



**Program Directory for
IBM IMS Cloning Tool for z/OS**

V01.02.00

Program Number 5655-U91

FMID HAEQ120

for Use with
z/OS

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Note

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

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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 Cloning Tool for z/OS. This publication refers to IBM IMS Cloning Tool for z/OS as IMS Cloning Tool.

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 Cloning Tool.
- 3.0, “Program Support” on page 7 describes the IBM support available for IMS Cloning Tool.
- 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 Cloning Tool.
- 5.0, “Installation Requirements and Considerations” on page 10 identifies the resources and considerations that are required for installing and using IMS Cloning Tool.
- 6.0, “Installation Instructions” on page 17 provides detailed installation instructions for IMS Cloning Tool. It also describes the procedures for activating the functions of IMS Cloning Tool, or refers to appropriate publications.

Before installing IMS Cloning Tool, 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 Cloning Tool 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 Cloning Tool are included on the CBPDO tape.

Do not use this program directory if you install IMS Cloning Tool 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 Cloning Tool Description

IMS Cloning Tool for z/OS, V1.2 (5655-U91) makes it easier to quickly clone IMS subsystems and refresh databases. By employing fast copy technology combined with automation, this tool can help you increase DBA productivity and application availability, while reducing the costs associated with cloning an IMS subsystem or refreshing databases.

Modern storage processing systems provide fast data replication and copying services that allow database data to be replicated instantly. IMS Cloning Tool takes advantage of storage processor functions to replicate data on behalf of the database system more quickly. Valuable host CPU and I/O is saved by offloading the copy to the storage processor instead of z/OS. IMS Cloning Tool then performs both the volume metadata and IMS metadata management to allow entire IMS subsystems to be cloned or specific IMS databases to be refreshed in just minutes.

IMS Cloning Tool for z/OS helps reduce the time required to create a clone from hours or even days to just minutes, thus boosting efficiency and freeing DBAs from performing time-consuming, multi-step tasks.

You can use IMS Cloning Tool for z/OS to perform the following tasks:

- Clone entire IMS subsystems or select databases, including HALDBs, more quickly and easily.
- Create read-only IMS environments for reporting or staging for data warehouse loading.
- Create IMS environments to help implement application or system maintenance.
- Create IMS environments to help migrate to new versions of IMS.
- Copy production data to create IMS application testing and quality assurance environments.
- Offload IMS Pointer Checker executions to a copy of the production environment.
- Troubleshoot production problems by making a copy more quickly and then fixing the problem in development thereby providing faster resolution.

IMS Cloning Tool for z/OS, V1.2 offers the following key features:

- ISPF User Interface
 - A full ISPF user interface that is task-oriented, contains comprehensive help panels, and can decrease the amount of time an end user spends on generating cloning processes.
 - This interface can be integrated with the IBM DB2 Cloning Tool for z/OS, V3.1 (5655-N15), if available, to provide a single interface to be used with both products.
- Subsystem Cloning Solution
 - Removes the requirement to have data replicated to the remote site when invoking FlashCopy operations to a PPRC primary volume by supporting Remote Pair FlashCopy (Preserve Mirror).
 - Provides an option to invoke a slow copy when FASTPREP(PREF) is specified and no fast replication is available.
 - Reduces the amount of data that needs to be copied by supporting Incremental FlashCopy.
 - Eliminates the requirement for exact duplicate disk between source and target by providing support for Space Efficient FlashCopy.
 - Automatically invokes TimeFinder/Clone Volume Snap for sites with EMC storage removing the requirement for additional jobs.

- Creates an instant point-in-time consistent copy which can significantly reduce downtime by supporting IBM FlashCopy Consistency Group functionality and EMC Engenuity Consistency Assist.
- Database Cloning Solution
 - Eliminates the requirement of having to take the database offline or produce a fuzzy copy by supporting the IMS Type-2 UPDATE DB QUIESCE command. The IMS UPDATE DB QUIESCE command provides consistency during the fast-replication copy without having to take the database offline.
 - Provides a consistent copy of the target data after a fuzzy copy operation, thereby maximizing availability. This option applies IMS logs records from the source database to the target database to bring the target database to a transactionally consistent state.
 - Provides data security anonymity through data masking. This allows fields containing sensitive or private data, such as credit cards numbers or names and addresses, to be masked when copied to the target databases.
 - Removes the requirement to define the target databases if they do not exist on the target system by dynamically defining new databases.
 - Automatically invokes TimeFinder/Snap data set for sites with EMC storage removing the requirement of additional jobs to refresh databases.
 - Automates cleanup of previously refreshed target IMS data sets. IMS Cloning Tool will keep track of data sets that were refreshed and build IDCAMS delete commands for them that can be executed by the user at the completion of their testing cycle to delete and uncatalog those data sets.
 - Adds flexibility when refreshing databases by providing an option to process remaining databases when an error is encountered. This feature may be useful in cases where a large number of databases are being refreshed and only a few databases may not be copied at that time.

1.2 IMS Cloning Tool FMID

IMS Cloning Tool consists of the following FMID:

HAEQ120

2.0 Program Materials

An IBM program is identified by a program number. The program number for IMS Cloning Tool is 5655-U91.

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 Cloning Tool. Ask your IBM representative for this information if you have not already received a copy.

2.1 Basic Machine-Readable Material

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

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

Figure 1 describes the program file content for IMS Cloning Tool. You can refer to the *CBPDO Memo To Users Extension* to see where the files reside on the tape.

Notes:

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

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

Name	ORG	RECFM	RECL	BLK SIZE
SMPMCS	SEQ	FB	80	6400
IBM.HAEQ120.F1	PDS	FB	80	8800
IBM.HAEQ120.F2	PDS	FB	80	8800
IBM.HAEQ120.F3	PDS	FB	80	8800
IBM.HAEQ120.F4	PDS	FB	80	8800
IBM.HAEQ120.F5	PDSE	U	0	6144

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

Name	O R G	R E C M	L R E C L	BLK SIZE
IBM.HAEQ120.F6	PDS	FB	80	8800
IBM.HAEQ120.F7	PDS	FB	80	8800
IBM.HAEQ120.F8	PDS	FB	80	8800
IBM.HAEQ120.F9	PDS	FB	80	8800
IBM.HAEQ120.F10	PDS	FB	80	8800

2.2 Optional Machine-Readable Material

No optional machine-readable materials are provided for IMS Cloning Tool.

2.3 Program Publications

The following sections identify the basic and optional publications for IMS Cloning Tool.

2.3.1 Basic Program Publications

Figure 2 identifies the basic unlicensed program publications for IMS Cloning Tool. One copy of each of these publications is included when you order the basic materials for IMS Cloning Tool. Additional copies can be obtained from the IBM Publications Website at URL:

<http://www.ibm.com/e-business/linkweb/publications/servlet/pbi.wss>

Contact your IBM representative for further assistance.

Figure 2. Basic Material: Unlicensed Publications

Publication Title	Form Number
IBM IMS Cloning Tool for z/OS License Information	GC19-2474

Figure 3 identifies the basic unlicensed or licensed publications that are not available in hardcopy format, but are available through the internet or other media for IMS Cloning Tool.

Figure 3. Basic Material: Other Unlicensed or Licensed Publications

Publication Title	Form Number	How Available
IBM IMS Cloning Tool for z/OS User's Guide	SC19-3757	http://www.ibm.com/support/docview.wss?uid=swg27020942

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 Cloning Tool.

2.4 Program Source Materials

No program source materials or viewable program listings are provided for IMS Cloning Tool.

2.5 Publications Useful During Installation

You might want to use the publications listed in Figure 4 during the installation of IMS Cloning Tool. To order copies, contact your IBM representative or visit the IBM Publications Center at:
<http://www.ibm.com/e-business/linkweb/publications/servlet/pbi.wss>

Figure 4. Publications Useful During Installation

Publication Title	Form Number
<i>IBM SMP/E for z/OS User's Guide</i>	SA22-7773
<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 Cloning Tool.

3.1 Program Services

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

3.2 Preventive Service Planning

Before you install IMS Cloning Tool, make sure that you have reviewed the current Preventive Service Planning (PSP) information. Review the PSP Bucket for General Information, Installation Documentation, and the Cross Product Dependencies sections. For the Recommended Service section, instead of reviewing the PSP Bucket, it is recommended you use the IBM.ProductInstall-RequiredService fix category in SMP/E to ensure you have all the recommended service installed. Use the **FIXCAT(IBM.ProductInstall-RequiredService)** operand on the **APPLY CHECK** command. See 6.1.10, “Perform SMP/E APPLY” on page 20 for a sample APPLY command.

If you obtained IMS Cloning Tool as part of a CBPDO, HOLDDATA is included.

If the CBPDO for IMS Cloning Tool 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 Cloning Tool are included in Figure 5

UPGRADE	SUBSET	Description
5655U91	HAEQ120	IMS Cloning Tool

3.3 Statement of Support Procedures

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

Figure 6 on page 8 identifies the component IDs (COMPID) for IMS Cloning Tool.

<i>Figure 6. Component IDs</i>			
FMID	COMPID	Component Name	RETAIN Release
HAEQ120	5655U9100	IMS Cloning Tool	120

4.0 Program and Service Level Information

This section identifies the program and relevant service levels of IMS Cloning Tool. The program level refers to the APAR fixes that have been incorporated into the program. The service level refers to the PTFs that have been incorporated into the program.

4.1 Program Level Information

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

- FMID HAEQ110

PK92507	PM37181	PM51471
PK95410	PM37182	PM51740
PM00289	PM37183	PM58598
PM04974	PM38971	PM61866
PM04975	PM40126	PM66471
PM25761	PM40184	PM66598
PM30374	PM42522	PM66627
PM33374	PM46790	PM73059
PM37180	PM50058	PM73248

4.2 Service Level Information

No PTFs against this release of IMS Cloning Tool have been incorporated into the product package.

Frequently check the IMS Cloning Tool 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 Cloning Tool. 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 Cloning Tool.

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 7. Driving System Software Requirements

Program Number	Product Name	Minimum VRM	Minimum Service Level will satisfy these APARs	Included in the shipped product?
Any one of the following:				
5694-A01	z/OS	V01.12.00	N/A	No
5655-G44	IBM SMP/E for z/OS	V03.05.00	N/A	No

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 Cloning Tool.

IMS Cloning Tool installs in the DBS (P115) SREL.

5.2.1 Machine Requirements

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

5.2.2 Programming Requirements

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

Mandatory installation requisites identify products that are required on the system for the successful installation of this product. These products are specified as PREs or REQs.

IMS Cloning Tool 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. These products are specified as IF REQs.

IMS Cloning Tool has no conditional installation requisites.

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

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

<i>Figure 8. Target System Mandatory Operational Requisites</i>	
Program Number	Product Name and Minimum VRM/Service Level
Any one of the following:	
5635-A02	IMS V11.01.00
5635-A03	IMS V12.01.00
5635-A04	IMS V13.01.00 *

Note: * Refer to the IMS V13.1 Software Announcement for more information or talk to your IBM representative.

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. These products are specified as IF REQs.

IMS Cloning Tool has no conditional operational requisites.

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

IMS Cloning Tool 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 Cloning Tool has no negative requisites.

5.2.3 DASD Storage Requirements

IMS Cloning Tool libraries can reside on all supported DASD types.

Figure 9 lists the total space that is required for each type of library.

Figure 9. Total DASD Space Required by IMS Cloning Tool

Library Type	Total Space Required in 3390 Trks
Target	785 tracks
Distribution	785 tracks

Notes:

1. For non-RECFM U data sets, IBM recommends using system-determined block sizes for efficient DASD utilization. For RECFM U data sets, IBM recommends using a block size of 32760, which is most efficient from the performance and DASD utilization perspective.
2. Abbreviations used for data set types are shown as follows.

- U** Unique data set, allocated by this product and used by only this product. This table provides all the required information to determine the correct storage for this data set. You do not need to refer to other tables or program directories for the data set size.
- S** Shared data set, allocated by this product and used by this product and other products. To determine the correct storage needed for this data set, add the storage size given in this table to those given in other tables (perhaps in other program directories). If the data set already exists, it must have enough free space to accommodate the storage size given in this table.
- E** Existing shared data set, used by this product and other products. This data set is *not* allocated by this product. To determine the correct storage for this data set, add the storage size given in this table to those given in other tables (perhaps in other program directories). If the data set already exists, it must have enough free space to accommodate the storage size given in this table.

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

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

3. All target and distribution libraries listed have the following attributes:
 - The default name of the data set can be changed.
 - The default block size of the data set can be changed.
 - The data set can be merged with another data set that has equivalent characteristics.
 - The data set can be either a PDS or a PDSE, except for for AGCLLOAD and SGCLLOAD, 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 library SGCLLOAD must be APF-authorized.
- IMS Cloning Tool 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 Cloning Tool. The storage requirements of IMS Cloning Tool 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 Cloning Tool 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
SGCLBASE	SAMPLE	Any	U	PDS	FB	80	6	2
SGCLEXP	DATA	Any	U	PDS	FB	80	6	3
SGCLJCL	SAMPLE	Any	U	PDS	FB	80	8	5
SGCLLOAD	LMOD	Any	U	PDSE	U	0	688	n/a
SGCLMENU	MESSAGE	Any	U	PDS	FB	80	4	5
SGCLPARM	PARM	Any	U	PDS	FB	80	3	2
SGCLPENU	PANEL	Any	U	PDS	FB	80	64	25
SGCLSLIB	SKEL	Any	U	PDS	FB	80	3	5
SGCLTENU	TABLE	Any	U	PDS	FB	80	3	5

Figure 11 (Page 1 of 2). Storage Requirements for IMS Cloning Tool 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
AGCLBASE	U	PDS	FB	80	6	2

Figure 11 (Page 2 of 2). Storage Requirements for IMS Cloning Tool 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
AGCLEXP	U	PDS	FB	80	6	3
AGCLJCL	U	PDS	FB	80	8	5
AGCLLOAD	U	PDSE	U	0	688	n/a
AGCLMENU	U	PDS	FB	80	4	5
AGCLPARM	U	PDS	FB	80	3	2
AGCLPENU	U	PDS	FB	80	64	25
AGCLSLIB	U	PDS	FB	80	3	5
AGCLTENU	U	PDS	FB	80	3	5

5.3 FMIDs Deleted

Installing IMS Cloning Tool 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 Cloning Tool into separate SMP/E target and distribution zones.

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

5.4 Special Considerations

PDSE Considerations:

IMS Cloning Tool uses the "partitioned data set extended" or PDSE format for the LOAD 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 or GRS ring. 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 SGCLLOAD data set between z/OS systems unless they are in a sysplex or are connected by a GRS ring. If you need to share the content of the SGCLLOAD data set, a separate copy must be created for each z/OS system.

6.0 Installation Instructions

This chapter describes the installation method and the step-by-step procedures to install and to activate the functions of IMS Cloning Tool.

Please note the following points:

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

6.1 Installing IMS Cloning Tool

6.1.1 SMP/E Considerations for Installing IMS Cloning Tool

Use the SMP/E RECEIVE, APPLY, and ACCEPT commands to install this release of IMS Cloning Tool.

6.1.2 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
PEMAX	SMP/E Default	IBM recommends using the SMP/E default for PEMAX.

6.1.3 SMP/E CALLLIBS Processing

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

- SCEELKED
- SCEECPP
- SCEELIB

- SISpload

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

6.1.4 Sample Jobs

The following sample installation jobs are provided as part of the product to help you install IMS Cloning Tool:

<i>Figure 13. Sample Installation Jobs</i>			
Job Name	Job Type	Description	RELFILE
GCLALA	SMP/E	Sample job to allocate and initialize a new SMP/E CSI data set (Optional)	IBM.HAEQ120.F2
GCLALB	SMP/E	Sample job to allocate SMP/E data sets (Optional)	IBM.HAEQ120.F2
GCLRECEV	RECEIVE	Sample RECEIVE job	IBM.HAEQ120.F2
GCLALLOC	ALLOCATE	Sample job to allocate target and distribution libraries	IBM.HAEQ120.F2
GCLDDDEF	DDDEF	Sample job to define SMP/E DDDEFs	IBM.HAEQ120.F2
GCLAPPLY	APPLY	Sample APPLY job	IBM.HAEQ120.F2
GCLACCEP	ACCEPT	Sample ACCEPT job	IBM.HAEQ120.F2

You can access the sample installation jobs by performing an SMP/E RECEIVE (refer to 6.1.7, “Perform SMP/E RECEIVE” on page 20) then copy the jobs from the RELFILES to a work data set for editing and submission. See Figure 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.HAEQ120.F2,UNIT=tunit,
//* VOL=SER=AEQ120,LABEL=(3,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.HAEQ120.F2,UNIT=tunit,
/**          VOL=SER=volser,LABEL=(x,SL),
/**          DISP=(OLD,KEEP)
/*******
/** Make the //FILEIN DD statement below active for           *
/** downloaded DASD files.                                    *
/*******
/**FILEIN  DD DSN=IBM.HAEQ120.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.HAEQ120.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.

6.1.5 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 GCLALA to allocate the SMP/E data set for IMS Cloning Tool. Consult the instructions in the sample job for more information.

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

6.1.6 Initialize CSI zones (Optional)

Edit and submit sample job GCLALB to initialize SMP/E zones for IMS Cloning Tool. Consult the instructions in the sample job for more information.

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

6.1.7 Perform SMP/E RECEIVE

If you have obtained IMS Cloning Tool as part of a CBPDO, use the RCVPDO job in the CBPDO RIMLIB data set to receive the IMS Cloning Tool 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 GCLRECEV to perform the SMP/E RECEIVE for IMS Cloning Tool. Consult the instructions in the sample job for more information.

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

6.1.8 Allocate SMP/E Target and Distribution Libraries

Edit and submit sample job GCLALLOC to allocate the SMP/E target and distribution libraries for IMS Cloning Tool. Consult the instructions in the sample job for more information.

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

6.1.9 Create DDDEF Entries

Edit and submit sample job GCLDDDEF to create DDDEF entries for the SMP/E target and distribution libraries for IMS Cloning Tool. Consult the instructions in the sample job for more information.

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

6.1.10 Perform SMP/E APPLY

1. Ensure that you have the latest HOLDDATA; then edit and submit sample job GCLAPPLY to perform an SMP/E APPLY CHECK for IMS Cloning Tool. Consult the instructions in the sample job for more information.

The latest HOLDDATA is available through several different portals, including <http://service.software.ibm.com/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)) .
..any other parameters documented in the program directory
```

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

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

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

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

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

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

6.1.11 Perform SMP/E ACCEPT

Edit and submit sample job GCLACCEP to perform an SMP/E ACCEPT CHECK for IMS Cloning Tool. 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 job again to perform the ACCEPT.

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

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

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

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

6.2 Activating IMS Cloning Tool

The publication *IBM IMS Cloning Tool for z/OS User's Guide, SC19-3757* contains the necessary information to customize and use IMS Cloning Tool.

7.0 Notices

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