22.

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 AFRXLOAD, AHPCLMD0, SFRXLOAD, and SHPCLMD0, 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.
- Target libraries SFRXLOAD and SHPCLMD0 must be APF-authorized.
- IMS Recovery Solution Pack 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 IMS Recovery Solution Pack (HAHM210). The storage requirements of IMS Recovery Solution Pack 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 10. Storage Requirements for IMS Recovery Solution Pack (HAHM210) 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
SFRXBASE	SAMPLE	Any	U	PDS	FB	80	6	2
SFRXEXEC	EXEC	Any	U	PDS	FB	80	11	2
SFRXLOAD	LMOD	Any	U	PDSE	U	0	251	n/a
SFRXMENU	MESSAGE	Any	U	PDS	FB	80	7	5
SFRXPENU	PANEL	Any	U	PDS	FB	80	59	15
SFRXSAMP	SAMPLE	Any	U	PDS	FB	80	12	5
SFRXSENU	SKEL	Any	U	PDS	FB	80	4	2
SFRXTENU	TABLE	Any	U	PDS	FB	80	4	2
SHPCCEXE	EXEC	Any	U	PDS	FB	80	4	2
SHPCLMDO	LMOD	Any	U	PDSE	U	0	63	n/a
SHPCMLIB	MESSAGE	Any	U	PDS	FB	80	2	2
SHPCPLIB	PANEL	Any	U	PDS	FB	80	17	10
SHPCSAMP	SAMPLE	Any	U	PDS	FB	80	3	2

Figure 11 (Page 1 of 2). Storage Requirements for IMS Recovery Solution Pack (HAHM210) 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
AFRXBASE	U	PDS	FB	80	6	2
AFRXEXEC	U	PDS	FB	80	11	2
AFRXLOAD	U	PDSE	U	0	251	n/a
AFRXMENU	U	PDS	FB	80	7	5
AFRXPENU	U	PDS	FB	80	59	15
AFRXSAMP	U	PDS	FB	80	12	5
AFRXSENU	U	PDS	FB	80	4	2

Figure 11 (Page 2 of 2). Storage Requirements for IMS Recovery Solution Pack (HAHM210) Distribution Libraries

Library DDNAME	T Y P E	O R G	R E C F M	L R C L	No. of 3390 Trks	No. of DIR Blks
AFRXTENU	U	PDS	FB	80	4	2
AHPCCEXE	U	PDS	FB	80	4	2
AHPCLMDO	U	PDSE	U	0	63	n/a
AHPCMLIB	U	PDS	FB	80	2	2
AHPCPLIB	U	PDS	FB	80	17	10
AHPCSAMP	U	PDS	FB	80	3	2

5.3 FMIDs Deleted

Installing IMS Recovery Solution Pack 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 IMS Recovery Solution Pack 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

If you already have standalone installations of any of the products that are contained in IMS Recovery Solution Pack, you do not have to install and customize those products again.

To view the individual Special Considerations of the products that constitute IMS Recovery Solution Pack, refer to the following Program Directories that are supplied with the product.

- Publication number GI10-8671 for IMS HP Image Copy
- Publication number GI10-8571 for IMS Index Builder
- Publication number GI10-8796 for IMS Recovery Expert

PDSE Considerations:

IMS Recovery Solution Pack uses the "partitioned data set extended" or PDSE format for the SFRXLOAD, and SHPCLMDO 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 SFRXLOAD, and SHPCLMD0 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 SFRXLOAD, and SHPCLMD0 data sets, separate copies 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 IMS Recovery Solution Pack.

Please note the following points:

- 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 IMS Recovery Solution Pack

6.1.1 SMP/E Considerations for Installing IMS Recovery Solution Pack

Use the SMP/E RECEIVE, APPLY, and ACCEPT commands to install this release of IMS Recovery Solution Pack.

To review the individual SMP/E installation instructions of each of the products that constitute IMS Recovery Solution Pack, refer to their Program Directories, which are supplied with the product, and follow the instructions in the corresponding section(s).

- Publication number GI10-8671 for IMS HP Image Copy
- Publication number GI10-8571 for IMS Index Builder
- Publication number GI10-8796 for IMS Recovery Expert

6.1.2 SMP/E Environment

The following sections pertain to the SMP/E installation of IMS Recovery Solution Pack (HAHM210) only.

6.1.3 SMP/E Options Subentry Values

The recommended values for certain SMP/E CSI subentries are shown in Figure 12. 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

Figure 12 (Page 2 of 2). SMP/E Options Subentry Values

Subentry	Value	Comment
PEMAX	SMP/E Default	IBM recommends using the SMP/E default for PEMAX.

6.1.4 SMP/E CALLLIBS Processing

IMS Recovery Solution Pack uses the CALLLIBS function provided in SMP/E to resolve external references during installation. When IMS Recovery Solution Pack is installed, ensure that DDDEFs exist for the following libraries:

- CSSLIB

Note: CALLLIBS uses the previous DDDEFs only to resolve the link-edit for IMS Recovery Solution Pack. These data sets are not updated during the installation of IMS Recovery Solution Pack.

6.1.5 Sample Jobs

The following sample installation jobs are provided as part of the product to help you install IMS Recovery Solution Pack:

Figure 13. Sample Installation Jobs - IMS Recovery Solution Pack.

Job Name	Job Type	Description	RELFILE
FRXALA	SMP/E	Sample job to allocate and initialize a new SMP/E CSI data set (Optional)	IBM.HAHM210.F2
FRXALB	SMP/E	Sample job to allocate SMP/E data sets (Optional)	IBM.HAHM210.F2
FRXRECEV	RECEIVE	Sample RECEIVE job	IBM.HAHM210.F2
FRXALLOC	ALLOCATE	Sample job to allocate target and distribution libraries	IBM.HAHM210.F2
FRXDDDEF	DDDEF	Sample job to define SMP/E DDDEFs	IBM.HAHM210.F2
FRXAPPLY	APPLY	Sample APPLY job	IBM.HAHM210.F2
FRXACCEP	ACCEPT	Sample ACCEPT job for	IBM.HAHM210.F2

You can access the sample installation jobs by performing an SMP/E RECEIVE (refer to 6.1.8, “Perform SMP/E RECEIVE” on page 22) then copy the jobs from the RELFILES to a work data set for editing and submission. See Figure 13 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.HAHM210.F2,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.HAHM210.F2,UNIT=tunit,
/* VOL=SER=AHM210,LABEL=(3,SL),
/* DISP=(OLD,KEEP)
//*****
/* Make the //FILEIN DD statement below active for *
/* downloaded DASD files. *
//*****
/*FILEIN DD DSN=IBM.HAHM210.F2,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
/*

```

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.HAHM210.F2 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.

6.1.6 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 FRXALA to allocate the SMP/E data set for IMS Recovery Solution Pack. 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 Initialize CSI zones (Optional)

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

Edit and submit sample job FRXALB to initialize SMP/E zones for IMS Recovery Solution Pack. 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 Perform SMP/E RECEIVE

If you have obtained IMS Recovery Solution Pack as part of a CBPDO, use the RCVPDO job in the CBPDO RIMLIB data set to receive the IMS Recovery Solution Pack 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 FRXRECEV to perform the SMP/E RECEIVE for IMS Recovery Solution Pack(HAHM210). 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 Allocate SMP/E Target and Distribution Libraries

Edit and submit sample job FRXALLOC to allocate the SMP/E target and distribution libraries for IMS Recovery Solution Pack(HAHM210). 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 Create DDDEF Entries

Edit and submit sample job FRXDDDEF to create DDDEF entries for the SMP/E target and distribution libraries for IMS Recovery Solution Pack(HAHM210). 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.

6.1.11 Perform SMP/E APPLY

1. Ensure that you have the latest HOLDDATA; then edit and submit sample job FRXAPPLY to perform an SMP/E APPLY CHECK for IMS Recovery Solution Pack. Consult the instructions in the sample jobs for more information.

The latest HOLDDATA is available through several different portals, including <http://service.software.ibm.com/holdata/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 the 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 HOLDDs 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 jobs 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 0 if this job runs correctly.

6.1.12 Perform SMP/E ACCEPT

Edit and submit sample job FRXACCEP to perform an SMP/E ACCEPT CHECK for IMS Recovery Solution Pack (HAHM210). 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 only *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 jobs 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 CHECK: You will receive a return code of 0 if this job runs correctly.

6.1.13 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 IMS Recovery Expert, 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 IMS Recovery Solution Pack

6.2.1 Product Customization

For customization of IMS Recovery Solution Pack use the IMS Tools SETUP utility, which is distributed with IBM Tools Base for z/OS. The SETUP utility is a Rexx utility that provides an ISPF interface to guide you through the customization of all required tools, including the components of both IBM Tools Base and IMS Recovery Solution Pack. SETUP will generate JCL/Tasks in the order in which they must be executed by you and consolidates like tasks to avoid repetitive requests for each product within your organization. Help is provided at the panel and field level, so no customization guides are needed.

IBM strongly recommends you use the IMS Tools SETUP utility to consolidate the customization of each of the components of IMS Recovery Solution Pack versus going through the steps in each Overview and Customization Guide. It also provides an easy and quick way to verify the installation and customization.

To begin the customization process, execute the following Rexx EXEC in ISPF:
EXEC 'yourSMPEhlq.SHKTCEXE(HKTQSETU)' 'yourSMPEhlq'

For customization and use of IMS Recovery Solution Pack refer to IBM IMS Recovery Solution Pack for z/OS Overview and Customization, SC27-8440.

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