



**Program Directory for
IBM IMS High Performance Pointer Checker for z/OS**

V03.01.00

Program Number 5655-U09

FMIDs HPC2310, H22K310

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 28.

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Contents

1.0 Introduction	1
1.1 IMS HP Pointer Checker Description	1
1.2 IMS HP Pointer Checker FMIDs	3
2.0 Program Materials	4
2.1 Basic Machine-Readable Material	4
2.2 Optional Machine-Readable Material	5
2.3 Program Publications	5
2.3.1 Basic Program Publications	5
2.3.2 Optional Program Publications	6
2.4 Program Source Materials	6
2.5 Publications Useful During Installation	6
3.0 Program Support	8
3.1 Program Services	8
3.2 Preventive Service Planning	8
3.3 Statement of Support Procedures	9
4.0 Program and Service Level Information	10
4.1 Program Level Information	10
4.2 Service Level Information	11
5.0 Installation Requirements and Considerations	12
5.1 Driving System Requirements	12
5.1.1 Machine Requirements	12
5.1.2 Programming Requirements	12
5.2 Target System Requirements	13
5.2.1 Machine Requirements	13
5.2.2 Programming Requirements	13
5.2.2.1 Installation Requisites	13
5.2.2.2 Operational Requisites	14
5.2.2.3 Toleration/Coexistence Requisites	15
5.2.2.4 Incompatibility (Negative) Requisites	15
5.2.3 DASD Storage Requirements	15
5.3 FMIDs Deleted	18
5.4 Special Considerations	18
6.0 Installation Instructions	19
6.1 Installing IMS HP Pointer Checker	19
6.1.1 SMP/E Considerations for Installing IMS HP Pointer Checker	19
6.1.2 SMP/E Options Subentry Values	19
6.1.3 SMP/E CALLLIBS Processing	20

6.1.4	Sample Jobs	20
6.1.5	Allocate SMP/E CSI (Optional)	22
6.1.6	Initialize CSI zones (Optional)	22
6.1.7	Perform SMP/E RECEIVE	22
6.1.8	Allocate SMP/E Target and Distribution Libraries	23
6.1.9	Create DDDEF Entries	23
6.1.10	Perform SMP/E APPLY	23
6.1.11	Executing Installation Verification Test for IMS HP Pointer Checker	25
6.1.12	Perform SMP/E ACCEPT	26
6.1.13	Run REPORT CROSSZONE	27
6.2	Activating IMS HP Pointer Checker	27
7.0	Notices	28
7.1	Trademarks	29
	Reader's Comments	30

Figures

1.	Program File Content IMS HP Pointer Checker	4
2.	Program File Content for H22K310 - DB Repair	5
3.	Basic Material: Unlicensed Publications	6
4.	Basic Material: Other Unlicensed or Licensed Publications	6
5.	Publications Useful During Installation	6
6.	PSP Upgrade and Subset ID	8
7.	Component IDs	9
8.	Driving System Software Requirements	13
9.	Mandatory Installation Requisites	13
10.	Mandatory Operational Requisites	14
11.	Conditional Operational Requisites	14
12.	Total DASD Space Required by IMS HP Pointer Checker	15
13.	Storage Requirements for IMS HP Pointer Checker Target Libraries	16
14.	Storage Requirements for DB Repair Target Libraries	17
15.	Storage Requirements for IMS HP Pointer Checker Distribution Libraries	17
16.	Storage Requirements for DB Repair Distribution Libraries	18
17.	SMP/E Options Subentry Values	19
18.	Sample Installation Jobs	20

1.0 Introduction

This Program Directory is intended for the system programmer responsible for program installation and maintenance. It contains information concerning the material and procedures associated with the installation of IBM IMS High Performance Pointer Checker for z/OS. This publication refers to IBM IMS High Performance Pointer Checker for z/OS as IMS HP Pointer Checker.

The Program Directory contains the following sections:

- 2.0, "Program Materials" on page 4 identifies the basic and optional program materials and documentation for IMS HP Pointer Checker.
- 3.0, "Program Support" on page 8 describes the IBM support available for IMS HP Pointer Checker.
- 4.0, "Program and Service Level Information" on page 10 lists the APARs (program level) and PTFs (service level) incorporated into IMS HP Pointer Checker.
- 5.0, "Installation Requirements and Considerations" on page 12 identifies the resources and considerations required for installing and using IMS HP Pointer Checker.
- 6.0, "Installation Instructions" on page 19 provides detailed installation instructions for IMS HP Pointer Checker. It also describes the procedures for activating the functions of IMS HP Pointer Checker, or refers to appropriate publications.

Before installing IMS HP Pointer Checker, read the *CBPDO Memo To Users* and the *CBPDO Memo To Users Extension* that were supplied with this program in softcopy form as well as this Program Directory and then keep them for future reference. Section 3.2, "Preventive Service Planning" on page 8 tells you how to find any updates to the information and procedures in this Program Directory.

IMS HP Pointer Checker is supplied in a Custom-Built Product Delivery Offering (CBPDO, 5751-CS3). The Program Directory is provided in softcopy form on the CBPDO tape which is identical to the hardcopy form provided with your order. All service and HOLDDATA for IMS HP Pointer Checker are included on the CBPDO tape.

Do not use this Program Directory if you are installing IMS HP Pointer Checker with a SystemPac or ServerPac. When using these offerings, use the jobs and documentation supplied with the offering. This documentation may point you to specific sections of the Program Directory as required.

1.1 IMS HP Pointer Checker Description

IMS High Performance Pointer Checker for z/OS, V3.1 (5655-U09) provides a number of utilities designed to help ensure IMS databases are operational, tuned, repaired, and ready for use.

The new version contains all of the features and functions of

- The previous version
- DB Repair

Migration information:

You should contact your IBM representative for migrating to IMS High Performance Pointer Checker for z/OS, V3.1 and its Subscription and Support (5655-E29) if you:

- Purchased IMS Database Repair Facility for z/OS (5655-E03) and its Subscription and Support (5655-E93)
- Are current with the subscription

The combined product offers the following utilities:

- Hierarchical Direct (HD) Pointer Checker validates databases, detecting any potential pointer problems and reporting them.
- HD Tuning Aid evaluates data distribution and setup parameters to help optimize performance.
- DB Historical Data Analyzer reports data captured during Pointer Checker operation and provides trending, usage, and other types of statistical analysis.
- Space Monitor provides information on data set space utilization.
- DB Segment Restructure Utility provides the capability to add, drop, and otherwise manipulate database segments.
- DB Repair provides the capability to locate and fix problem pointer situations.

Enhancements include:

- **Index Key Check function in HD Pointer Checker:**
Index Key Check function verifies indexes whose index source segments are split from their prefix via VLS split. This enhancement removes a restriction in the prior version.
- **Symbolic Pointer Checking in HD Pointer Checker:**
Improved Symbolic Pointer Checking supports not only root segments but also all levels of segments, removing a restriction in the prior version.
- **System performance in HD Pointer Checker:**
Performance improvement for HALDB is provided by introducing a new technique for EPSCHK function.
- **Error messages summary report in HD Pointer Checker:**
A new error messages summary report is introduced to show all error messages in a consistent way and in a single and easily viewable report. You are no longer faced with error messages spread over several types of reports.
- **Root Anchor Point (RAP) chain lengths report in HD Tuning Aid:**
HD Tuning Aid provides a new RAP chain lengths report for HDAM/PHDAM databases. This report shows the number of roots that randomized to a particular RAP.
- **Prechecking of VER and REP in DB Repair:**
Prechecking mode in a DB Repair batch job allows you to validate all VER and REP control statements before any database change takes place.
- **Utilization of IMS Tools Knowledge Base for z/OS:**

Utilization of IMS Tools Knowledge Base for z/OS, V1.1 (5655-R34) for storing and retrieving SYSPRINT output data.

1.2 IMS HP Pointer Checker FMIDs

IMS HP Pointer Checker consists of the following FMIDs:

HPC2310 IMS HP Pointer Checker
H22K310 DB Repair

Note!

FMID H22K310 contains common code and is shared among multiple IBM IMS tools and is, therefore, made available with multiple IMS tools. The parent product for HPC2310 is IMS HP Pointer Checker, V03.01.00 (program number 5655-U09).

2.0 Program Materials

An IBM program is identified by a program number and a feature number. The program number for IMS HP Pointer Checker is 5655-U09 and its feature number is 5802.

Basic Machine-Readable Materials are materials that are supplied under the base license and feature numbers, and are required for the use of the product. Optional Machine-Readable Materials are orderable under separate feature numbers, and are not required for the product to function.

The program announcement material describes the features supported by IMS HP Pointer Checker. 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 magnetic tape or downloadable files. It is installed using SMP/E, and is in SMP/E RELFILE format. See 6.0, "Installation Instructions" on page 19 for more information about how to install the program.

Figure 1 describes the program file content for IMS HP Pointer Checker.

Figure 2 on page 5 describes the program file content for DB Repair.

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 should be used in the JCL of jobs reading the data sets, but since the data sets are in IEBCOPY unloaded format, their actual attributes may 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 HP Pointer Checker

Name	O R G	R E C F M	L R E C L	BLK SIZE
SMPMCS	SEQ	FB	80	8800
IBM.HPC2310.F1	PDS	FB	80	8800
IBM.HPC2310.F2	PDS	FB	80	8800
IBM.HPC2310.F3	PDS	FB	80	8800
IBM.HPC2310.F4	PDS	U	0	6144
IBM.HPC2310.F5	PDS	FB	80	8800

Figure 1 (Page 2 of 2). Program File Content IMS HP Pointer Checker

Name	O R G	R E C F M	L R E C L	BLK SIZE
IBM.HPC2310.F6	PDS	FB	80	8800
IBM.HPC2310.F7	PDS	FB	80	8800
IBM.HPC2310.F8	PDS	FB	80	8800

Figure 2. Program File Content for H22K310 - DB Repair

Name	O R G	R E C F M	L R E C L	BLK SIZE
SMPMCS	SEQ	FB	80	8800
IBM.H22K310.F1	PDS	FB	80	8800
IBM.H22K310.F2	PDS	U	0	6144
IBM.H22K310.F3	PDS	FB	80	8800
IBM.H22K310.F4	PDS	FB	80	8800
IBM.H22K310.F5	PDS	FB	80	8800

2.2 Optional Machine-Readable Material

No optional machine-readable materials are provided for IMS HP Pointer Checker.

2.3 Program Publications

The following sections identify the basic and optional publications for IMS HP Pointer Checker.

2.3.1 Basic Program Publications

Figure 3 identifies the basic unlicensed program publications for IMS HP Pointer Checker. One copy of each of these publications is included when you order the basic materials for IMS HP Pointer Checker. For additional copies, contact your IBM representative.

<i>Figure 3. Basic Material: Unlicensed Publications</i>	
Publication Title	Form Number
IMS HP Pointer Checker for z/OS License Information	GC19-2400

Figure 4 identifies the basic unlicensed or licensed publications that are not available in hardcopy form, but are available through the internet or other media for IMS HP Pointer Checker.

<i>Figure 4. Basic Material: Other Unlicensed or Licensed Publications</i>		
Publication Title	Form Number	How Available
IMS HP Pointer Checker for z/OS User's Guide	SC19-2401	http://www.ibm.com/software/data/db2imstools/library.html

Publications are available in PDF and BookManager formats on CD-ROM and on DVD on the next release of software product libraries:

- *z/OS Software Products Collection, SK3T-4270*
- *z/OS and Software Products DVD Collection, SK3T-4271**
*requires a DVD drive in DVD-9 (single-sided, dual-layer) format

2.3.2 Optional Program Publications

No optional publications are provided for IMS HP Pointer Checker.

2.4 Program Source Materials

No program source materials or viewable program listings are provided for IMS HP Pointer Checker.

2.5 Publications Useful During Installation

The publications listed in Figure 5 may be useful during the installation of IMS HP Pointer Checker. To order copies, contact your IBM representative or visit the IBM Publications Center on the World Wide Web at:

<http://www.ibm.com/shop/publications/order>

<i>Figure 5 (Page 1 of 2). Publications Useful During Installation</i>	
Publication Title	Form Number
<i>IBM SMP/E for z/OS User's Guide</i>	SA22-7773

Figure 5 (Page 2 of 2). Publications Useful During Installation

Publication Title	Form Number
<i>IBM SMP/E for z/OS Commands</i>	SA22-7771
<i>IBM SMP/E for z/OS Reference</i>	SA22-7772
<i>IBM SMP/E for z/OS Messages, Codes, and Diagnosis</i>	GA22-7770

3.0 Program Support

This section describes the IBM support available for IMS HP Pointer Checker.

3.1 Program Services

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

3.2 Preventive Service Planning

Before installing IMS HP Pointer Checker, it is VERY IMPORTANT that you review the current Preventive Service Planning (PSP) information. The PSP buckets maintain current lists (which have been identified since the package was created) of any recommended or required service for this package's installation. This includes software PSP information that contains HIPER, and/or required PTFs against the base release.

While there can be overlap between software, hardware, and functional PSP buckets, reviewing all that apply to this package will ensure that you identify any known service required for your installation of this package.

If you obtained IMS HP Pointer Checker as part of a CBPDO, there is HOLDDATA included on the PDO.

If the CBPDO for IMS HP Pointer Checker is more than two weeks old when you install it, you should contact the IBM Support Center, use S/390 SoftwareXcel to obtain the current "PSP Bucket" or obtain the current PSP from the Web at <https://techsupport.services.ibm.com/server/390.psp390>

For program support, access the Software Support Web site at <http://www-3.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 HP Pointer Checker are:

Figure 6. PSP Upgrade and Subset ID

UPGRADE	SUBSET	Description
5655U09	HPC2310	IMS HP Pointer Checker
5655U09	H22K310	DB Repair

3.3 Statement of Support Procedures

Report any difficulties you have using this program to your IBM Support Center. If an APAR is required, the Support Center will advise how you should submit any needed information or documentation.

Figure 7 on page 9 identifies the component IDs (COMPID) for IMS HP Pointer Checker.

<i>Figure 7. Component IDs</i>			
FMID	COMPID	Component Name	RETAIN Release
HPC2310	5655E0900	IMS HP Pointer Checker	310
H22K310	5655E0300	DB Repair	310

4.0 Program and Service Level Information

This section identifies the program and any relevant service levels of IMS HP Pointer Checker. The program level refers to the APAR fixes incorporated into the program. The service level refers to the PTFs incorporated into the program.

4.1 Program Level Information

The following APAR fixes against previous releases of IMS HP Pointer Checker have been incorporated into this release. They are listed by FMID.

- FMID HPC2220

PK31298	PK50142	PK61986
PK33114	PK50537	PK62562
PK33317	PK51287	PK62852
PK33419	PK51609	PK65496
PK35073	PK54545	PK66213
PK37095	PK55086	PK66679
PK40389	PK57593	PK66752
PK44413	PK57594	PK66792
PK45122	PK59085	PK67669
PK46765	PK59723	PK68211
PK49230	PK61095	PK70055
PK49818		

- FMID H22K120

PQ97004	PK18051	PK36408
PQ98661	PK19302	PK37283
PQ99060	PK21206	PK39339
PK02623	PK23370	PK45314
PK04199	PK24689	PK48456
PK04557	PK26080	PK48804
PK05474	PK26092	PK48805
PK06865	PK32682	PK50357
PK13818	PK34745	PK53127

4.2 Service Level Information

No PTFs against this release of IMS HP Pointer Checker have been incorporated into the product tape.

Over time it is HIGHLY recommended that you frequently check the IMS HP Pointer Checker PSP bucket for HIPER and SPECIAL Attention PTFs against all FMIDs which should be installed.

5.0 Installation Requirements and Considerations

The following sections identify the system requirements for installing and activating IMS HP Pointer Checker. The following terminology is used:

- *Driving system*: the system used to install the program.

The program may have specific operating system or product level requirements for utilizing processes such as binder or assembly utilities during the install.

- *Target system*: the system on which the program is intended to run.

The program may have specific product level requirements such as needing access to another product's library for link-edits that may directly affect the elements during the install or for its basic or enhanced operation. These requirements may be mandatory or optional.

In many cases, the same system can be used as both a driving system and a target system. However, you may want to set up a clone of your system to use as a target system by making a separate IPL-able copy of the running system. The clone should 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.

Some cases where two systems should be used include the following:

- When installing a new level of a product that is already installed, the new product will delete the old one. By installing onto a separate target system, you can test the new product while still keeping the old one in production.
- When installing a product that shares libraries or load modules with other products, the installation can disrupt the other products. Installing onto a test system or clone will allow you to 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 HP Pointer Checker.

5.1.1 Machine Requirements

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

5.1.2 Programming Requirements

<i>Figure 8. Driving System Software Requirements</i>	
Program Number	Product Name and Minimum VRM/Service Level
Any one of the following:	
5694-A01	z/OS V01.08.00 or later
5655-G44	SMP/E for z/OS V03.04.00 or later

5.2 Target System Requirements

This section describes the environment of the target system required to install and use IMS HP Pointer Checker.

IMS HP Pointer Checker 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: An installation requisite is defined as a product that is required and **must** be present or one that is not required but **should** be present on the system for the successful installation of this product.

A mandatory installation requisite identifies products that are required, without exception, or this product **will not install** on your system. This includes products specified as PREs or REQs.

<i>Figure 9. Mandatory Installation Requisites</i>	
Program Number	Product Name and Minimum VRM/Service Level
n/a	DB Repair, FMID H22K310, at current maintenance level (this FMID is delivered as part of the IMS HP Pointer Checker package)

A conditional installation requisite identifies products that are **not** required for successful install but may resolve such things as certain warning messages at installation time. They include products that are specified as IF REQs.

IMS HP Pointer Checker has no conditional installation requisites.

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

A mandatory operational requisite identifies products that are required, without exception, or this product **will not operate** its basic function unless the requisite is met. This includes products specified as PREs or REQs.

<i>Figure 10. Mandatory Operational Requisites</i>	
Program Number	Product Name and Minimum VRM/Service Level
Any one of the following:	
5655-J38	IMS V09.01.00
5635-A01	IMS V10.01.00

A conditional operational requisite identifies products that are **not required** for the basic function but are needed at run time for this product to utilize specific functions. They may include products specified as IF REQs.

<i>Figure 11. Conditional Operational Requisites</i>		
Program Number	Product Name and Minimum VRM/Service Level	Function
5694-A01	z/OS V01.08.00 or later (includes DFSORT) or a functionally equivalent sort program	For HD Pointer Checker, HD Tuning Aid, and Space Monitor
5694-A01	z/OS V01.08.00 or later (includes ISPF, GDDM)	For the display of DB Historical Analyzer charts on TSO terminals
5694-A01	z/OS V01.08.00 or later (includes ISPF)	For DB Repair on TSO terminals and batch
5655-R34	IMS Tools Knowledge Base for z/OS V01.01.00	For storing and retrieving SYSPRINT output data
Any one of the following:		
5655-I42	IMS Library Integrity Utilities for z/OS V01.01.00	For HDPC DBD Decode and DBD Mapping options
5655-U08	IMS Library Integrity Utilities for z/OS V02.01.00	For HDPC DBD Decode and DBD Mapping options

5.2.2.3 Toleration/Coexistence Requisites: A toleration/coexistence requisite is defined as a product that must be present on a sharing system. 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 at different time intervals.

IMS HP Pointer Checker has no toleration/coexistence requisites.

5.2.2.4 Incompatibility (Negative) Requisites: A negative requisite identifies products that must *not* be installed on the same system as this product.

IMS HP Pointer Checker has no negative requisites.

5.2.3 DASD Storage Requirements

IMS HP Pointer Checker libraries can reside on all supported DASD types. The values below are for 3390 DASD.

Figure 12 lists the total space required for each type of library.

<i>Figure 12. Total DASD Space Required by IMS HP Pointer Checker</i>	
Library Type	Total Space Required in 3390 Trks
Target	530 tracks for HPC2310
Target	72 tracks for H22K310
Distribution	530 tracks for HPC2310
Distribution	72 tracks for H22K310

Notes:

1. IBM recommends use of system determined block sizes for efficient DASD utilization for all non-RECFM U data sets. For RECFM U data sets, IBM recommends a block size of 32760, which is the most efficient from a performance and DASD utilization perspective.
2. Abbreviations used for the data set type are:
 - U** Unique data set, allocated by this product and used only by this product. To determine the correct storage needed for this data set, this table provides all required information; no other tables (or Program Directories) need to be referenced for the data set size.
 - S** Shared data set, allocated by this product and used by this product and others. To determine the correct storage needed for this data set, the storage size given in this table needs to be added to 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 others. This data set is NOT allocated by this product. To determine the correct storage needed for this data set, the storage size given in this table needs to be added to other tables (perhaps in other program directories). This

existing data set 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 one and reclaim the space used by the old release and any service that had been installed. You can determine whether or not 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 on the names and sizes of the required data sets, please refer to 6.1.8, "Allocate SMP/E Target and Distribution Libraries" on page 23.

3. All target and distribution libraries listed have the following attributes:

- The default name of the data set may be changed.
- The default block size of the data set may be changed.
- The data set may be merged with another data set that has equivalent characteristics.
- The data set may be either a PDS or a PDSE.

4. All target libraries listed have the following attributes:

- The data set may be SMS-managed.
- It is not required for the data set to be SMS-managed.
- It is not required for the data set to reside on the IPL volume.
- The values in the "Member Type" column are not necessarily the actual SMP/E element types identified in the SMPMCS.

5. All target libraries listed which contain load modules have the following attributes:

- The data set can be placed in the LPA.
- It is not required for the data set to be in the LPA.
- The data set can be placed in the LNKLIST.
- It is not required for the data set to be APF-authorized.

The following figures describe the target and distribution libraries required to install IMS HP Pointer Checker. The storage requirements of IMS HP Pointer Checker must be added to the storage required by other programs having data in the same library or path.

Note: The data in these tables should be used when determining 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 13 (Page 1 of 2). Storage Requirements for IMS HP Pointer Checker Target Libraries

Library DDNAME	Member Type	Target Volume	T Y P E	O R G	R E C O R D M	L R E C L	No. of 3390 Trks	No. of DIR Blks
SHPSBASE	Sample	Any	S	PDS	FB	80	30	35

Figure 13 (Page 2 of 2). Storage Requirements for IMS HP Pointer Checker 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
SHPSJCL0	Sample	Any	S	PDS	FB	80	40	20
SHPSMAC0	Macro	Any	S	PDS	FB	80	70	60
SHPSLMD0	LMOD	Any	S	PDS	U	0	230	200
SHPSCLIB	CLIST	Any	S	PDS	FB	80	30	20
SHPSMLIB	Message	Any	S	PDS	FB	80	30	20
SHPSPLIB	Panel	Any	S	PDS	FB	80	30	20
SHPSSAMP	Sample	Any	S	PDS	FB	80	70	60

Figure 14. Storage Requirements for DB Repair 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
SFABLMD0	LMOD	Any	S	PDS	U	0	11	10
SFABPLIB	Panel	Any	S	PDS	FB	80	27	10
SFABMLIB	Message	Any	S	PDS	FB	80	4	5
SFABCLIB	CLIST	Any	S	PDS	FB	80	33	5

Figure 15. Storage Requirements for IMS HP Pointer Checker 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
AHPSJCL0	S	PDS	FB	80	70	60
AHPSMAC0	S	PDS	FB	80	70	60
AHPSMOD0	S	PDS	U	0	230	200
AHPSCLIB	S	PDS	FB	80	30	20
AHPSMLIB	S	PDS	FB	80	30	20
AHPSPLIB	S	PDS	FB	80	30	20
AHPSSAMP	S	PDS	FB	80	70	60

Figure 16. Storage Requirements for DB Repair 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
AFABMOD0	S	PDS	U	0	11	10
AFABCLIB	S	PDS	FB	80	33	5
AFABMLIB	S	PDS	FB	80	4	5
AFABPLIB	S	PDS	FB	80	27	10

5.3 FMIDs Deleted

Installing IMS HP Pointer Checker may result in the deletion of other FMIDs. To see what FMIDs will be deleted, examine the ++VER statement in the product's SMPMCS.

If you do not wish to delete these FMIDs at this time, you must install IMS HP Pointer Checker into separate SMP/E target and distribution zones.

Note: These FMIDs will not automatically be deleted from the Global Zone. Consult the SMP/E manuals for instructions on how to do this.

5.4 Special Considerations

DB Repair

FMID H22K310 Considerations:

It is strongly recommended to install all the IMS tools that share the same common code FMID(s) into the same SMP/E target and distribution zones. Several of the IMS tools will be delivering common code, shipping the same FMID(s). You will only be required to install the common code FMID(s) once. If you use different SMP/E target and distribution zones, you will have to install and maintain multiple instances of the same FMID(s), which will increase your maintenance and DASD requirements.

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 HP Pointer Checker.

Please note the following:

- If you want to install IMS HP Pointer Checker 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.
- Sample jobs have been provided to help perform some or all of the installation tasks. The SMP/E jobs assume that all DDDEF entries required for SMP/E execution have been defined in the appropriate zones.
- The SMP/E dialogs may be used instead of the sample jobs to accomplish the SMP/E installation steps.

6.1 Installing IMS HP Pointer Checker

6.1.1 SMP/E Considerations for Installing IMS HP Pointer Checker

This release of IMS HP Pointer Checker is installed using the SMP/E RECEIVE, APPLY, and ACCEPT commands. The SMP/E dialogs may be used to accomplish the SMP/E installation steps.

6.1.2 SMP/E Options Subentry Values

The recommended values for some SMP/E CSI subentries are shown in Figure 17. Use of values lower than these may result in failures in the installation process. DSSPACE is a subentry in the GLOBAL options entry. PEMAX is a subentry of the GENERAL entry in the GLOBAL options entry. Refer to the SMP/E manuals for instructions on updating the global zone.

SUB-ENTRY	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

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

- SADMMOD
- SISPLoad
- SISPLPA

Note: The DDDEFs above are used only to resolve the link-edit for IMS HP Pointer Checker using CALLLIBS. These data sets are not updated during the installation of IMS HP Pointer Checker.

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

- SISPLoad
- SISPLPA

Note: The DDDEFs above are used only to resolve the link-edit for DB Repair using CALLLIBS. These data sets are not updated during the installation of DB Repair.

6.1.4 Sample Jobs

The following sample installation jobs are provided as part of the product to help you install IMS HP Pointer Checker:

<i>Figure 18 (Page 1 of 2). Sample Installation Jobs</i>			
Job Name	Job Type	Description	RELFILE
FABPCSA	SMP/E	Sample job to allocate and initialize a new SMP/E CSI data set (Optional)	IBM.HPC2310.F2
FABPCSID	SMP/E	Sample job to allocate SMP/E data sets (Optional)	IBM.HPC2310.F2
FABPREC1	RECEIVE	Sample RECEIVE job	IBM.HPC2310.F2
FABPREC2	RECEIVE	Sample RECEIVE job for DB Repair	IBM.HPC2310.F2
FABPALC1	ALLOCATE	Sample job to allocate target and distribution libraries	IBM.HPC2310.F2
FABPALC2	ALLOCATE	Sample job to allocate target and distribution libraries for DB Repair	IBM.HPC2310.F2
FABPDDF1	DDDEF	Sample job to define SMP/E DDDEFs	IBM.HPC2310.F2
FABPDDF2	DDDEF	Sample job to define SMP/E DDDEFs for DB Repair	IBM.HPC2310.F2

Figure 18 (Page 2 of 2). Sample Installation Jobs

Job Name	Job Type	Description	RELFIL
FABPAPP1	APPLY	Sample APPLY job	IBM.HPC2310.F2
FABPACP1	ACCEPT	Sample ACCEPT job	IBM.HPC2310.F2

You can access the sample installation jobs by performing an SMP/E RECEIVE and then copying the jobs from the relfiles to a work data set for editing and submission. See Figure 18 on page 20 to find the appropriate relfile data set.

You may also choose to copy the jobs from the tape or product files by submitting the job below. Use either the //TAPEIN or the //FILEIN DD statement, depending on your distribution medium, and comment out or delete the other statement. Add a job card and change the lowercase parameters to uppercase values to meet your site's requirements before submitting.

```
//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.HPC2310.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.HPC2310.F2,UNIT=tunit,
/* VOL=SER=PC2310,LABEL=(3,SL),
/* DISP=(OLD,KEEP)
//*****
/* Make the //FILEIN DD statement below active for *
/* downloaded DASD files. *
//*****
/*FILEIN DD DSN=IBM.HPC2310.F2,UNIT=SYSALLDA,DISP=SHR,
/* VOL=SER=filevol
//OUT DD DSN=jc1-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
/*
```

In the sample above, update the statements as noted below:

If using TAPEIN:

tunit is the unit address where the product tape is mounted

volser is the volume serial matching the product tape

x is the tape file number where the data set name is on the tape

Refer to the documentation provided by CBPDO to see where IBM.HPC2310.F2 is on the tape.

If using 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 will be stored

dasdvol is the volume serial of the DASD device where the output data set will reside

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 FABPCSIA to allocate the SMP/E data set for IMS HP Pointer Checker.

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)

Edit and submit sample job FABPCSID to initialize SMP/E zones for IMS HP Pointer Checker. 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

Having obtained IMS HP Pointer Checker as part of a CBPDO, use the RCVPDO job found in the CBPDO RIMLIB data set to RECEIVE the IMS HP Pointer Checker FMIDs as well as any service, HOLDDATA, included on the CBPDO tape. For more information, refer to the documentation included with the CBPDO.

Note: DB Repair, FMID H22K310, is a mandatory installation and operational requisite for IMS HP Pointer Checker. If you have already installed DB Repair, FMID H22K310, **do not** receive this FMID again.

- You can also choose to edit and submit sample job FABPREC1 to perform the SMP/E RECEIVE for IMS HP Pointer Checker. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages for FABPREC1: You will receive a return code of 0 if this job runs correctly.

- If you are installing DB Repair, FMID H22K310, for the first time, edit and submit sample job FABPREC2 to perform the SMP/E RECEIVE for DB Repair. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages for FABPREC2: You will receive a return code 0 if this job runs correctly.

6.1.8 Allocate SMP/E Target and Distribution Libraries

Edit and submit sample job FABPALC1 to allocate the SMP/E target and distribution libraries for IMS HP Pointer Checker. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages for FABPALC1: You will receive a return code of 0 if this job runs correctly.

If you are installing DB Repair, FMID H22K310, for the first time, edit and submit sample job FABPALC2 to allocate the SMP/E target and distribution libraries for DB Repair. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages for FABPALC2: You will receive a return code of 0 if this job runs correctly.

6.1.9 Create DDDEF Entries

Edit and submit sample job FABPDDF1 to create DDDEF entries for the SMP/E target and distribution libraries for IMS HP Pointer Checker. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages for FABPDDF1: You will receive a return code of 0 if this job runs correctly.

If you are installing DB Repair, FMID H22K310, for the first time, edit and submit sample job FABPDDF2 to create DDDEF entries for the SMP/E target and distribution libraries for DB Repair. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages for FABPDDF2: You will receive a return code of 0 if this job runs correctly.

6.1.10 Perform SMP/E APPLY

1. Ensure you have the latest Enhanced HOLDDATA, then edit and submit sample job FABPAPP1 to perform an SMP/E APPLY CHECK for IMS HP Pointer Checker. Consult the instructions in the sample job for more information.

Enhanced HOLDDATA introduces ERROR HOLDS against FMIDs for HIPER APARs. Prior to installing, you should ensure you have the latest Enhanced HOLDDATA (available at url

<http://service.software.ibm.com/holdata/390holddata.html>). The FMID(s) should be installed regardless of the status of unresolved HIPERs, however, the software should not be deployed until the unresolved HIPERs have been analyzed to determine applicability.

To receive the full benefit of the SMP/E Causer SYSMOD Summary Report, do *not* bypass the following on the APPLY CHECK: PRE, ID, REQ, and IFREQ. This is because the SMP/E root cause analysis identifies the cause only of **ERRORS** and not of **WARNINGS** (SYSMODs that are bypassed are treated as warnings, not errors, by SMP/E).

There are two methods to complete an FMID installation where ++HOLDS for HIPERs exist for the FMID(s) being installed:

- a. To ensure that all recommended and critical service is installed with the FMID(s), add the SOURCEIDs of PRP, HIPER, and RSU* to the APPLY command. There may be PE or HIPER APARs that do not have resolving PTFs available yet. You need to analyze the symptom flags to determine if you want to BYPASS the specific ERROR HOLDS and continue the FMID installation.

```
APPLY S(fmid,fmid,...)
FORFMID(fmid,fmid,...)
SOURCEID(PRP,HIPER,RSU*,...)
GROUPEXTEND .
```

This method requires more initial research, but will provide resolution for all HIPERs that have fixes available and are not in a PE chain. There may still be unresolved PEs or HIPERs that will require the use of BYPASS.

- b. To install the FMID(s) as it would have been installed prior to Enhanced HOLDDATA, you can add a BYPASS(HOLDCLASS(HIPER)) operand to the APPLY command. This will allow the FMID to be installed even though there are HIPER ERROR HOLDS against it. Note that not all ERROR HOLDS were bypassed, only the HIPER ERROR HOLDS. After the FMID(s) are installed, the SMP/E REPORT ERRSYSMODS command should be run to identify any missing HIPER maintenance.

```
APPLY S(fmid,fmid,...)
FORFMID(fmid,fmid,...)
SOURCEID(RSU*)
GROUPEXTEND
BYPASS(HOLDCLASS(HIPER)) .
..any other parameters documented in the program directory
```

This method is the quicker of the two, but requires subsequent review of the REPORT ERRSYSMODS to investigate any HIPERs.

If you bypass any HOLDS during the installation of the FMID(s) because fixing PTFs were not yet available you can use the APAR Status Tracking (AST) function of ServiceLink or the APAR Tracking function of ResourceLink to be notified when the fixing PTF is available.

2. After you have taken any actions 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 apply 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.

6.1.11 Executing Installation Verification Test for IMS HP Pointer Checker

Edit and submit the following IVP jobs in the SHPSJCL0 library.

The following IVP jobs are provided. You can select one of them.

- FABPIVPS runs HD Pointer Checker Utility with a simple IVP job with small data base. You can verify the installation by this job. This job uses DBRC=Y.
- FABPIVP1 to FABPIVP4 run all components of IMS HP Pointer Checker. You can verify the installation and see various reports of the components. This job uses DBRC=N.

FABPIVPS

Edit and submit a member FABPIVPS in the SHPSJCL0 library to run the IVP for IMS HP Pointer Checker:

Consult the instructions in the job for more information. **Expected Return Codes and Messages from FABPIVPS:** You will receive a return code of 0 if this job runs correctly.

FABPIVP1 to FABPIVP4

You should execute the jobs in sequential order from FABPIVP1 to FABPIVP4.

Edit and submit following members in the SHPSJCL0 library to run the IVP for IMS HP Pointer Checker:

- FABPIVP1
- FABPIVP2
- FABPIVP3
- FABPIVP4

Consult the instructions in the job for more information.

Expected Return Codes and Messages from FABPIVP1: You will receive a return code of 0 if this job runs correctly except for the following steps:

```
PREFRESO : RC=04 with MSG DFS878W
DDLCRSDV : RC=01
DDLSTUIV : RC=01
DDLSCHHV : RC=01
DDLCRSLB : RC=01
DDLSTULB : RC=01
DDLFACLB : RC=01
DDLSCHLB : RC=01
DDLCLSDV : RC=01
```

DDLNAMXV : RC=01
DDLNMEXV : RC=01
DDLFDAXV : RC=01
DDLHDAMA : RC=01

Expected Return Codes and Messages from FABPIVP2: You will receive a return code of 0 if this job runs correctly except for the following step:

SPMN : RC=04 with MSG FABK0002W

Expected Return Codes and Messages from FABPIVP3: You will receive a return code of 0 if this job runs correctly.

Expected Return Codes and Messages from FABPIVP4: 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 FABPACP1 to perform an SMP/E ACCEPT CHECK for IMS HP Pointer Checker. 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 following on the ACCEPT CHECK: PRE, ID, REQ, and IFREQ. This is because the SMP/E root cause analysis identifies the cause only of **ERRORS** and not of **WARNINGS** (SYSMODs that are bypassed are treated as warnings, not errors, by SMP/E).

Before using SMP/E to load new distribution libraries, it is recommended that you set the ACCJCLIN indicator in the distribution zone. This will cause entries produced from JCLIN to be saved in the distribution zone whenever a SYSMOD containing inline JCLIN is ACCEPTed. For more information on the ACCJCLIN indicator, see the description of inline JCLIN in the SMP/E manuals.

Once you have taken any actions 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 accept 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 containing replacement modules are being ACCEPTed, SMP/E ACCEPT processing will link-edit/bind the modules into the distribution libraries. During this processing, the Linkage Editor or Binder may issue messages documenting unresolved external references, resulting in a return code of 4 from the ACCEPT step. These messages can be ignored, because the distribution libraries are not executable and the unresolved external references will 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.

6.1.13 Run REPORT CROSSZONE

The SMP/E REPORT CROSSZONE command will identify requisites defined for products that have been installed in separate zones. This command will also create APPLY and ACCEPT commands in the SMPPUNCH data set that you can use to install those cross-zone requisites it identifies.

After you have installed IMS HP Pointer Checker, 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 describing all the target and distribution libraries to be reported on.

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

6.2 Activating IMS HP Pointer Checker

The publication *IMS HP Pointer Checker for z/OS User's Guide, SC19-2401* contains the necessary information to customize and use IMS HP Pointer Checker.

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Program Directory for IBM IMS High Performance Pointer Checker for z/OS, October 2008

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Ease of product installation	1	2	3	4	5	N
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Installation Verification Programs	1	2	3	4	5	N
Time to install the product	1	2	3	4	5	N
Readability and organization of Program Directory tasks	1	2	3	4	5	N
Necessity of all installation tasks	1	2	3	4	5	N
Accuracy of the definition of the installation tasks	1	2	3	4	5	N
Technical level of the installation tasks	1	2	3	4	5	N
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