High Level Assembler for MVS & VM & VSE

IBM

Toolkit Feature Installation and Customization Guide

Release 5

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> **Note!**
>
> Before using this information and the product it supports, be sure to read the general information under "Notices" on page 115.

Contents

On VM: Planning for, Installing, and Maintaining High Level Assembler Toolkit Feature

On VSE: Planning for, Installing, and Maintaining High Level Assembler Toolkit Feature

About This Book

This book provides information needed to plan for, install, customize and maintain High Level Assembler Toolkit Feature on MVS and VM and VSE.

Throughout this book, we use these indicators to identify platform-specific information:

- Prefix the text with platform-specific text (for example, "Under CMS...")
- Add parenthetical qualifications (for example, "(CMS only)")
- Bracket the text with icons. The following are some of the icons that we use:

    MVS ▶ Informs you of information specific to MVS ◀ MVS

    CMS ▶ Informs you of information specific to CMS ◀ CMS

    VSE ▶ Informs you of information specific to VSE ◀ VSE

MVS is used in this manual to refer to Multiple Virtual Storage/Enterprise Systems Architecture (MVS/ESA™), to OS/390®, and to z/OS®.

CMS is used in this manual to refer to Conversational Monitor System on z/VM®.

VSE is used in this manual to refer to Virtual Storage Extended/Enterprise Systems Architecture (VSE/ESA®), and z/VSE.

Brief Overview of High Level Assembler Toolkit Feature

High Level Assembler Toolkit Feature is an IBM® licensed program that helps you in the development of programs and subroutines using assembler language. This product provides an interactive debugging facility along with a disassembler, a suite of structured macros, a program understanding tool, a source code cross reference facility and a comparison and search facility.

Who Should Use This Book

This book is for system programmers and system administrators who plan for, install, customize, and maintain the High Level Assembler Toolkit Feature on MVS or VM or VSE.

To use this book, you need to be familiar with the MVS or VM or VSE operating system, the publications that describe your system, and job control language (JCL) or EXEC processing.

Experienced Users Installing on MVS

If you are installing on MVS and are experienced in installing products with SMP/E, use the following fast path items:

1. DASD storage for target and distribution libraries is on Table 7 on page 8 and Table 8 on page 8.

2. DASD storage for an initial install data set is outlined in Table 6 on page 8 along with sequential data sets to contain online publications.

3. Carry out steps "Step 1: SMP/E Considerations for Installing High Level Assembler Toolkit Feature" on page 14 through to "Step 8: Run the Installation Verification Program" on page 18.

Experienced Users Installing on VM

If you are installing on VM and are experienced in installing products with VMSES/E, use the following fast path items:

1. Refer to Table 19 on page 31 for DASD storage requirements.

2. Carry out steps "Step 1: Prepare to Install High Level Assembler Toolkit Feature" on page 35 through to "Step 5: Put High Level Assembler Toolkit Feature into Production" on page 44.

Experienced Users Installing on VSE

If you are installing on VSE and are experienced in installing products with VSE, use the following fast path items:

1. Refer to Table 30 on page 66 and Table 31 on page 66 for DASD storage requirements.

2. Carry out steps "Step 1: Allocate Space for the Library (Omit if Using the Default Sublibrary)" on page 70 through to "Step 6: Download High Level Assembler Program Understanding Tool" on page 80.

Terminology in This Book

For simplicity, many of the full IBM product names are shortened to just the generic acronym. For example, MVS is used to mean MVS/ESA.

Syntax Notation

Throughout this book, syntax descriptions use the structure defined below.

- Read the syntax diagrams from left to right, from top to bottom, following the path of the line.

    The ►►— symbol indicates the beginning of a statement.

    The —► symbol indicates that the statement syntax is continued on the next line.

    The ►— symbol indicates that a statement is continued from the previous line.

    The —►◄ indicates the end of a statement.

    Diagrams of syntactical units other than complete statements start with the ►— symbol and end with the —► symbol.

- **Keywords** appear in uppercase letters (for example, ASPACE) or upper and lower case (for example, PATHFile). They must be spelled exactly as shown. Lower case letters are optional (for example, you could enter the PATHFile keyword as PATHF, PATHFI, PATHFIL or PATHFILE).

    Variables appear in all lowercase letters in a special typeface (for example, *integer*). They represent user-supplied names or values.

- If punctuation marks, parentheses, or such symbols are shown, they must be entered as part of the syntax.

- Required items appear on the horizontal line (the main path).

```
►►──INSTRUCTION──required item──────────────────────────────────────────────►◄
```
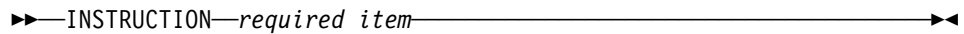
- Optional items appear below the main path. If the item is optional and is the default, the item appears above the main path.

```
                   ┌─default item──┐
►►──INSTRUCTION─────┼───────────────┼────────────────────────────────────────►◄
                   └─optional item─┘
```
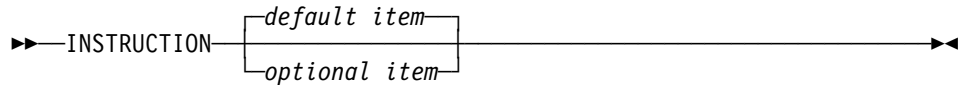
- When you can choose from two or more items, they appear vertically in a stack.

  If you **must** choose one of the items, one item of the stack appears on the main path.

```
►►──INSTRUCTION──┬─required choice1─┬──────────────────────────────────────────►◄
                 └─required choice2─┘
```
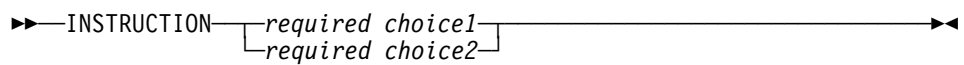
  If choosing one of the items is optional, the whole stack appears below the main path.

```
►►──INSTRUCTION──┬──────────────────┬──────────────────────────────────────────►◄
                 ├─optional choice1─┤
                 └─optional choice2─┘
```
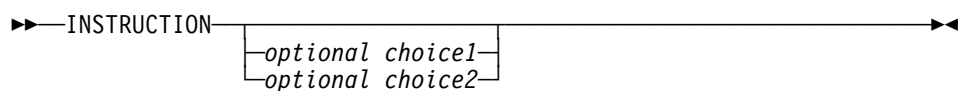
- An arrow returning to the left above the main line indicates an item that can be repeated. When the repeat arrow contains a separator character, such as a comma, you must separate items with the separator character.

```
                 ┌─,──────────────┐
►►──INSTRUCTION──▼─repeatable item─┴───────────────────────────────────────────►◄
```
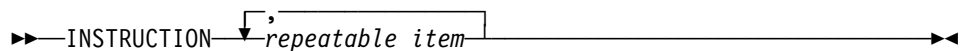
  A repeat arrow above a stack indicates that you can make more than one choice from the stacked items, or repeat a single choice.

The following example shows how the syntax is used.

```
┌─ Format ─────────────────────────────────────────────────────────────────────┐
│                                                                                │
│      A                    B           C                                        │
│                                      ┌─,──────┐                                 │
│ ►►──┬──────────────┬──INSTRUCTION────▼──┤ 1 ├──┴──►◄                            │
│     └─optional item─┘                                                           │
│                                                                                │
│ 1:                                                                             │
│ ├──┬─operand choice1──────┬──┤                                                  │
│    ├─operand choice2──(1)──┤                                                    │
│    └─operand choice3──────┘                                                     │
│                                                                                │
│ Note:                                                                          │
│ 1  operand choice2 and operand choice3 must not be specified together          │
│                                                                                │
└────────────────────────────────────────────────────────────────────────────────┘
```

| A | The item is optional, and can be coded or not. |
| B | The INSTRUCTION key word must be specified and coded as shown. |

C   The item referred to by **1** is a required operand. Allowable choices for this operand are given in the fragment of the syntax diagram shown below **1** at the bottom of the diagram. The operand can also be repeated. That is, more than one choice can be specified, with each choice separated by a comma.

Service Recommendations

To obtain current service recommendations and to identify current product service requirements, get the Preventive Service Planning (PSP) information or check with the IBM Support Center.

Other Documentation You Might Need

The complete list of High Level Assembler Toolkit Feature publications and order numbers is published on the back cover. Publications for related IBM products are in "Bibliography" on page 113.

Summary of Changes

Date of Publication May 2004

Form of Publication Eighth Edition, GC26-8711-07

There are no major changes to the installation and customization procedures for High Level Assembler with release 5. Where relevant, information has been included for installing High Level Assembler release 5 on z/OS, z/VM, and VSE. For information about changes to the High Level Assembler product in release 5, please refer to *HLASM General Information*

On MVS: Planning for, Installing, and Maintaining High Level Assembler Toolkit Feature

Chapter 1. Planning for Installing High Level Assembler Toolkit Feature on MVS

This section contains the following planning information to help you properly install High Level Assembler Toolkit Feature on MVS:

- Worksheet: Planning for Installing High Level Assembler Toolkit Feature on MVS
- What You Receive with High Level Assembler Toolkit Feature
- What You Need to Install High Level Assembler Toolkit Feature
- Installing with CBPDO
- Planning to Use SMP/E
- Planning to Change Installation Jobs
- Program Support
- Program and Service Level Information
- Publications Useful during Installation
- Link Pack Area Use

Worksheet: Planning for Installing High Level Assembler Toolkit Feature on MVS

Before you begin the installation, you should:

__ 1. Verify the product parts to be installed.

    __ FMID *JMQ415A*

    __ Feature number _____

    __ VOLSER *MQ415A*

Refer to "What You Receive with High Level Assembler Toolkit Feature" on page 4.

__ 2. Verify that required software (and optional software, if appropriate) is at the level needed.

Refer to "What You Need to Install High Level Assembler Toolkit Feature" on page 5.

__ 3. Verify that adequate DASD storage is available:

    __ Target libraries

    __ Distribution libraries

    __ SMP/E data sets

Refer to "DASD Storage Required for the Target System" on page 6.

__ 4. Determine how you are going to use SMP/E:

    __ Sample batch jobs

    __ SMP/E dialogs

Refer to "Planning to Use SMP/E" on page 9.

__ 5. Plan for changes needed in installation jobs.

Refer to "Planning to Change Installation Jobs" on page 9.

__ 6. Obtain latest service updates needed.

Refer to "Program Support" on page 9.

__ 7. Link Pack Area Use

Refer to "Link Pack Area (LPA) Use" on page 11.

__ 8. Plan to install Program Understanding Tool onto a workstation. See Appendix C, "Planning for Installing Program Understanding Tool on OS/2" on page 93 or Appendix F, "Planning for Installing Program Understanding Tool on Windows" on page 103.

What You Receive with High Level Assembler Toolkit Feature

You receive the following when you order High Level Assembler Toolkit Feature:

FMIDs	Feature Numbers	System Name
JMQ415A	5821/5822/6100	MVS/ESA

Distribution Media

High Level Assembler Toolkit Feature is distributed on one of the following:

- Standard-labeled 9-track magnetic tape written at 6250 BPI
- 3480 tape cartridge
- 4mm cartridge

The tape or cartridge contains all the programs and data needed for installation. The tape and cartridge are in SMP/E relative file format. The first file contains the SMP/E modification control statements. Subsequent files contain IEBCOPY, unloaded partitioned data sets, which SMP/E processes.

Basic Material

Table 1 describes the tape or cartridge. Table 2 describes the file content of the program tape or cartridge.

Table 1. Basic Material: Program Tape

Medium	Feature Number	Phys- ical Volume	External Label Identification	VOLSER
6250 tape	5821	1	HLASM TLKT MVS R5	MQ415A
3480 cart.	5822	1	HLASM TLKT MVS R5	MQ415A
4mm cart.	6100	1	HLASM TLKT MVS R5	MQ415A

Table 2. Program Tape: File Content

VOLSER	File	Name	Dist Library	ORG	RECFM	LRECL	BLK SIZE
MQ415A	1	SMPMCS	n/a	SEQ	FB	80	6400
	2	IBM.JMQ415A.F1	AASMSAM2	PDS	FB	80	8800
	3	IBM.JMQ415A.F2	AASMMAC2	PDS	FB	80	8800
	4	IBM.JMQ415A.F3	AASMMOD2	PDS	U	0	6144
	5	IBM.JMQ415A.F4	AASMPUT2	PDS	FB	80	8800
	6	IBM.JMQ415A.F5	JCLIN	PDS	FB	80	8800

The recfm, lrecl, and blk size reflect the original values of the partitioned data sets (relative files) before being unloaded by the IEBCOPY utility to tape.

Note: If you are installing High Level Assembler Toolkit Feature using the MVS Custom-Built Product Delivery Offering (CBPDO) (5751-CS3), some of the informa-

tion in these figures may not be valid. Consult the CBPDO documentation for actual values.

Optional Material

There are no optional machine-readable materials for High Level Assembler Toolkit Feature.

Program Publications and Softcopy

This section identifies the basic and optional publications for High Level Assembler Toolkit Feature.

One printed copy of the following manuals is included with the product:

- *HLASM Toolkit Feature Debug Reference Summary*, GC26-8712
- *HLASM Toolkit Feature Interactive Debug Facility User's Guide*, GC26-8709
- *HLASM Toolkit Feature Installation and Customization Guide*, GC26-8711
- *HLASM Licensed Program Specifications*, GC26-4944
- *HLASM Toolkit Feature User's Guide*, GC26-8710

For a list of books for related products, see "Bibliography" on page 113.

Program Source Materials

No program source materials or viewable program listings are provided with High Level Assembler Toolkit Feature.

What You Need to Install High Level Assembler Toolkit Feature

This section identifies the system requirements for installing High Level Assembler Toolkit Feature. You need to plan for two different system environments:

- *Target system*—the system comprising the set of libraries that are updated by SMP/E and system utilities during installation

- *Driving system*—the system on which the jobs are run to install the program

The machine-readable components for High Level Assembler Toolkit Feature are installed in target and distribution libraries.

- *Target libraries* are the data sets in which the run-time copy of High Level Assembler Toolkit Feature is stored. These data sets include the executable program code and any other components used during execution, such as sample JCL and messages.

- *Distribution libraries* are the data sets in which additional copies of these components are stored. The copy of High Level Assembler Toolkit Feature kept in the distribution libraries can be kept at a different service level than that in the target libraries. SMP/E can reconstruct the target libraries in whole or in part from the distribution libraries. Therefore, service or user modifications can be removed from the run-time copy of High Level Assembler Toolkit Feature

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.

Required and Optional Software for the Target System

This section describes the other products that must be installed on the target system in order to install and use High Level Assembler Toolkit Feature.

High Level Assembler Toolkit Feature runs on MVS with the required licensed programs listed in Table 3.

You should install the **minimum release listed or any subsequent release** for all required licensed programs your site needs.

Table 3. Required Programs

Required Licensed Program	Minimum Version Supported
z/OS	Version 1 Release 2
OS/390	Version 2 Release 10
High Level Assembler	Version 1 Release 5

Check with the IBM Support Center for any PTFs you might need to apply.

DASD Storage Required for the Target System

High Level Assembler Toolkit Feature libraries can reside on any currently supported DASD.

Table 4 lists the total space required for each type of library.

Table 4. Total DASD Space Required by High Level Assembler Toolkit Feature	
Library Type	Total Space Required
Target	304 3390 Tracks
Distribution	355 3390 Tracks

Notes:

1. The data set sizes specified contain 15% extra space. You may wish to revise these numbers based on your plans for adding additional function or service.

2. IBM recommends use of system determined blocksizes for efficient DASD utilization for all non-RECFM U data sets. For RECFM U data sets, IBM recommends a blocksize of 32760, which is the most efficient from a performance and DASD utilization perspective.

If you choose not to use system determined blocksizes, use the blocksizes and numbers of blocks specified to allocate the data sets. Data sets can be reblocked to a larger size. Please note that the maximum allowable blocksize will depend on the type of DASD on which the dataset will reside; for example, the blocksize of datasets on a 3350 DASD cannot exceed 19,069.

3. Abbreviations used for the data set type are:

U   Unique data set used by only the FMIDs listed. In order 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 used by more than the FMIDs listed. In order 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.

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 Table 7 on page 8 and Table 8 on page 8.

Table 5. Storage Requirements for SMP/E Work Data Sets						
Library DDNAME	TYPE	ORG	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks
SMPWRK1	S	PDS	FB	80	30	80
SMPWRK2	S	PDS	FB	80	30	80
SMPWRK3	S	PDS	FB	80	30	80
SMPWRK4	S	PDS	FB	80	30	80
SMPWRK6	S	PDS	FB	80	30	80
SYSUT1	U	SEQ	--	--	30	0
SYSUT2	U	SEQ	--	--	30	0
SYSUT3	U	SEQ	--	--	30	0
SYSUT4	U	SEQ	--	--	30	0

The following table provides an estimate of the storage needed in the SMP/E data sets for High Level Assembler Toolkit Feature. The estimates must be added to those of any other programs and service being installed to determine the total additional storage requirements.

Table 6. Storage Requirements for SMP/E Data Sets						
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
SMPMTS	S	PDS	FB	80	30	5
SMPPTS	S	PDS	FB	80	30	5
SMPSCDS	S	PDS	FB	80	30	5
SMPSTS	S	PDS	FB	80	30	5

The following tables list the target and distribution libraries (data sets) and their attributes required to install High Level Assembler Toolkit Feature. The storage requirements of High Level Assembler Toolkit Feature must be added to the storage required by other programs having data in the same data set (library).

Table 7. Storage Requirements for High Level Assembler Toolkit Feature 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
SASMMOD2	LMOD	Any	U	PDS	U	0	49	2
SASMSAM2	EXEC SOURCE SAMPLE DATA	Any	U	PDS	FB	80	18	1
SASMMAC2	MACRO	Any	U	PDS	FB	80	7	1
SASMPUT2	DATA	Any	U	PDS	FB	80	230	1

Table 8. Storage Requirements for High Level Assembler Toolkit Feature 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
AASMMOD2	U	PDS	U	0	100	73
AASMSAM2	U	PDS	FB	14	18	1
AASMMAC2	U	PDS	FB	80	7	1
AASMPUT2	U	PDS	FB	80	230	1

The user may gain access to the supplied sample JCL after the SMP/E RECEIVE step in the install process. Alternatively, the user may copy the sample JCL directly from the installation tape into a temporary library. If this latter method is used then the dataset requirement is shown in the following table.

Table 9. Storage Requirements for temporary library						
Data Set Name	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
JCL	U	SEQ	FB	80	30	5

Installing with CBPDO

If you are installing High Level Assembler Toolkit Feature with an MVS Custom-Built Product Delivery Offering (CBPDO) (5751-CS3), use the RCVPDO job in the CBPDO RIMLIB data set provided with the CBPDO to receive the product and service for this product. Any additional installation instructions should be obtained from the High Level Assembler Toolkit Feature documentation. However, before installing High Level Assembler Toolkit Feature, check with your IBM Support Center or use either Information/Access or SoftwareXcel Extended to see whether there is additional service information you need.

Planning to Use SMP/E

You must decide how to use SMP/E to install High Level Assembler Toolkit Feature. Some points to consider are:

1. This FMID should be installed in the same CSI as HMQ4150.

2. Choose to use an existing global and new target and distribution zones.

3. Choose to use existing global, target and distribution zones.

4. Use supplied sample jobs or use SMP/E dialogs to RECEIVE, APPLY and ACCEPT. See Chapter 2, "Installing High Level Assembler Toolkit Feature on MVS" on page 13. This will install into existing global, target and distribution zones.

The REWORK level on the *++FUNCTION MCS* supplied in the *SMPMCS* file on the installation tape is *2004009*.

Planning to Change Installation Jobs

Each sample job has instructions on how it is to be modified, to meet the requirements and standards at your site. Refer to these standards as needed for determining the values for these parameters.

Program Support

This section describes the IBM support available for High Level Assembler Toolkit Feature.

Program Services

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

Preventive Service Planning

Before installing High Level Assembler Toolkit Feature, you should review the current Preventive Service Planning (PSP) information. If you obtained High Level Assembler Toolkit Feature as part of a CBPDO, there is HOLDDATA and PSP information included on the CBPDO tape.

If you obtained High Level Assembler Toolkit Feature on a product tape, or if the CBPDO is more than two weeks old when you install it, you should contact the IBM Support Center or use S/390 SoftwareXcel to obtain the current "PSP Bucket."

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 High Level Assembler Toolkit Feature are:

Table 10. PSP Upgrade and Subset ID		
UPGRADE	**SUBSET**	**Description**
HLASM150	JMQ415A	HLASM Toolkit MVS

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 provide the address to which any needed documentation can be sent.

Table 11 identifies the component IDs (COMPID) for High Level Assembler Toolkit Feature.

Table 11. Component IDs			
FMID	**COMPID**	**Component Name**	**RETAIN Release**
JMQ415A	569623401	MVS HLA TOOLKIT FEATURE	15A

Program and Service Level Information

This section identifies the program and any relevant service levels of High Level Assembler Toolkit Feature. The program level refers to the APAR fixes incorporated into the program. The service level refers to the PTFs integrated. Information about the cumulative service tape is also provided.

Program Level Information

A list of APAR fixes against previous releases of High Level Assembler Toolkit Feature that have been incorporated into this release is shown in Appendix A, "High Level Assembler Service" on page 89.

Service Level Information

No PTFs against this release of High Level Assembler Toolkit Feature have been incorporated into the product tape.

Cumulative Service Tape

A cumulative service tape, containing PTFs not incorporated into this release, might be included with this program. Installation instructions for cumulative service tapes can be found in the SMP/E publications.

If you received this product as part of a CBPDO or a ProductPac, PTFs not incorporated into this release are provided on the tape, and a separate cumulative service tape will not be provided.

Publications Useful during Installation

The publications listed in Table 12 may be useful during the installation of High Level Assembler Toolkit Feature. To order copies, contact your IBM representative.

Table 12. Publications Useful During Installation

Publication Title	Form Number
z/OS MVS Initialization and Tuning Reference	SA22-7592
z/OS MVS Initialization and Tuning Guide	SA22-7591
z/OS MVS JCL Reference	SA22-7597
SMP/E Messages, Codes, and Diagnosis	GA22-7770
SMP/E Reference	SA22-7772
SMP/E User's Guide	SA22-7773

Link Pack Area (LPA) Use

Four modules supplied with High Level Assembler Toolkit Feature (ASMXREF, ASMXREP, ASMZLANG, and ASMZSORT) are not reentrant and therefore are not eligible candidates for the LPA library and should not be placed into an APF-authorized library.

Toolkit Product Enablement

You must be licensed to use the HLASM Toolkit Feature, in which case the IFAPRD*xx* member of PARMLIB may need to be updated in one of the following ways:

- If the HLASM Toolkit Feature is licensed as a separate product, add this entry:

```
PRODUCT OWNER ('IBM CORP')
    NAME('HI LVL ASSEMBLER')
    ID(5696-234)
    VERSION(*) RELEASE(*) MOD(*)
    FEATURENAME('TOOLKIT DEBUGGER')
    STATE(ENABLED)
```

- If the HLASM Toolkit Feature is licensed as a feature of OS/390, refer to *OS/390 Planning for Installation*, GC28-1726 for information about adding the entry to IFAPRD*xx*.

Chapter 2. Installing High Level Assembler Toolkit Feature on MVS

This chapter describes the installation method and the step-by-step procedures to install and to activate the functions of High Level Assembler Toolkit Feature.

Please note the following:

- If you want to install High Level Assembler Toolkit Feature 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.

Overview of Installation

You install this release of High Level Assembler Toolkit Feature by using the SMP/E RECEIVE, APPLY, and ACCEPT commands. This may be accomplished by using SMP/E dialogs or running batch jobs.

Modifying High Level Assembler Toolkit Feature Jobs

The installation jobs that IBM provides do not necessarily follow the conventions (such as file-naming conventions) for your site. You might need to modify them. Descriptions of possible modifications appear in the comments in the sample jobs.

If Using a CBPDO

If you obtained High Level Assembler Toolkit Feature as part of a CBPDO, you can use the RCVPDO job found in the CBPDO RIMLIB data set to RECEIVE the High Level Assembler Toolkit Feature FMID as well as any service, HOLDDATA, or preventive service planning (PSP) information included on the CBPDO tape. For more information, refer to the documentation included with the CBPDO. For more information, refer to *MVS CBPDO Memo to User Extension*, which is included with the CBPDO.

13

Installation Checklist

Table 13 lists the steps and associated jobs to install High Level Assembler Toolkit Feature. The remaining sections in this chapter describe each step. You can use Table 13 as a checklist.

Table 13. Summary of Steps for Installing High Level Assembler Toolkit Feature

Step	Description	Installation Job	page
_1	SMP/E Considerations for Installing High Level Assembler Toolkit Feature		14
_2	Change the Sample JCL from the Product Tape	ASMWTCPY	15
_3	Set up ISPF Editor Macro (Optional)	ASMWTEDT	16
_4	Perform SMP/E Receive	ASMWTRCV	16
_5	Set up Target and Distribution Libraries	ASMWTALC	17
_6	Create DDDEF Entries	ASMWTDDF	17
_7	Perform SMP/E Apply	ASMWTAPL	17
_8	Run the Installation Verification Program	ASMWTIVP	18
_9	Perform SMP/E Accept	ASMWTACP	18
_10	Download Program Understanding Tool to workstation		20

Step 1: SMP/E Considerations for Installing High Level Assembler Toolkit Feature

This release of High Level Assembler Toolkit Feature 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.

SMP/E Environment

All SMP/E installation jobs provided assume that all necessary DD statements for the execution of SMP/E are defined using DDDEFs.

Sample jobs are provided to assist you in installing High Level Assembler Toolkit Feature. After the RECEIVE step has been completed, the sample jobs can be found in SMPTLIB: **IBM.JMQ415A.F1**. Make a copy of these jobs in your own library and modify them to use during the installation of High Level Assembler Toolkit Feature. The sample jobs are:

ASMWTEDT   Sample EDIT macro

ASMWTRCV   Sample RECEIVE job

ASMWTALC   Sample job to allocate target and distribution libraries

ASMWTDDF   Sample job to define SMP/E DDDEFs

ASMWTAPL   Sample APPLY job

ASMWTIVP   Sample install verification job

ASMWTACP   Sample ACCEPT job

In the sample SMP/E jobs provided, the name of the SMP/E CSI is `#globalcsi`.
The global zone name in the SMP/E CSI is `GLOBAL`. The distribution zone name is
`#dzone`. The target zone name is `#tzone`. The sample jobs should be updated to
reflect the CSI and zone names used at your installation.

SMP/E Options Subentry Values

The recommended values for some SMP/E CSI subentries are shown in Table 14.
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.

Table 14. SMP/E Options Subentry Values		
SUB-ENTRY	**Value**	**Comment**
DSSPACE	(300,150,250)	Space Allocation for SMPTLIB data sets
PEMAX	SMP/E default	IBM recommends using the SMP/E default for PEMAX

Step 2: Change the Sample JCL from the Product Tape

This step can be bypassed if you plan to acquire the sample jobs from the
SMPTLIB: **IBM.JMQ415A.F1** after the Receive Step.

Sample installation jobs are provided on the distribution tape to help you install
High Level Assembler Toolkit Feature. The following sample JCL will copy the
High Level Assembler Toolkit Feature jobs from the tape. Add a job card and
modify the parameters in boldface to uppercase values to meet your site's require-
ments before submitting.

```
//COPY    EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=A
//IN      DD DSN=IBM.JMQ415A.F1,UNIT=#tape,VOL=SER=MQ415A,
//        DISP=(OLD,KEEP),LABEL=(2,SL)
//OUT     DD DSN=#hlq.JCL,
//        DISP=(NEW,CATLG,DELETE),
//        RECFM=FB,LRECL=80,BLKSIZE=0,
//        SPACE=(8800,(40,2,4)),
//        UNIT=#unit,
//        VOL=SER=#dasdvol
//SYSUT3 DD UNIT=SYSALLDA,SPACE=(CYL,(1,1))
//SYSIN DD *
  COPY INDD=IN,OUTDD=OUT
/*
```

Figure 1. Load Installation Jobs

Where **#tape** is the unit value matching the product tape or cartridge, **#hlq.JCL** is
the name of the data set where the sample jobs will reside, **#dasdvol** is the volume
serial of the DASD device where the data set will reside, and **#unit** is the DASD
unit type of the volume.

Step 3: Set up ISPF Editor Macro (Optional)

To aid you in making changes to the SMP/E installation jobs ASMWTACP, ASMWTALC, ASMWTAPL, ASMWTDDF, ASMWTIVP, and ASMWTRCV, an ISPF editor macro, called ASMWTEDT, is supplied and is copied to your output data set. This macro lets you substitute proper values for all of the required variables in those jobs, instead of making the changes repeatedly by hand.

Edit macro ASMWTEDT and provide the proper values. Then copy it to any data set in your TSO logon procedure SYSEXEC concatenation. Consult the instructions in the macro for more information.

Step 4: Perform SMP/E Receive

There are two methods of receiving High Level Assembler Toolkit Feature:

- The interactive capability of SMP/E described in "Method 1: Receive Using SMP/E Panels."
- The batch procedure described in "Method 2: Receive Using Batch Jobs" on page 17.

Method 1: Receive Using SMP/E Panels

Select the Command Generation option from the SMP/E Primary Option menu.

Supply the following information as you progress through subsequent command generation panels for the RECEIVE command:

Name of your CSI	_____
Zone name	Global
HOLDDATA	No
All	No
Select	Yes
FMIDs you are installing (base)	_____
FMIDs you are installing (component)	
	_____
Data set name	_____
Volume serial	_____
Unit	_____
Label	_____
File	_____

Expected Return Codes and Messages: This should issue a return code of zero and no error messages.

Method 2: Receive Using Batch Jobs

Edit and submit job ASMWTRCV to receive High Level Assembler Toolkit Feature. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: This should issue a return code of zero and no error messages.

Step 5: Set up Target and Distribution Libraries

Edit and submit job ASMWTALC to allocate the SMP/E target and distribution libraries for High Level Assembler Toolkit Feature. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: This should issue a return code of zero and no error messages.

Step 6: Create DDDEF Entries

Edit and submit job ASMWTDDF to create DDDEF entries for the SMP/E target and distribution libraries for High Level Assembler Toolkit Feature. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: This should issue a return code of zero and no error messages.

After this job, the SYSLIB concatenation needs to be updated in the target and distribution zones.

- SASMMAC2 and AASMMAC2 libraries need to be added to the SYSLIB concatenation in the target zone.

- AASMMAC2 library needs to be added to the SYSLIB concatenation in the distribution zone.

Step 7: Perform SMP/E Apply

There are two methods of applying High Level Assembler Toolkit Feature:

- The interactive capability of SMP/E described in "Method 1: Apply Using SMP/E Panels."

- The batch procedure described in "Method 2: Apply Using Batch Jobs" on page 18.

Method 1: Apply Using SMP/E Panels

1. Select the Command Generation option from the SMP/E Primary Option menu.

   You will be asked to supply some of the information above as you progress through subsequent command generation panels for APPLY.

2. Perform an APPLY CHECK before the APPLY. Examine the output from the APPLY CHECK run.

   Expected Return Codes and Messages: This should issue a return code of zero and no error messages.

3. If it shows no conflict, rerun the APPLY with CHECK=NO.

   Expected Return Codes and Messages: This should issue a return code of zero and no error messages.

Method 2: Apply Using Batch Jobs

1. Perform an Apply with Check

   Use the sample job ASMWTAPL to apply High Level Assembler Toolkit Feature.

   The installation job ASMWTAPL invokes SMP/E to apply High Level Assembler Toolkit Feature. ASMWTAPL performs an APPLY with the CHECK option to check for possible conflicts in the target zone.

   Edit and submit sample job ASMWTAPL to perform an SMP/E APPLY CHECK. 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 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).

   Expected Return Codes and Messages: This should issue a return code of zero and no error messages.

2. Perform an Apply

   Edit sample job ASMWTAPL to remove CHECK operand and resubmit.

   Expected Return Codes and Messages: This should issue a return code of zero and no error messages.

Step 8: Run the Installation Verification Program

A sample job, ASMWTIVP is provided to verify that the product has installed correctly. This job carried out the following functions:

- Assembles test sample ASMTSAMP

- Link edits test sample ASMTSAMP

- Disassembles test module ASMTSAMP

- Create language extraction file

ASMWTIVP uses TSO BATCH to carry out its functions.

Expected Return Codes and Messages: This should issue a return code of zero and no error messages.

Step 9: Perform SMP/E Accept

To permanently install High Level Assembler Toolkit Feature, use SMP/E ACCEPT processing. You should accept High Level Assembler Toolkit Feature *before* you apply any user modifications or install any maintenance because *the SMP/E RESTORE command restores High Level Assembler Toolkit Feature only to the level of the last version you accept*.

There are two methods of accepting High Level Assembler Toolkit Feature:

- The interactive capability of SMP/E described in "Method 1: Accept Using SMP/E Panels."
- The batch procedure described in "Method 2: Accept Using Batch Jobs."

Method 1: Accept Using SMP/E Panels

1. Select the Command Generation option from the SMP/E Primary Option menu.

   Supply the information requested as you progress through subsequent command generation panels for ACCEPT.

2. Perform an ACCEPT CHECK before running the ACCEPT command. Examine the output from the ACCEPT CHECK run.

   Expected Return Codes and Messages: This should issue a return code of zero and no error messages.

3. Perform an ACCEPT.

   If the ACCEPT CHECK run shows no conflict, rerun the ACCEPT with CHECK=NO.

   Expected Return Codes and Messages: This should issue a return code of zero and no error messages.

Method 2: Accept Using Batch Jobs

1. Perform an ACCEPT with CHECK

   The job ASMWTACP performs an ACCEPT with the CHECK option to check for possible conflicts in the distribution zone.

   Edit and submit sample job ASMWTACP to perform an SMP/E ACCEPT CHECK for High Level Assembler Toolkit Feature. 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 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).

   Expected Return Codes and Messages: This should issue a return code of zero and no error messages.

2. Perform an ACCEPT

   When this job is successful, rerun this job without the CHECK option.

   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.

   Expected Return Codes and Messages: This should issue a return code of zero and no error messages.

Step 10: Download Program Understanding Tool

Instructions to download the Program Understanding Tool are contained in Appendix D, "Installing Program Understanding Tool on OS/2" on page 95 and Appendix G, "Installing Program Understanding Tool on Windows" on page 105.

Chapter 3. Maintaining High Level Assembler Toolkit Feature on MVS

This chapter describes how to re-install High Level Assembler Toolkit Feature and how to apply service updates to High Level Assembler Toolkit Feature. To use the maintenance procedures effectively, you should have already installed High Level Assembler Toolkit Feature and any required products.

In addition, this chapter describes how to remove High Level Assembler Toolkit Feature.

Re-installing High Level Assembler Toolkit Feature

The action required here depends on the circumstance. If you want to re-install and you did not use the SMP/E ACCEPT command then use a SMP/E APPLY REDO command. However, if you did use the SMP/E ACCEPT command, then the product should be deleted before installing again. For more information refer to "Removing High Level Assembler Toolkit Feature" on page 23.

Applying Service Updates

You might need to apply maintenance or service updates to High Level Assembler Toolkit Feature periodically.

What You Receive

If you report a problem with High Level Assembler Toolkit Feature to your IBM Support Center, you will receive a tape containing one or more APARs or PTFs that have been created to solve your problem.

You might also receive a list of pre-requisite APARs or PTFs, which should have been applied to your system before applying the current service. These prerequisite APARs or PTFs, might relate to High Level Assembler Toolkit Feature or any other licensed product you have installed, including MVS.

To help you understand the service process, the following overview familiarizes you with applying service for High Level Assembler Toolkit Feature.

Checklist for Applying Service

Table 15 on page 22 lists the steps and associated SMP/E commands for installing corrective service on High Level Assembler Toolkit Feature. You can use Table 15 on page 22 as a checklist.

Table 15. Summary of Steps for Installing Service on High Level Assembler Toolkit Feature

Step	Description	SMP/E Command	page
__ 1	Prepare to install service.	—	22
__ 2	Receive service.	RECEIVE	22
__ 3	Accept previously applied service. (optional)	ACCEPT	22
__ 4	Apply service.	APPLY	22
__ 5	Test service.	—	22
__ 6	Accept service.	ACCEPT	23
__ 7	Service on High Level Assembler Program Understanding Tool	—	23

Step 1. Prepare to Install Service

Before you start applying service:

1. Create a backup copy of the current High Level Assembler Toolkit Feature. Save this copy of High Level Assembler Toolkit Feature until you have completed installing the service and you are confident that the service runs correctly.

2. Research each service tape through the IBM Support Center for any errors and/or additional information. Note all errors on the tape that were reported by APARs and apply the applicable fixes.

Step 2. Receive the Service

Receive the service using SMP/E RECEIVE command. This can be done from the SMP/E dialogs in ISPF or using a batch job.

Step 3. Accept Applied Service (Optional)

Accept any service you applied earlier but did not accept, if you are satisfied that the earlier service is not causing problems in your installation. This can be done from the SMP/E dialogs in ISPF or using a batch job. Accepting the earlier service allows you to use the SMP/E RESTORE command to return to your current level if you encounter a problem with the service you are currently applying. This can be done from the SMP/E dialogs in ISPF or using a batch job.

Step 4. Apply the Service

Apply the service using SMP/E APPLY command. You should use the SMP/E APPLY command with the CHECK operand first. Check the output; if it shows no conflict, rerun the APPLY without the CHECK option. This can be done from the SMP/E dialogs in ISPF or using a batch job.

Step 5. Test the Service

Thoroughly test your updated High Level Assembler Toolkit Feature. Run the installation verification program to ensure that the product functions properly. A job to run the installation verification program is found in the supplied sample job ASMWTIVP from the target library SASMSAM2. Do not accept a service update until you are confident that it runs correctly.

In the event of a serious problem, you can restore the backup copy of High Level Assembler Toolkit Feature.

Step 6. Accept the Service

Accept the service using SMP/E ACCEPT command. You should use the SMP/E ACCEPT command with the CHECK operand first. Check the output; if it shows no conflict, rerun the ACCEPT without the CHECK option. This can be done from the SMP/E dialogs in ISPF or using a batch job.

Step 7. Service on High Level Assembler Program Understanding Tool

Service which has an impact on High Level Assembler Program Understanding Tool will be indicated in the cover letter supplied with the service. Once service has been applied then High Level Assembler Program Understanding Tool should be updated onto the workstation. Please refer to Appendix E, "Maintaining Program Understanding Tool on OS/2" on page 101 or Appendix H, "Maintaining Program Understanding Tool on Windows" on page 111 to update High Level Assembler Program Understanding Tool on the workstation.

Removing High Level Assembler Toolkit Feature

To delete High Level Assembler Toolkit Feature, you must:

- Make sure no other products depend on it.

- Use a dummy function SYSMOD to delete it.

- Receive, apply and accept the dummy function, and run the UCLIN to delete the SYSMOD entries for the deleted function and the dummy function.

Edit and submit job ASMTDEL0 to delete High Level Assembler Toolkit Feature. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: You receive message `GIM39701W` because the dummy function SYSMOD has no elements. The SMP/E RECEIVE command returns a return code of 4. If any USERMODs have been applied then the SMP/E APPLY command issues a `GIM44502W` message indicating USERMOD changes will be lost with a return code of 4. Both these warning messages can be ignored.

The target and distribution libraries can now be deleted. They are shown in Table 7 on page 8 and Table 8 on page 8.

Reporting a Problem with High Level Assembler Toolkit Feature

Report any difficulties with this product to your IBM Support Center. In the United States, if an APAR is required, submit the data to the location identified in the *Field Engineering Programming System General Information* manual (PSGIM), G229-2228, as being responsible for the failing component.

Table 16 on page 24 identifies the component ID (COMP ID) for High Level Assembler Toolkit Feature.

Table 16. Component IDs

FMID	COMP ID	Component Name	REL
JMQ415A	569623401	MVS HLA TOOLKIT FEATURE	15A

Obtaining Service Information

Preventive Service Planning (PSP) information is continually updated as fixes are made available for problems. Check with your IBM Support Center or use either Information/Access or SoftwareXcel Extended to see whether there is additional PSP information you need. To obtain this information, specify the following UPGRADE and SUBSET values: HLASM150 and JMQ415A.

On VM: Planning for, Installing, and Maintaining High Level Assembler Toolkit Feature

Chapter 4. Planning for Installing High Level Assembler Toolkit Feature on VM

This section contains the following planning information to help you properly install High Level Assembler Toolkit Feature on VM:

- Worksheet
- What you receive with High Level Assembler Toolkit Feature
- Identifying required and optional software
- VMSES/E considerations
- Verifying that you have enough DASD storage
- Program Support
- Program and Service Level Information
- Publications useful during installation

Worksheet: Planning for Installing High Level Assembler Toolkit Feature on VM

Before you begin the installation you should:

___ 1. Determine which of the following you are installing High Level Assembler Toolkit Feature as:

  ___ Part of a VM/System Offering or z/VM System Delivery Offering

  ___ By itself

  If installing High Level Assembler Toolkit Feature by itself, determine the product parts to be installed:

  ___ COMPID *569623401*

  ___ Feature number ____

  See "What You Receive with High Level Assembler Toolkit Feature" on page 28.

___ 2. Verify that required software (and optional software, if appropriate) is at the level needed. See "What You Need to Install High Level Assembler Toolkit Feature" on page 29.

___ 3. Ensure you are familiar with VMSES/E. See "VMSES/E Considerations" on page 29.

___ 4. Verify that adequate storage is available:

  ___ Minidisks

  ___ Shared File System

  See "DASD Storage Required" on page 30.

___ 5. Obtain latest service updates needed. See "Program Support" on page 32.

___ 6. Plan to install High Level Assembler Program Understanding Tool onto a workstation. See Appendix C, "Planning for Installing Program Understanding Tool on OS/2" on page 93 or Appendix F, "Planning for Installing Program Understanding Tool on Windows" on page 103.

What You Receive with High Level Assembler Toolkit Feature

You receive one of the following when you order High Level Assembler Toolkit Feature:

COMPIDs	Feature Numbers	System Name
569623401	5831	z/VM
569623401	5832	z/VM
569623401	6101	z/VM

Distribution Media

High Level Assembler Toolkit Feature is distributed on one of the following:

* Unlabeled 9-track magnetic tape written at 6250 BPI
* 3480 tape cartridge
* 4mm tape cartridge

The tape or cartridge contains all the programs and data needed for installation.

Basic Material

Table 17 describes the tape or cartridge. Table 18 describes the file content of the program tape or cartridge.

Table 17. Basic Material: Program Tape

Medium	Feature Number	Physical Volume	External Label Iden-tification	VOLSER
6250 tape	5831	1	HLASM TLKT VM R5	unlabeled
3480 cart.	5832	1	HLASM TLKT VM R5	unlabeled
4mm tape cartridge	6101	1	HLASM TLKT VM R5	unlabeled

Table 18. Program Tape: File Content

Tape File	Content
1	Tape Header
2	Tape Header
3	Product Header
4	Product Memo
5	Service Apply Lists
6	PTFPARTS
7	High Level Assembler Toolkit Feature Service
8	High Level Assembler Toolkit Feature Service
9	High Level Assembler Toolkit Feature Base Code
10	High Level Assembler Toolkit Feature Sample file
11	High Level Assembler Toolkit Feature Product Code

Optional Material

There are no optional materials for High Level Assembler Toolkit Feature.

Cumulative Service Tape

You might receive an additional tape containing cumulative service with your order.
The PTFs on this tape have not yet been incorporated into this release.

If you received this product as part of a z/VM System Delivery Offering, PTFs that
have not been incorporated into this release are provided on the tape. A separate
cumulative service tape is **not** provided.

Program Publications and Softcopy

This section identifies the basic and optional publications for High Level Assembler
Toolkit Feature.

One printed copy of the following manuals is included with the product:

- *HLASM Licensed Program Specifications*, GC26-4944
- *HLASM Toolkit Feature Installation and Customization Guide*, GC26-8711
- *HLASM Toolkit Feature Interactive Debug Facility User's Guide*, GC26-8709
- *HLASM Toolkit Feature User's Guide*, GC26-8710
- *HLASM Toolkit Feature Debug Reference Summary*, GC26-8712

For a list of books for related products, see "Bibliography" on page 113.

What You Need to Install High Level Assembler Toolkit Feature

The following sections identify the system requirements for installing High Level
Assembler Toolkit Feature.

Operating System Requirements

High Level Assembler Toolkit Feature supports the following VM operating systems
and subsequent releases and versions:

- z/VM V4.4

- z/VM V4.3

- z/VM V3 R1.0

Other Program Product Requirements

IBM High Level Assembler for MVS & VM & VSE is required for High Level Assem-
bler Toolkit Feature, this product should be at Version 1 Release 5.

VMSES/E Considerations

This section describes items that should be considered before you install High
Level Assembler Toolkit Feature

- VMSES/E is required to install and service this product.

- If multiple users install and maintain licensed products on your system there
  might be a problem getting the necessary write access to MAINT's 51D disk. If
  you find that there is contention for write access to the 51D disk, you can elimi-
  nate it by converting the software inventory from minidisk to the Shared File

System (SFS). See the *z/VM VMSES/E Introduction and Reference* manual section "Changing the Software Inventory to an SFS Directory Entry Format" for information on how to make this change.

- High Level Assembler Toolkit Feature is installed and serviced using the user ID P696234H. This is IBM's suggested user ID name. Customers are free to change this to any user ID they wish, however, a PPF override must be created.

  It might be easier to make this change during the substep 6 on page 37, while you are installing this product.

DASD Storage Required

Before installing you need to understand the user ID and DASD storage requirements. They are shown in Table 19 on page 31. Some important points to consider are:

- The installation user ID and minidisks are defined in "Step 2: Allocate Resources for Installing High Level Assembler Toolkit Feature" on page 38. They are listed in this chapter so that you get an idea of the resources that you need prior to allocating them.

- P696234H is the default user ID and can be changed. If you choose to change the name you need to create a Product Parameter File (PPF) override to change the name. This can be done in substep 6 on page 37.

- If you choose to install High Level Assembler Toolkit Feature on a common user ID, the default minidisk addresses for High Level Assembler Toolkit Feature might already be defined. If any of the default minidisks required by High Level Assembler Toolkit Feature are already in use, create an override to change the minidisks for High Level Assembler Toolkit Feature so they are unique.

Table 19. DASD Storage Requirements for Target Minidisks

Minidisk Owner (user ID)	Default Address	Storage in Cylinders		SFS 4K Blocks	Usage
		DASD	CYLS		Default SFS Directory Name
P696234H	2B2	3390	50	9000	Contains all the base code shipped with High Level Assembler Toolkit Feature.
					VMSYS:P696234H.HLASMTL.OBJECT
P696234H	2C2	3390	4	720	Contains a sample file
					VMSYS:P696234H.HLASMTL.LOCAL
P696234H	2D2	3390	50	9000	Contains serviced files.
					VMSYS:P696234H.HLASMTL.DELTA
P696234H	2A6	3390	1	180	Contains AUX files and software inventory files that represents your test service level of High Level Assembler Toolkit Feature.
					VMSYS:P696234H.HLASMTL.APPLYALT
P696234H	2A2	3390	1	180	Contains AUX files and software inventory files that represents the service level of High Level Assembler Toolkit Feature that is currently in production.
					VMSYS:P696234H.HLASMTL.APPLYPROD
P696234H	29E	3390	50	9000	Test build disk. This code is copied to a production disk, (for example, MAINT 19E) so the production disk may also require this amount of free space.
					VMSYS:P696234H.HLASMTL.TBUILD
P696234H	191	3390	5	900	P696234H 191 minidisk.
					VMSYS:P696234H.

Note: Cylinder values defined in this table are based on 4K block size.

If you plan to use SFS directories, then calculate the number of 4K blocks required from Table 19.

Program Support

This section describes the IBM support available for High Level Assembler Toolkit Feature.

Program Services

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

Preventive Service Planning

Before installing High Level Assembler Toolkit Feature, you should review the current Preventive Service Planning (PSP) information.

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 High Level Assembler Toolkit Feature are:

Table 20. PSP Upgrade and Subset ID		
UPGRADE	**SUBSET**	**Description**
HLASM150	HLASMVM35A	HLASM Toolkit VM

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 provide the address to which any needed documentation can be sent.

Table 11 on page 10 identifies the component IDs (COMPID) for High Level Assembler Toolkit Feature.

Table 21. Component IDs			
FMID	**COMPID**	**Component Name**	**RETAIN Release**
35A	569623401	VM HLA TOOLKIT FEATURE	35A

Program and Service Level Information

This section identifies the program and any relevant service levels of High Level Assembler Toolkit Feature. The program level refers to the APAR fixes incorporated into the program. The service level refers to the PTFs integrated. Information about the cumulative service tape is also provided.

Program Level Information

A list of APAR fixes against previous releases of High Level Assembler Toolkit Feature that have been incorporated into this release is shown in Appendix A, "High Level Assembler Service" on page 89.

Service Level Information

No PTFs against this release of High Level Assembler Toolkit Feature have been incorporated into the product tape.

Publications Useful during Installation

The publications listed in Table 22 or Table 23, depending on your VM release, may be useful during the installation of High Level Assembler Toolkit Feature.

Table 22. Publications Useful During Installation / Service on z/VM Version 3.1.0

Publication Title	Form Number
z/VM: VMSES/E Introduction and Reference	GC24-5947
z/VM: Service Guide	GC24-5946
z/VM: Planning and Administration	SC24-5948
z/VM: CMS Command Reference	SC24-5969
z/VM: CMS File Pool Planning, Administration, and Operation	SC24-5949
z/VM: System Messages and Codes	GC24-5974

Table 23. Publications Useful During Installation / Service on z/VM Version 4

Publication Title	Form Number
z/VM: VMSES/E Introduction and Reference	GC24-5994
z/VM: Service Guide	GC24-5993
z/VM: CMS Command and Utility Reference	SC24-6010
z/VM: CMS File Pool Planning, Administration, and Operation	SC24-5949
z/VM: CP Planning and Administration	SC24-6043
z/VM: Saved Segments Planning and Administration	SC24-6056
z/VM: System Messages and Codes - Other Components	GC24-6032
z/VM: System Messages and Codes - CMS	GC24-6031
z/VM: System Messages and Codes - CP	GC24-6030

Chapter 5. Installing High Level Assembler Toolkit Feature on VM

This chapter describes the installation method and the step-by-step procedures you use to install and activate the functions of High Level Assembler Toolkit Feature.

Overview of Installation

You install this release of High Level Assembler Toolkit Feature by using VMSES/E commands.

Checklist for Installing High Level Assembler Toolkit Feature

Table 24 lists the steps and associated VMSES/E commands for installing High Level Assembler Toolkit Feature. The remaining sections in this chapter describe each step. You can use Table 24 as a checklist.

Table 24. Summary of Steps for Installing High Level Assembler Toolkit Feature

Step	Description	VMSES/E Command	page
__ 1	Prepare to install High Level Assembler Toolkit Feature.	VMFINS	35
__ 2	Allocate resources for installing High Level Assembler Toolkit Feature.		38
__ 3	Install High Level Assembler Toolkit Feature.	VMFINS	40
__ 4	Verify the installation in a test environment.	VMFINS	43
__ 5	Place High Level Assembler Toolkit Feature into production.	VMFCOPY	44
__ 6	Download High Level Assembler Program Understanding Tool to workstation.	—	47

Step 1: Prepare to Install High Level Assembler Toolkit Feature

Carry out the following preparatory tasks:

1. Log on as the High Level Assembler Toolkit Feature installer planner, typically the MAINT user ID. IBM recommends that you use P696234H as the product installation user ID.

   Normally, the MAINT user ID is used for the planning and setup for High Level Assembler Toolkit Feature, then the P696234H user ID is used to install the product.

   You can log on as any user ID that has read access to MAINT's 5E5 minidisk and write access to the MAINT 51D minidisk.

2. Make installation media available.

   - Attach the tape to the user ID at virtual address 181. Using virtual address 181 is required by the VMFINS EXEC.

   or

- If you have received High Level Assembler Toolkit Feature as an Envelope file, ensure the Envelope file exists on the A-disk.

3. Establish read access to VMSES/E, using the following command:

Command	Explanation
`link MAINT 5e5 5e5 rr` `access 5e5 b`	Commands to access VMSES/E code.

4. Establish write access to the software inventory disk.

Command	Explanation
`link MAINT 51d 51d mr` `access 51d d`	Commands to acquire write access to software inventory disk.

If another user already has the software inventory disk linked in write mode (R/W), you are not allowed to link to that disk in write mode. Have the other user relink to the software inventory disk in read-only mode, then try the above procedure again.

The VMSES/E system-level software inventory and other dependent files reside on the MAINT 51D disk.

You cannot proceed with the installation procedure until you have write access to the software inventory disk.

5. Load the High Level Assembler Toolkit Feature product control files onto the software inventory disk.

Command	Explanation
Installation tape: `vmfins install info (nomemo`	
Installation Envelope file: `vmfins install info (nomemo env` *filename*	
	Where *filename* is the file name of the envelope or servlink file for HLASM Toolkit.
	Either of these commands will: • Load Memo-to-Users file • Load product control files including the Product Parameter File (PPF) and the PRODPART files • Create VMFINS PRODLIST on your A-disk. The VMFINS PRODLIST contains a list of products on the installation tape.

Options:

NOMEMO Loads the memo from the tape but does not issue a prompt to send it to the system printer. If you replace it with the MEMO option, you are prompted for printing the memo.

6. Obtain the resource planning information.

Command	Explanation
Installation tape: `vmfins install ppf 5696234H {HLASM|HLASMSFS} (plan nomemo`	
Installation Envelope file: `vmfins install ppf 5696234H {HLASM|HLASMSFS} (plan nomemo env `*filename*	
	Where *filename* is the file name of the envelope or servlink file for HLASM Toolkit.
	You are prompted to change the installation defaults (VMFINS2601R). Please refer to the notes below.
	Creates 5696234H PLANINFO file on your A disk.
	Use `HLASM` if High Level Assembler Toolkit Feature is to be installed on minidisk. Use `HLASMSFS` if High Level Assembler Toolkit Feature is to be installed in SFS.

This command *does not* load High Level Assembler Toolkit Feature.

Options:

NOMEMO Loads the memo from the tape but does not issue a prompt to send it to the system printer. If you replace it with the MEMO option, you are prompted for printing the memo.

PLAN VMFINS performs requisite checking, plans system resources, and provides an opportunity to override the defaults in the product parameter file.

Notes:

a. You can override:

- The name of the product parameter file
- The default user IDs
- Minidisk/directory definitions

b. If you change the PPF name, a default user ID, or other parameters via a PPF override, you need to use your changed values instead of those indicated (when appropriate), throughout the rest of the installation instructions, as well as the instructions for servicing High Level Assembler Toolkit Feature. For example, you need to specify your PPF override file name instead of 5696234H for certain VMSES/E commands. For more information about changing the VMSYS file pool name see Appendix B, "Create Product Parameter File (PPF) Override" on page 91.

c. If you are not familiar with creating PPF overrides using VMFINS, you should review the 'Using the Make Override Panel' section in Chapter 3 of the *VMSES/E Introduction and Reference* before you continue.

7. Review the install message log file

Command	Explanation
`vmfview install`	View the install message log.

Review the install message log ($VMFINS $MSGLOG). If necessary, correct any problems before going on. For information about handling specific error messages, see *z/VM: System Messages and Codes,* or use online help.

Step 2: Allocate Resources for Installing High Level Assembler Toolkit Feature

Use the information from the 5696234H PLANINFO file to allocate storage resources for your installation.

In the planning chapter, you decided whether to install on minidisk or shared file system (SFS), see "DASD Storage Required" on page 30.

Common Instructions for Allocating Storage Resources

1. Obtain the user directory from the 5696234H PLANINFO file.

   - User directory entries contain all of the links and privilege classes necessary for the P696234H user ID.
   - Use the directory entry in PLANINFO as a model for input to your system directory.

   The user directory entry resides at the bottom of the PLANINFO file at the end of the resource requirements section.

2. Add the P696234H directory to the system directory.

   Change the password for P696234H from xxxxx to a valid password in accordance with the security guidelines at your site.

   Minidisk installers: Go on to "If Installing on a Minidisk."

   SFS installers: Go on to "If Installing on a Shared File System."

If Installing on a Minidisk

After obtaining the user directory from the 5696234H PLANINFO file:

- Add the MDISK statements to the directory entry for P696234H.
- Use Table 19 on page 31 in Chapter 4, "Planning for Installing High Level Assembler Toolkit Feature on VM" to obtain the minidisk requirements.
- Place the new directory online using VM/Directory Maintenance (DIRMAINT) or an equivalent CP directory maintenance method.

Go on to "Step 3: Install High Level Assembler Toolkit Feature" on page 40.

If Installing on a Shared File System

After completing the common steps above, you must then:

1. If you want to use an SFS directory as the work space for the P696234H top directory, include the following in the P696234H directory entry. This change requires the directory to be rebuilt and placed online.

Directory Statement	Explanation
`IPL CMS PARM FILEPOOL VMSYS`	This directory statement allows automatic access to the P696234H's top directory as file mode A.

2. Place the new directory online using VM/Directory Maintenance (DIRMAINT) or an equivalent CP directory maintenance method.

3. Use the number of 4K blocks calculated from Table 19 on page 31 in Chapter 4, "Planning for Installing High Level Assembler Toolkit Feature on VM."

   - If you are installing all the default High Level Assembler Toolkit Feature SFS directories, the block requirements are summarized in the table.
   - If you are selectively installing SFS directories, calculate the number of 4K blocks your installation requires by adding up the storage required by each of the directories you plan to install.

4. From a user ID that is an administrator for the VMSYS filepool, issue the following command:

Command	Explanation
`enroll user P696234H vmsys: (blocks` *blocks*	This command enrolls the user P696234H in the VMSYS filepool. Where `VMSYS` is the default filepool.

   Options:

   BLOCKS Where *blocks* is the number of 4K blocks that you calculated previously.

   This makes available a top directory of VMSYS:P696234H. to the user.

5. Compare your storage needs to the amount of storage available in the filepool.

Command	Explanation
`query filepool status vmsys:`	Command to get a list of directories in the filepool and the number of free blocks. *VMSYS* is the default filepool ID.

   If the number of free blocks is smaller than the number of blocks you need to install High Level Assembler Toolkit Feature (which you calculated in step 3, above), you need to add space to the filepool.

   For instructions on adding space to a filepool, see CMS File Pool Planning, Administration, and Operation.

6. Create the necessary `vmsys:P696234H.HLASMTL` subdirectories used in the P696234H PLANINFO file.

Command	Explanation
`set filepool vmsys:` `create directory` *dirid*	Commands to create subdirectories

Options:

dirid   Where *dirid* is the name of the SFS directory you are creating.

Examples of the command above include:

```
create directory vmsys:P696234H.HLASMTL
create directory vmsys:P696234H.HLASMTL.object
```

⋮

A complete list of default High Level Assembler Toolkit Feature SFS directories is provided in Table 19 on page 31 in Chapter 4, "Planning for Installing High Level Assembler Toolkit Feature on VM." For information about the CREATE DIRECTORY command, see the *z/VM CMS Command Reference* manual.

There is no need to create the top directory (VMSYS:P696234H.) as this has been implicitly created by the ENROLL command.

7. Give the MAINT user ID READ authority to the general-use test build directory, using the GRANT AUTHORITY command.

Command (entered as one line)	Explanation
`grant auth vmsys:P696234H.HLASMTL.TESTPROD to MAINT (read newread`	The GRANT command permits copying files to MAINT's 19E production disk.

Options:

READ   Gives the user READ authority on a file or directory.

NEWREAD Indicates that the user (or users) automatically receive READ authority for any new files added to the directory.

If necessary, see the *z/VM CMS Command Reference* manual for more information about the GRANT AUTHORITY command.

Go on to "Step 3: Install High Level Assembler Toolkit Feature"

Step 3: Install High Level Assembler Toolkit Feature

1. Log on to the installation user ID, P696234H.

2. Format minidisks

   If minidisks are to be used rather than SFS directories, then format these disks now. For a list of disk addresses, refer to Table 19 on page 31.

3. Create a PROFILE EXEC that contains the ACCESS commands for the requisite minidisks.

Command	Explanation

`xedit profile exec a`
`===> input /**/`
`===> input 'access 5e5 b'`
`===> input 'access 51d d'`
`===> file`
	Commands to edit a PROFILE EXEC and sample input statements.

4. Execute the profile to access MAINT's minidisks.

Command	Explanation
`profile`	Command to execute profile.

5. Verify that you have write access to the software inventory disk.

Command	Explanation
`q 51d`	Command to query access status of the software inventory disk.

If the disk is not in read write mode (R/W) then see substep 4 on page 36.

6. Make installation media available.

   - If you have received High Level Assembler Toolkit Feature as a product tape, then have the High Level Assembler installation tape mounted and attached to user ID P696234H at virtual address 181. VMFINS EXEC requires the tape drive be at a virtual address of 181.

   or

   - If you have received High Level Assembler Toolkit Feature as an Envelope file, then you can install High Level Assembler Toolkit from minidisk. Therefore ensure the envelope file exists on the A-disk.

7. Install High Level Assembler Toolkit Feature product

   If you have already created a PPF override file, you should specify your override file name after the **PPF** keyword for the following VMFINS command.

   You might be prompted for additional information during VMFINS INSTALL processing, depending on your installation environment. If you are unsure how to respond to a prompt, refer to the 'Installing Products with VMFINS' in the *z/VM VMSES/E Introduction and Reference* to decide how to proceed.

Command (entered as one line)	Explanation
Installation tape: `vmfins install ppf 5696234H {HLASM|HLASMSFS} ( nomemo nolink`	
Installation Envelope file: `vmfins install ppf 5696234H {HLASM|HLASMSFS} ( nomemo nolink env` *filename*	Where *filename* is the file name of the envelope or servlink file for HLASM Toolkit.
	Command to install High Level Assembler Toolkit Feature. Use `HLASM` if High Level Assembler Toolkit Feature is installed on minidisk. Use `HLASMSFS` if High Level Assembler Toolkit Feature is installed in SFS. You are prompted to create an override for High Level Assembler Toolkit Feature when this command executes. Refer to message text for response.

Options:

NOMEMO Loads the memo from the tape but does not issue a prompt to send them to the system printer. If you replace it with the MEMO option, you are prompted for printing the memo.

NOLINK Indicates that you do not want VMFINS to link to the appropriate minidisks, only access them if they are not already accessed.

Notes:

  a. You can override:

   • The name of the product parameter file
   • The default user IDs
   • Minidisk/directory definitions

  b. If you change the PPF name, a default user ID, or other parameters via a PPF override, you need to use your changed values instead of those indicated (when appropriate), throughout the rest of the installation instructions, as well as the instructions for servicing High Level Assembler Toolkit Feature. For example, you need to specify your PPF override file name instead of 5696234H for certain VMSES/E commands. For more information about changing the VMSYS file pool name see Appendix B, "Create Product Parameter File (PPF) Override" on page 91.

  c. If you are not familiar with creating PPF overrides using VMFINS, you should review the 'Using the Make Override Panel' section in Chapter 3 of the *VMSES/E Introduction and Reference* before you continue.

8. Review the install message log ($VMFINS $MSGLOG).

Command	Explanation
`vmfview install`	View the install message log.

Correct any problems before you go on. For information about handling specific error messages, see *z/VM: System Messages and Codes* or use online help.

Step 4: Verify the Installation in a Test Environment

1. Update Build Status Table

Command (entered as one line)	Explanation
`vmfins build ppf 5696234H  {HLASM|HLASMSFS} (serviced nolink`	
	Update VM SYSBLDS software inventory file for High Level Assembler Toolkit Feature
	Use `HLASM` if High Level Assembler Toolkit Feature is installed on minidisk. Use `HLASMSFS` if High Level Assembler Toolkit Feature is installed in SFS.

Options:

SERVICED Identifies build requirements and builds those objects flagged as SERVICED in the service-level build status table.

NOLINK Indicates that you do not want VMFINS to link to the appropriate minidisks, only to access them if they are not already accessed.

The VMFINB2173I informational message indicating no verification EXEC found for this product is to be ignored from this invocation of the VMFBLD EXEC. The next substep manually invokes the verification process.

2. Verify Installation

Prior to running this verification, this userid must be able to access the High Level Assembler.

Command	Explanation
`T5696234`	
	This EXEC verifies the operation of the Disassembler and Interactive Debug Facility.

This verification test is run to ensure that High Level Assembler Toolkit Feature was installed successfully. Figure 2 on page 44 shows sample screen output from the verification process.

```
--------------------------------------------------------
IBM HIGH LEVEL ASSEMBLER TOOLKIT FEATURE DISASSEMBLER
Verification
--------------------------------------------------------

Disassembly of ASMTSAMP module completed successfully

The disassembly listing can be found in ASMTSAMP LISTING

--------------------------------------------------------
--------------------------------------------------------
IBM HIGH LEVEL ASSEMBLER TOOLKIT FEATURE Interactive Debug
Facility Verification
--------------------------------------------------------

Interactive Debug Facility completed successfully.

The toolkit is installed successfully.

------------------------------------------------------------
Ready; T=0.10/0.18 10:53:01
```

Figure 2. Sample install verification output

Step 5: Put High Level Assembler Toolkit Feature into Production

1. Log on to MAINT if you plan to put High Level Assembler Toolkit Feature general-use code on the 'Y' disk (MAINT's 19E disk). Or log on to the owner of the disk that is to contain the production level of the High Level Assembler Toolkit Feature code.

2. Link to High Level Assembler Toolkit Feature code and access MAINT's Y disk

   Choose which access is required depending on whether you have used a mini-disk or SFS.

Minidisk access is :

Command	Explanation
`link P696234H 29e 29e rr` `access 29e e`	Access High Level Assembler Toolkit Feature code on a minidisk.
`access 19e f`	Access CMS's Y disk.

SFS access is :

Command	Explanation
`access vmsys:P696234H.HLASMTL.TESTPROD e`	Access High Level Assembler Toolkit Feature code on a SFS directory.
`access 19e f`	Access CMS's Y disk.

3. Move High Level Assembler Toolkit Feature to the Y disk.

All the High Level Assembler Toolkit Feature modules should be placed onto the Y disk using the VMFCOPY command.

The ASMSMAC MACLIB should also be copied, if you wish to make the structured macros available to the users.

Command	Explanation
`vmfcopy * MODULE e = = f2 (prodid 5696234H%HLASM olddate replace`	Copy Toolkit to CMS's Y disk.
`vmfcopy * MACLIB e = = f2 (prodid 5696234H%HLASM olddate replace`	

Options:

OLDDATE Uses the date and time on each input file as the date and time of the last update of each corresponding output file.

REPLACE Causes the output file to replace an existing file with the same file identifier.

If you do not want to use the Y disk for general use code, log on as the owner of the disk where you put the production level of the High Level Assembler Toolkit Feature code.

The VMFCOPY command updates the VMSES PARTCAT file on the 19E disk.

If you want to move the Enhanced SuperC (SuperC) then the following parts should also be copied to the Y disk.

- ASMFSRCH OPTSLIST
- ASMF3270 IOS3270
- ASMF327 XMOD
- ASMFPRT EXEC

- ASMFSUPC NAMES
- ASMFSUPC MENU
- ASMFSUPC EXEC
- ASMFSUPC OPTSLIST
- ASMFSUPC HELP

If you want to move the cross reference facility (ASMXREF) then the following parts should also be copied to the Y disk.

- ASMTEST CNTL
- ASMTEST DEFAULTS
- ASMTEST EXEC
- ASMXRPT EXEC
- ASMXSCAN EXEC
- ASMXSEP EXEC
- ASMXLANG SAMPLE
- ASMXTOKN SAMPLE
- ASMTEST ASSEMBLE

4. Resave the CMS saved system.

   This updates the shared Y-STAT (the saved Y disk file directory).

   a. Define named saved system

      This creates a named saved system for CMS.

Command	Explanation
`vmfsetup zvm cms`	On z/VM, allows access to the SAMPNSS EXEC which resides on MAINT's 193 disk.
`sampnss cms`	Create named saved system for CMS.

   b. Resave the CMS system

Command	Explanation
`ipl 190 clear parm savesys cms`	Resave CMS saved system to reflect the change to the Y-STAT (the saved Y disk file directory).

Step 6: Download High Level Assembler Program Understanding Tool

Instructions to download the High Level Assembler Program Understanding Tool are contained in Appendix D, "Installing Program Understanding Tool on OS/2" on page 95 and Appendix G, "Installing Program Understanding Tool on Windows" on page 105.

This completes the installation process.

Chapter 6. Maintaining High Level Assembler Toolkit Feature on VM

This chapter describes how to re-install, or remove High Level Assembler Toolkit Feature and how to apply service updates. To effectively use the maintenance procedures, you must have already installed High Level Assembler Toolkit Feature and any required products.

To become more familiar with service using VMSES/E, you should read the introductory chapters in *z/VM VMSES/E Introduction and Reference*. This manual also contains the command syntax for the VMSES/E commands listed in the procedure.

Each step of the servicing instructions must be followed; do not skip any step unless otherwise directed. All instructions showing accessing of disks assume default minidisk addresses. If different minidisk addresses are used, or if using a shared-file system, change the instructions appropriately.

Re-installing High Level Assembler Toolkit Feature

You should delete the product and commence the installation process from the beginning. To delete the product refer to "Removing High Level Assembler Toolkit Feature" on page 59. When the product is deleted, start the installation from "Step 1: Prepare to Install High Level Assembler Toolkit Feature" on page 35.

Applying Service Updates

This section describes how to apply maintenance or service updates to High Level Assembler Toolkit Feature.

What You Receive

If you report a problem with High Level Assembler Toolkit Feature to your IBM Support Center, you will receive a tape containing one or more APARs or PTFs which solve your problem.

You might also receive a list of pre-requisite APARs or PTFs, which should have been applied to your system before applying the current service. These pre-requisite APARs or PTFs might relate to High Level Assembler Toolkit Feature or any other licensed product you have installed, including z/VM.

The following overview familiarizes you with some of the aspects of applying service for High Level Assembler Toolkit Feature.

Checklist for Applying Service

Table 25 on page 50 lists the steps and associated VMSES/E commands for installing corrective service on High Level Assembler Toolkit Feature. You can use Table 25 on page 50 as a checklist.

Table 25. Summary of Steps for Installing Service on High Level Assembler Toolkit Feature

Step	Description	VMSES/E Command	page
__ 1	Prepare to install service.		50
__ 2	Clear the alternate APPLY disk. Doing this allows you to remove the new service easily later if necessary.	VMFMRDSK	51
__ 3	Receive the new service.	VMFREC	52
__ 4	Apply the new service.	VMFAPPLY	53
__ 5	Reapply local service by entering local service into the software inventory. (if applicable)		54
__ 6	Update Build Status Table.	VMFBLD	54
__ 7	Rebuild Serviced Parts (Objects)	VMFBLD	56
__ 8	Verify the service that has been applied and built.		57
__ 9	Place into production		57
__ 10	Service on High Level Assembler Program Understanding Tool	—	59

Step 1. Prepare to Install Service

Carry out preliminary steps prior to receiving service.

Electronic Service (envelope file)

If you have received the service electronically or on CD-ROM, follow the appropriate instructions to retrieve and decompact the envelope file to your A-disk. The decompaction is currently done by using the DETERSE MODULE. The file names of the decompacted files will be of the format:

- VLST*num* for the documentation envelope
- VPTF*num* for the service envelope

The file type for both of these files must be SERVLINK. You will need to enter the file name on the VMFREC commands that follow.

---

1. Create a backup copy of the current High Level Assembler Toolkit Feature before applying the service tape. Save this copy of High Level Assembler Toolkit Feature until you have completed installing the service and you are confident that the service runs correctly.

2. Log on to the High Level Assembler Toolkit Feature service user ID: P696234H.

3. Establish read-write (R/W) access to the software inventory disk.

Command	Explanation
`link MAINT 51d 51d mr` `access 51d d`	Commands to access the software inventory disk.

4. Mount the High Level Assembler Toolkit Feature corrective service tape and verify that it is attached to user ID P696234H. Use an address of 181. (If you have a SERVLINK file make sure that it is available on the A-disk.)

5. Establish the correct minidisk access order.

The VMFSETUP command accesses all the required disks or SFS directories to establish the needed file modes.

Command	Explanation
`vmfsetup 5696234H {HLASM│HLASMSFS}`	5696234H is the PPF that is shipped with High Level Assembler Toolkit Feature. If you have your own PPF override, substitute your PPF name for 5696234H. Use `HLASM` if High Level Assembler Toolkit Feature is installed on minidisk. Use `HLASMSFS` if High Level Assembler Toolkit Feature is installed in SFS.

6. Receive Documentation. VMFREC with the INFO option loads the documentation and displays a list of all the products on the tape.

    a. if receiving the service from tape

Command	Explanation
`vmfrec info`	The INFO option loads the documentation (including the product service memo) to the 191 disk and displays a list of products on the tape.

    b. if receiving the service from an envelope file

Command	Explanation
`vmfrec info (env vlstnum`	The INFO option loads the documentation (including the product service memo) to the 191 disk and displays a list of products on the tape.

7. Check the receive message log ($VMFREC $MSGLOG) for attention and error messages.

Command	Explanation
`vmfview receive`	View the receive message log

Make a note of which products and components have service on the tape. To do this, use the PF5 key to show all the status messages that identify the products on the tape.

Step 2. Clear the Alternate APPLY Disk

Clear the alternate APPLY disk to ensure that you have a clean disk for new service.

1. Clear disk

Merge previously applied service to ensure that you have a clean alternate
APPLY disk for new service.

Command	Explanation
`vmfmrdsk 5696234H {HLASM|HLASMSFS} apply`	Command to clear the alternate APPLY disk. Use `HLASM` if High Level Assembler Toolkit Feature is installed on minidisk. Use `HLASMSFS` if High Level Assembler Toolkit Feature is installed in SFS.

2. Check merge message log

Command	Explanation
`vmfview mrd`	Command to review the merge message log ($VMFMRD $MSGLOG). Correct any problems before you go on. For information about handling specific error messages, refer to *z/VM: System Messages and Codes*, or use online help.

Step 3. Receive the New Service

1. Receive new service

   Note: if you are installing multiple service tapes, you can receive all the
   service for this product before applying and building it. For each service tape
   or electronic envelope you want to receive, do the following:

   a. if receiving the service from tape

Command	Explanation
`vmfrec ppf 5696234H {HLASM|HLASMSFS}`	Command to receive service from the service tape. All new service is loaded to the alternate DELTA disk. Use `HLASM` if High Level Assembler Toolkit Feature is installed on minidisk. Use `HLASMSFS` if High Level Assembler Toolkit Feature is installed in SFS.

   b. if receiving the service from the PTF envelope file

Command	Explanation
`vmfrec ppf 5696234H (HLASM │HLASMSFS) (env vptf`*num*	This command receives service from your service envelope. All new service is loaded to the DELTA disk. Use `HLASM` if High Level Assembler Toolkit Feature is installed on minidisk. Use `HLASMSFS` if High Level Assembler Toolkit Feature is installed in SFS.

For information about handling specific error messages, refer to *z/VM: System Messages and Codes*, or use online help.

2. Review receive message log

Command	Explanation
`vmfview receive`	Command to review the receive message log ($VMFREC $MSGLOG). Correct any problems before you go on. For information about handling specific error messages, refer to *z/VM: System Messages and Codes*, or use online help.

Step 4. Apply the New Service

1. Apply new service

Command	Explanation
`vmfapply ppf 5696234H {HLASM│HLASMSFS}`	Command to apply the service you received in "Step 3. Receive the New Service" on page 52 The version vector table (VVT) is updated with all service parts and all necessary AUX files are generated. Use `HLASM` if High Level Assembler Toolkit Feature is installed on minidisk. Use `HLASMSFS` if High Level Assembler Toolkit Feature is installed in SFS.

2. Review apply message log

Command	Explanation
`vmfview apply`	Command to review the apply message log ($VMFAPP $MSGLOG). Correct any problems before going on. For information about handling specific error messages, refer to *z/VM: System Messages and Codes*, or use online help.

Step 5. Reapply Local Service

Do this step only if you received message **VMFAPP2120W** during the VMFAPPLY
step.

1. Reapply any local modifications **before** building the serviced High Level
   Assembler Toolkit Feature. Instructions for this process are in the *z/VM Service
   Guide*.

2. Follow the steps that are applicable to your local modification. Then return to
   this *Installation and Customization Guide* to continue with the next step,
   updating the build status table.

3. For the process in the *z/VM Service Guide* make the following substitutions:

   - zvm should be 5696234H

   - *compname* should be HLASM or HLASMSFS (minidisk or SFS)

   - *appid* should be 5696234H

   - *fm-local* should be the file mode of disk 2C2

   - *fm-applyalt* should be the file mode of disk 2A6

   - substitute your PPF override in all commands requiring the PPF name.

Step 6.Update Build Status Table

Command	Explanation
`vmfbld ppf 5696234H {HLASM|HLASMSFS} (status`	
	Command to update the Build Status Table.
	Use `HLASM` if High Level Assembler Toolkit Feature is installed on minidisk. Use `HLASMSFS` if High Level Assembler Toolkit Feature is installed in SFS.

Options:

STATUS   Identifies build requirements.

If service has been applied to the source product parameter file (file type of $PPF),
then carry out the instructions below before continuing onto "Step 7. Rebuild Ser-
viced Parts (Objects)" on page 56.

If the $PPF files have been serviced the following prompt is displayed:

```
VMFBLD2185R The following source product parameter files have been
serviced.
VMFBLD2185R 5696234H $PPF
VMFBLD2185R When source product parameter files are serviced, all
            product parameter files built from them must be recompiled
            using VMFPPF before VMFBLD can be run.
VMFBLD2185R Enter zero (0) to have the serviced source product
            parameter files built to your A-disk and exit VMFBLD so
            you can recompile your product parameter files with VMFPPF.
VMFBLD2185R Enter one (1) to continue only if you have already
            recompiled your product parameter files with VMFPPF.
```

If you select 0, then the following recompiles the product parameter files (PPF).

Only select 1 if you have previously compiled your product parameter files. If you select 1 continue to "Step 7. Rebuild Serviced Parts (Objects)" on page 56.

1. Indicate $PPF file needs to be compiled

Command	Explanation
0	Enter a 0 and continue with the following commands.

The message

`VMFBLD2188I Building 5696234H $PPF on 191 (A) from level $PFnnnnn`

is displayed.

2. Compile the product parameter file

Command	Explanation
vmfppf 5696234H *	If you have your own PPF override, use your PPF name instead of 5696234H.

3. Copy the product parameter file to software inventory disk

Command	Explanation
copyfile 5696234H $PPF a = = d (olddate replace	**Do not** use your own PPF name in place of 5696234H for the COPYFILE commands.

Options:

OLDDATE Uses the date and time on each input file as the date and time of the last update of each corresponding output file.

REPLACE Causes the output file to replace an existing file with the same file identifier.

4. Erase product parameter file from A disk

Command	Explanation
erase 5696234H $PPF a	**Do not** use your own PPF name in place of 5696234H for the ERASE commands.

5. Update build status table

Command	Explanation
`vmfbld ppf 5696234H {HLASM│HLASMSFS} (status`	VMFBLD updates the build status table. Use `HLASM` if High Level Assembler Toolkit Feature is installed on minidisk. Use `HLASMSFS` if High Level Assembler Toolkit Feature is installed in SFS.
`1`	When you receive the **VMFBLD2185R** prompt, enter a 1 to continue.

Options:

STATUS   Identifies build requirements.

6. Review the build message log

Command	Explanation
`vmfview build`	Command to review the build status messages and see which objects need to be built.

Step 7. Rebuild Serviced Parts (Objects)

1. Rebuild serviced parts

Command	Explanation
`vmfbld ppf 5696234H {HLASM│HLASMSFS} (serviced`	Command to rebuild serviced parts. Use `HLASM` if High Level Assembler Toolkit Feature is installed on minidisk. Use `HLASMSFS` if High Level Assembler Toolkit Feature is installed in SFS.

Options:

SERVICED Identifies build requirements and builds those objects flagged as SERVICED in the service-level build status table.

2. Review build message log

Command	Explanation
`vmfview build`	Command to review the build message log ($VMFBLD $MSGLOG). Correct any problems before going on. For information about handling specific error messages, refer to *z/VM: System Messages and Codes*, or use online help.

Step 8. Verify the Service

After you have applied all the files on the service tape, run the installation verification EXEC to ensure that the product functions properly.

Command	Explanation
`T5696234`	Assembles then disassembles the sample program ASMTSAMP. It then invokes the Interactive Debug Facility to run the ASMTSAMP program.

Step 9. Place the Service into Production

1. Move service into production.

   a. Log on to MAINT if you plan to put High Level Assembler Toolkit Feature general-use code on the 'Y' disk (MAINT's 19E disk). Alternatively log on using the user ID of the owner of the disk which contains the production level of the High Level Assembler Toolkit Feature code.

   b. Link to High Level Assembler Toolkit Feature code and access MAINT's Y disk.

      Choose which access is required depending on whether you have used a minidisk or SFS.

Command	Explanation
`link P696234H 29e 29e rr`	
`access 29e e`	Access High Level Assembler Toolkit Feature code on a minidisk.
`access 19e f`	Access CMS's Y disk.

Command	Explanation
`access vmsys:P696234H.HLASMTL.TESTPROD e`	Access High Level Assembler Toolkit Feature code on a SFS directory.
`access 19e f`	Access CMS's Y disk.

   c. Move High Level Assembler Toolkit Feature to the Y disk.

      All of the High Level Assembler Toolkit Feature modules should be placed onto the Y disk using the VMFCOPY command.

      The ASMSMAC MACLIB should be copied, if you had made this maclib containing structured macros available to users.

Command (entered as one line)	Explanation
`vmfcopy * MODULE e = = f2 (prodid 5696234H%HLASM olddate replace`	
	Copy Toolkit to CMS's Y disk.
`vmfcopy * MACLIB e = = f2 (prodid 5696234H%HLASM olddate replace`	

Options:

OLDDATE Uses the date and time on each input file as the date and time of the last update of each corresponding output file.

REPLACE Causes the output file to replace an existing file with the same file identifier.

If you do not want to use the Y disk for general use code, log on as the owner of the disk where you will put the production level of the High Level Assembler Toolkit Feature code.

The VMFCOPY command updates the VMSES PARTCAT file on the 19E disk.

If you want to move the Enhanced SuperC (SuperC) then the following parts should also be copied to the Y disk.

- ASMFSRCH OPTSLIST
- ASMF3270 IOS3270
- ASMF327 XMOD
- ASMFPRT EXEC
- ASMFSUPC NAMES
- ASMFSUPC MENU
- ASMFSUPC EXEC
- ASMFSUPC OPTSLIST
- ASMFSUPC HELP

If you want to move the cross reference facility (ASMXREF) then the following parts should also be copied to the Y disk:

- ASMTEST CNTL
- ASMTEST DEFAULTS
- ASMTEST EXEC
- ASMXRPT EXEC
- ASMXSCAN EXEC
- ASMXSEP EXEC
- ASMXLANG SAMPLE
- ASMXTOKN SAMPLE
- ASMTEST ASSEMBLE

d. Update the shared Y-stat on the saved Y disk file directory.

1) Define named saved system

Creates a named saved system for CMS.

Command	Explanation
vmfsetup zvm cms	On z/VM, allows access to the SAMPNSS EXEC which resides on MAINT's 193 disk.
sampnss cms	Create named saved system for CMS.

2) Resave the CMS system

Command	Explanation
ipl 190 clear parm savesys cms	Resave CMS saved system to reflect the change to the Y-STAT (the saved Y disk file directory).

Step 10. Service on High Level Assembler Program Understanding Tool

Service which has an impact on High Level Assembler Program Understanding Tool will be indicated in the cover letter supplied with the service. Once service has been applied then High Level Assembler Program Understanding Tool should be updated onto the workstation. Please refer to Appendix E, "Maintaining Program Understanding Tool on OS/2" on page 101 or Appendix H, "Maintaining Program Understanding Tool on Windows" on page 111 to update High Level Assembler Program Understanding Tool on the workstation.

Removing High Level Assembler Toolkit Feature

Use the VMFINS DELETE command to remove High Level Assembler Toolkit Feature from your system. Please refer to *z/VM VMSES/E Introduction and Reference*, Chapter 7: Deleting Products with VMFINS.

To Report a Problem with High Level Assembler Toolkit Feature

To assist with reporting any difficulties reference should be made to the diagnostic process as shown in *IBM High Level Assembler for MVS & VM & VSE Installation and Customization Guide*.

Report any difficulties you have using this product to your IBM Support Center. In the United States, if an APAR is required, submit the data to the location identified in the *Field Engineering Programming System General Information* manual (PSGIM), G229-2228.

Table 26 on page 60 identifies the component ID (COMP ID) for High Level Assembler Toolkit Feature.

Table 26. Component IDs

COMP ID	Component Name	REL
569623401	VM HLA TOOLKIT FEATURE	35A

Obtaining Service Information

Preventive Service Planning (PSP) information is continually updated as fixes are made available for problems. Check with your IBM Support Center or use IBMLink(ServiceLink) to see whether there is additional PSP information you need. To obtain this information, specify the following UPGRADE and SUBSET values: `HLASM150` and `HLASMVM35A`.

On VSE: Planning for, Installing, and Maintaining High Level Assembler Toolkit Feature

Chapter 7. Planning for Installing High Level Assembler Toolkit Feature on VSE

This section contains the following planning information to help you properly install High Level Assembler Toolkit Feature on VSE:

- Worksheet
- What you receive with High Level Assembler Toolkit Feature
- Choosing required and optional software
- Verifying that you have enough DASD storage
- Deciding where to install
- Program Support
- Program and Service Level Information

Worksheet: Planning for Installing High Level Assembler Toolkit Feature on VSE

Before you begin the installation you should:

__ 1. Determine which of the following you are installing High Level Assembler Toolkit Feature from:

    __ A stacked tape (with one or more products besides High Level Assembler Toolkit Feature)

    __ A tape with just High Level Assembler Toolkit Feature on it

    See "What You Receive with High Level Assembler Toolkit Feature" on page 64.

__ 2. Determine the product parts to be installed:

    __ COMPID *569623401*

    __ Feature number ____

    __ Tape label *unlabeled*

    See "Basic Material" on page 64.

__ 3. Verify that required software (and optional software, if appropriate) is at the level needed. See "What You Need to Install High Level Assembler Toolkit Feature" on page 65.

__ 4. Verify that adequate storage is available. See "DASD and Other Storage Required" on page 66.

__ 5. Determine how you are going to install High Level Assembler Toolkit Feature:

    __ Using Interactive Interface.

    __ Using a batch installation job.

    See "Planning Where to Install High Level Assembler Toolkit Feature" on page 66.

__ 6. Determine which of the following you want to install on:

    __ Default library and sublibrary

    __ A different library and sublibrary

    If using a different library and sublibrary, verify that space is sufficient. See "Planning Where to Install High Level Assembler Toolkit Feature" on page 66.

__ 7. Check on latest service updates needed. See "Program Support" on page 67.

__ 8. Plan to install High Level Assembler Program Understanding Tool onto a workstation. See Appendix C, "Planning for Installing Program Understanding Tool on OS/2" on page 93 or Appendix F, "Planning for Installing Program Understanding Tool on Windows" on page 103.

What You Receive with High Level Assembler Toolkit Feature

You receive one of the following when you order High Level Assembler Toolkit Feature:

COMPIDs	Feature Number	System Name
569623401	5885	VSE/ESA
569623401	5882	VSE/ESA
569623401	6102	VSE/ESA

Distribution Media

High Level Assembler Toolkit Feature is distributed on one of the following:

- Unlabeled 9-track magnetic tape written at 6250 BPI
- 3480 tape cartridge
- 4MM tape cartridge

The tape or cartridge contains all the programs and data needed for installation.

Basic Material

Table 27 describes the program tape or cartridge. Table 28 describes the file content of the program tape or cartridge. VSE/ESA uses the Maintain System History Program (MSHP) to install this product.

Table 27. Basic Material: Program Tape

Medium	Feature Number	Phys-ical Volume	External Label Identification	VOLSER
6250 tape	5885	1	HLASM TLKT VSE R5	unlabeled
3480 cart.	5882	1	HLASM TLKT VSE R5	unlabeled
4mm DAT cart	6102	1	HLASM TLKT VSE R5	unlabeled

Table 28. Program Tape: File Content

File	Description
1	Header file containing High Level Assembler Toolkit Feature copyright statement
2	Backup file ID "HLASM.TLKT.1.5.0" followed by a MSHP System History File
3	High Level Assembler Toolkit Feature library file containing the production subli-brary
4	Tape mark
5	End of backup record
6	Tape mark

Optional Material

There are no optional machine-readable materials for High Level Assembler Toolkit Feature.

Cumulative Service Tape

You might receive an additional tape containing cumulative service with your order. The PTFs on this tape have not yet been incorporated into this release.

Program Publications and Softcopy

This section identifies the basic and optional publications for High Level Assembler Toolkit Feature.

One printed copy of the following manuals is shipped free automatically with the product:

- *HLASM Licensed Program Specifications*, GC26-4944
- *HLASM Toolkit Feature Installation and Customization Guide*, GC26-8711
- *HLASM Toolkit Feature Interactive Debug Facility User's Guide*, GC26-8709
- *HLASM Toolkit Feature Debug Reference Summary*, GC26-8712
- *HLASM Toolkit Feature User's Guide*, GC26-8710

For a list of books for related products, see "High Level Assembler Publications" on page 113.

Program Source Materials

There are no source materials available for High Level Assembler Toolkit Feature.

What You Need to Install High Level Assembler Toolkit Feature

The following sections identify the system requirements for installing High Level Assembler Toolkit Feature:

Required and Optional Software

This section describes the environment required to install and use High Level Assembler Toolkit Feature.

High Level Assembler Toolkit Feature runs on VSE with the required licensed programs listed in Table 29. **You should install all licensed programs with the minimum release listed or with any subsequent release**.

Table 29. Required Programs

Required Licensed Program	Minimum Version Supported
VSE/ESA	Version 2 Release 6
HIGH LEVEL ASSEMBLER for MVS & VM & VSE	Version 1 Release 5

In order to use High Level Assembler Toolkit Feature REXX/VSE must have been initialized and activated.

DASD and Other Storage Required

The DASD storage requirements of High Level Assembler Toolkit Feature must be added to the storage required by other programs having data in the same library. An estimate of required space is the data set's current allocation plus the storage required by High Level Assembler Toolkit Feature.

The target library must have free the number of library blocks shown in Table 30. A library block equals 1 kilobyte. For example, 10 library blocks equal 10,240 bytes. These values allow for subsequent service and functional enhancements. A LIBR RESTORE function with the SCAN option will provide an exact amount.

Table 30 also allows for space for service application.

Table 30. Library Requirements

Product Tapefile-id	LIBR BLKS	3375 CYL	3380 CYL	3390 CYL	9345 CYL	FBA BLKS
HLASM.TLKT.1.5.0	18000	60	39	37	39	36000

If you plan to have this product in a separate MSHP history file refer to the Table 31 for MSHP DASD space requirements.

Table 31. MSHP Requirements

File	3375 CYL	3380 CYL	3390 CYL	9345 CYL	FBA BLKS
IJSYSHF	2	1	1	1	900

Planning Where to Install High Level Assembler Toolkit Feature

The High Level Assembler Toolkit Feature default library is PRD2; the default sublibrary is PROD. All High Level Assembler Toolkit Feature installation jobs assume you are using sublibrary PRD2.PROD. To install High Level Assembler Toolkit Feature in a different library and sublibrary, you must change some names in the installation jobs.

You might have selected PRD2 as a library because other products that work with High Level Assembler Toolkit Feature use PRD2 as a default library. If you plan to install High Level Assembler Toolkit Feature to an existing PRD2.PROD sublibrary, make sure there is enough free space to accommodate the additional library blocks.

To check the space, list the directory information of the PRD2 library, using the LISTDIR command of the LIBR program. Make sure there are sufficient library blocks in the free space.

You can use Interactive Interface to install High Level Assembler Toolkit Feature or the documented sample batch job.

All the sample batch jobs shown in this manual are supplied as .Z books in the installed library. They are also supplied as .I books for addition to ICCF library 62. If the product is installed using the Interactive Interface then these ICCF members are added to ICCF library 62 by the install process. These have the same name

except, the fourth character is an **I**, for example there is ASMTVTOC.Z and its ICCF equivalent is ASMIVTOC.I.

Program Support

This section describes the IBM support available for High Level Assembler Toolkit Feature.

Program Services

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

Preventive Service Planning

Before installing High Level Assembler Toolkit Feature, you should review the current Preventive Service Planning (PSP) information.

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 High Level Assembler Toolkit Feature are:

Table 32. PSP Upgrade and Subset ID		
UPGRADE	**SUBSET**	**Description**
HLASM150	HLASMVSE5IM	HLASM Toolkit VSE

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 provide the address to which any needed documentation can be sent.

Table 11 on page 10 identifies the component IDs (COMPID) for High Level Assembler Toolkit Feature.

Table 33. Component IDs			
CLC	**COMPID**	**Component Name**	**RETAIN Release**
5IM	569623401	VSE HLA TOOLKIT FEATURE	5IM

Program and Service Level Information

This section identifies the program and any relevant service levels of High Level Assembler Toolkit Feature. The program level refers to the APAR fixes incorporated into the program. The service level refers to the PTFs integrated. Information about the cumulative service tape is also provided.

Program Level Information

A list of APAR fixes against previous releases of High Level Assembler Toolkit Feature that have been incorporated into this release is shown in Appendix A, "High Level Assembler Service" on page 89.

Service Level Information

No PTFs against this release of High Level Assembler Toolkit Feature have been incorporated into the product tape.

Cumulative Service Tape

A cumulative service tape, containing PTFs not incorporated into this release, might be included with this program. Installation instructions for cumulative service tapes can be found in the SMP/E publications.

If you received this product as part of a CBPDO or a ProductPac, PTFs not incorporated into this release are provided on the tape, and a separate cumulative service tape will not be provided.

Publications Useful during Installation

The publications listed in Table 34 may be useful during the installation of High Level Assembler Toolkit Feature. To order copies, contact your IBM representative.

Table 34. Publications Useful During Installation

Publication Title	Form Number
VSE/ESA Administration	SC33-6705
VSE/ESA Guide to System Functions	SC33-6711
VSE/ESA Installation	SC33-6704
VSE/ESA Planning	SC33-6703
VSE/ESA System Control Statements	SC33-6713
VSE/ESA Messages and Codes, Vols.1 - 3	SC33-6796
	SC33-6798
	SC33-6799

Chapter 8. Installing High Level Assembler Toolkit Feature on VSE

This chapter describes the installation method and the step-by-step procedures you use to install and activate the functions of High Level Assembler Toolkit Feature.

Overview of Installation

You install this release of High Level Assembler Toolkit Feature by using the Maintain System History Program (MSHP).

Checklist for Installing High Level Assembler Toolkit Feature

Table 35 lists the steps and associated jobs for installing High Level Assembler Toolkit Feature. The remaining sections in this chapter describe each step. You can use Table 35 as a checklist.

Table 35. Summary of Steps for Installing High Level Assembler Toolkit Feature

Step	Description	Installation Job	page
__ 1	Allocate space for the library. (Omit if using the default sublibrary.)	ASMTDEF	70
__ 2	Install High Level Assembler Toolkit Feature.		77
	Method 1. Install High Level Assembler Toolkit Feature using the Interactive Interface with High Level Assembler Toolkit Feature on an Optional Products (stacked) tape.	—	72
	Method 2. Install High Level Assembler Toolkit Feature using the Interactive Interface with High Level Assembler Toolkit Feature as the only product on the (non-stacked) tape.	—	74
	Method 3. Install High Level Assembler Toolkit Feature using a batch job.	ASMTINST	75
__ 3	Configure VTAM	ASMTAPPL	77
__ 4	Load SVA	ASMTSVA2	78
__ 5	Verify the installation of High Level Assembler Toolkit Feature.	ASMTIVPS	79
__ 6	Download High Level Assembler Program Understanding Tool to workstation.	—	80
__ 7	Create Cross-Reference Facility Files	ASMXJC2S	80

Step 1: Allocate Space for the Library (Omit if Using the Default Sublibrary)

By default, High Level Assembler Toolkit Feature is installed into the PRD2.PROD sublibrary for VSE/ESA V2R6. If you decide to install High Level Assembler Toolkit Feature into a sublibrary other than PRD2.PROD then proceed with this step.

Decide where to allocate space for the High Level Assembler Toolkit Feature sublibrary. Identify, on the disk volume (or volumes) to be used for the library, suitable areas of free space. To do this, list the volume table of contents (VTOC) of the disk or disks to be used.

Choose one of the following jobs to list the VTOC:

1. Use the LVTOC utility program The sample job shown in Figure 3 shows the JCL needed to list the VTOC for the volume with serial number `SYSWK1`.

```
// JOB ASMTVTOC    LIST VOLUME TABLE OF CONTENTS
// ASSGN SYS004,DISK,TEMP,VOL=SYSWK1,SHR
// ASSGN SYS005,SYSLST
// EXEC LVTOC
/*
/&
```

Figure 3. Job to List the Contents of a DASD Volume

2. Use the DITTO utility program

   As an alternative to using the system utility LVTOC, DITTO's Display VTOC (DVT) may be used. Figure 4 shows a sample job.

```
// JOB ASMTDITT    LIST VOLUME TABLE OF CONTENTS
// UPSI 1
// ASSGN SYS001,cuu
// EXEC DITTO,SIZE=512K
$$DITTO DVT INPUT=SYS001,SORTBY=EXTENT
$$DITTO EOJ
/*
/&
```

Figure 4. Job to List the Contents of a DASD Volume

Use the disk space selected for High Level Assembler Toolkit Feature in the LIBR installation job to allocate the VSE Librarian library in the sample job shown in Figure 5 on page 71.

```
// JOB ASMTDEF
*  CREATE A LIBRARY FOR THE High Level Assembler Toolkit Feature
// OPTION LOG
*  Label for the High Level Assembler Toolkit Feature
*  Library                                                    1
// DLBL HLASMT,'HLASM.TOOLKIT.LIBRARY',99/365,SD
// EXTENT SYS002,SYSWK1,,,rtrk,ntrk
// ASSGN SYS002,DISK,VOL=SYSWK1,SHR
* ------------------------------------------
*  Define the High Level Assembler Toolkit Feature Library      2
* ------------------------------------------
// EXEC LIBR
 DELETE LIB=HLASMT
 DEFINE LIB=HLASMT
/*
/&
```

Figure 5. Job to Allocate the High Level Assembler Toolkit Feature library space.

In area **1** change the *filename* (HLASMT in the example) and *file-id*
(HLASM.TOOLKIT.LIBRARY in the example) of High Level Assembler Toolkit
Feature to suit your installation. Points to consider are:

- The variable *ntrk* indicates the number of tracks required; this is the size of the
  extent needed in Figure 5.

- If you are using an FBA device, such as an IBM 3370, or a CKD device such
  as an IBM 3380, see the information in "DASD and Other Storage Required" on
  page 66 for the number of blocks/cylinders required.

- Change *rtrk* operand to a value to suit the type of device being used for the
  current installation.

- The variable *rtrk* represents the start position of the extent.

The Librarian job step in area **2** includes a DELETE statement before the
DEFINE statement so the job can be rerun. The following informational messages
are issued when the job runs for the first time. The job continues to allocate the
library.

The messages are:

```
L101I  LIBRARY HLASMT DOES NOT EXIST
L027I  ABNORMAL END DURING DELETE COMMAND
       PROCESSING
L113I  RETURN CODE OF DELETE IS 8
```

Step 2: Install High Level Assembler Toolkit Feature

You can install High Level Assembler Toolkit Feature using either the Interactive
Interface of VSE or a batch installation job.

Method 1: Install High Level Assembler Toolkit Feature Using the Interactive Interface with Stacked tape

Carry out the following tasks:

1. Mount the High Level Assembler Toolkit Feature tape on an available tape drive.

2. Define library label (Optional).

   If the product is not being installed in the default library, then the library to contain High Level Assembler Toolkit Feature must have its DLBL in the label information area.

3. Log on to the Interactive Interface

   To install High Level Assembler Toolkit Feature using the Interactive Interface, log on to the VSE/ESA Interactive Interface as the system administrator. (If you would like information about the functions of the Interactive Interface, refer to *VSE/ESA Administration*.)

   In the following menus, enter the highlighted items that appear after the ===> symbol.

4. In the **VSE/ESA FUNCTION SELECTION** menu, select:
   ===> *1* (Installation)

5. In the **INSTALLATION** menu:

   You have received High Level Assembler Toolkit Feature as a stacked tape, which contains one or more optional products, select:
   ===> *1* (Install Programs - Stacked V2 Format)

6. In the **INSTALL PROGRAMS - STACKED V2 FORMAT** menu, select:
   ===> *1* (Prepare for Installation (Stacked Tapes Ony)

7. In the **PREPARE FOR INSTALLATION (STACKED TAPES ONLY)** menu, select:
   ===> *cuu*
      (the address of the tape drive where you mounted the distribution tape)

8. In the **JOB DISPOSITION** menu:

   Make any changes required and press Enter to submit the job.

9. Respond to console messages

   When the job starts it asks if the tape is ready. After the tape is scanned it asks if further tapes are to be read. Please refer to Figure 6 on page 73 for examples of the console messages.

```
01 BG 000 IESI0091I PLEASE MOUNT TAPE LABELLED "VSE OPTIONAL TAPE NUMBER
02*BG 000 IESI0092A MOUNT ON TAPE DRIVE 580 . WHEN READY, REPLY "END/ENTER"
03*BG-000
04 0
05*BG 000 IESI0090A ARE THERE ANY MORE OPTIONAL PROGRAM TAPES? YES/NO
06*BG-000
10 0 no
11 BG 000 EOJ INSPRE    MAX.RETURN CODE=0000
```

Figure 6. Console Messages

The output listing from this job gives a list of the optional programs on the dis-
tribution tape with program identifiers and recommended library sizes. The
tapefile identifier for High Level Assembler Toolkit Feature is HLASM.TLKT.1.5.0.

The program identifiers of the optional programs on the distribution tape are
also automatically entered on the **INSTALL PRODUCT(S) FROM TAPE** menu.

10. To return to the **VSE/ESA FUNCTION SELECTION** menu, enter:
    ===> *1* (Installation)

11. In the **INSTALLATION** menu, select:
    ===> *1* (Install Programs - Stacked V2 Format)

12. In the **INSTALL PROGRAMS - STACKED V2 FORMAT** menu, select:
    ===> *2* (Install Product(s) from Tape)

13. In the **INSTALL PRODUCT(S) FROM TAPE** menu:

    Enter **1** (install) in the OPT field against the tapefile identifier
    HLASM.TLKT.1.5.0   (High Level Assembler Toolkit Feature)
    and **2** (skip installation) against any other optional products you do not intend to
    install at this time.

    If you did not use the default library PRD2.PROD, enter the name of your
    library and sublibrary on this screen. The DLBL and EXTENT information for
    this library should already be in the label information area.

    Press PF5 to generate the installation job.

14. Retain products list

    Decide if you want to keep the product list previously generated from LIBR
    utility scan of the product tape.

15. In the **VSE/ESA INSTALL PRODUCT(S) TAPE SPECIFICATION** menu, enter:

    ===> *cuu*
        (the address of the tape drive where you mounted the
        High Level Assembler Toolkit Feature tape)

16. In the **JOB DISPOSITION** menu:

    Make any changes required and press ENTER to submit the job to install High
    Level Assembler Toolkit Feature.

17. Respond to console messages

    Confirm prompt when asking for tape to install product.

Condition Code and Messages

If you do not receive a condition code of 0:

1. Check the list output for error conditions.

2. See *VSE/ESA Messages and Codes, Vols.1 - 3* for corrective action.

3. Correct the error.

4. Rerun the job.

5. Recheck the condition code.

Method 2: Install High Level Assembler Toolkit Feature Using the Interactive Interface with Non-Stacked tape

Carry out the following tasks:

1. Log on to the Interactive Interface

   To install High Level Assembler Toolkit Feature using the Interactive Interface, log on to the VSE/ESA Interactive Interface as the system administrator. (If you would like information about the functions of the Interactive Interface, refer to *VSE/ESA Administration.*)

   In the following menus enter the highlighted items that appear after the ===> symbol.

2. Mount the High Level Assembler Toolkit Feature tape on an available tape drive.

3. In the **VSE/ESA FUNCTION SELECTION** menu, select:
   ===> *1* (Installation)

4. In the **INSTALLATION** menu:

   You received High Level Assembler Toolkit Feature as a stacked tape, which contains one or more optional products, select:
   ===> *2* (Install Programs - Non-stacked 2 Format or V1 Format)

5. In the **INSTALL PROGRAMS - NON-STACKED V2 OR V1 FORMAT** menu select:
   ===> *HLASM.TLKT.1.5.0* (Tapefile-id)

   If you did not use the default library PRD2.PROD, enter the name of your library and sublibrary on this screen. The DLBL and EXTENT information for this library should already be in the label information area.

   Press PF5 to generate the installation job.

6. In the **VSE/ESA INSTALL PRODUCT(S) TAPE SPECIFICATION** menu, enter:

   ===> *cuu*
      (the address of the tape drive where you mounted the
      High Level Assembler Toolkit Feature tape)

7. In the **JOB DISPOSITION** menu:

   Make any changes required and press Enter to submit the job to install High Level Assembler Toolkit Feature.

8. Respond to console messages

   Confirm prompt when asking for tape to install product.

Condition Code and Messages

If you do not receive a condition code of 0:

1. Check the list output for error conditions.

2. See *VSE/ESA Messages and Codes, Vols.1 - 3* for corrective action.

3. Correct the error.

4. Rerun the job.

5. Recheck the condition code.

Method 3: Install High Level Assembler Toolkit Feature Using a Batch Job

The batch installation job stream for installing High Level Assembler Toolkit Feature uses the `MSHP` system history file that already exists as part of the VSE system. This system history file might already be defined in the system standard labels; if not, make sure that `DLBL` and `EXTENT` statements, with the necessary information for the system history file, are included in the job stream.

Depending on how you request the High Level Assembler Toolkit Feature product you might receive different installation tapes. One could contain only the High Level Assembler Toolkit Feature product, the other might be a stacked tape containing one or more optional program products. The job shown in Figure 7 on page 76 handles both types of tape (stacked and non-stacked).

Create and tailor the following job stream, mount the distribution tape, and run the installation job.

Figure 7 on page 76 provides the JCL required to install High Level Assembler Toolkit Feature. Tailor this JCL to suit the requirements of your installation.

As many as five modifications might be required to tailor the JCL. The keys within Figure 7 on page 76 are explained individually and refer to the sections that accompany the JCL description.

```
// JOB ASMTINST
*  INSTALL THE High Level Assembler Toolkit Feature LIBRARY
// OPTION LOG
*  Label for High Level Assembler Toolkit Feature Library   1
*  Assign  install tape as SYS006            2
// ASSGN SYS006,cuu
// MTC REW,SYS006
* ----------------------------------------
*  This step installs High Level Assembler Toolkit Feature
*  from the distribution tape
*  using the VSE system history file        3
* ----------------------------------------
// EXEC MSHP,SIZE=900K,PARM='PIDSTACKED'
 INSTALL PROD FROMTAPE ID='HLASM.TLKT.1.5.0' -

     PROD INTO=PRD2.PROD
/*
* ----------------------------------------
*  List the High Level Assembler Toolkit Feature Library   4
* ----------------------------------------
// EXEC LIBR
 LISTDIR SUBLIB=PRD2.PROD  -
     OUTPUT=NORMAL -
     UNIT=SYSLST
/*
* ------------------------------------------
*  Retrace the High Level Assembler Toolkit Feature product  5
* ------------------------------------------
// EXEC MSHP,SIZE=900K
RETRACE COMPONENT IDENTIFIER=5696-234-01
/*
// MTC RUN,SYS006
/*
/&
```

Figure 7. Job to Install High Level Assembler Toolkit Feature.

1. Specify the Label Information

   In area **1** , if you are installing High Level Assembler Toolkit Feature into a
   sublibrary other than the default then insert DLBL, EXTENT and ASSGN informa-
   tion as specified in Figure 5 on page 71. The library name must match the
   name used in the allocation job in Figure 5 on page 71.

   There is no DLBL statement for the system history file. Typically it would have a
   permanent system standard label for this, with IJSYSHF as the file name.
   (IJSYSHF is the default file name that MSHP looks for in a label statement.)

2. Assign the Distribution Tape

   Assign the distribution tape in area **2** to logical unit SYS006. Replace cuu with
   the address of the tape drive on which to mount the distribution tape. Alterna-
   tively you may use the generic tape assignment:

   // ASSGN SYS006,TAPE

3. Install High Level Assembler Toolkit Feature

Area **3** of the job calls `MSHP` to install High Level Assembler Toolkit Feature into the sublibrary identified on the `INTO` operand of the `INSTALL` statement. If you are installing High Level Assembler Toolkit Feature into a sublibrary other than the default, then change the name of the sublibrary on the `INTO` operand of the INSTALL statement to reflect this sublibrary. For more information about the install options, see "Maintain System History Program (MSHP)" in *VSE/ESA System Control Statements*.

4. List the Directory Entries

The step in area **4** of the job lists the directory entries of the sublibrary where High Level Assembler Toolkit Feature was installed. Remove this step if a directory list is not required. If you have installed High Level Assembler Toolkit Feature into a sublibrary other than the default, then the name of the sublibrary must be changed to reflect that used in Figure 5 on page 71.

Entries for High Level Assembler Toolkit Feature have a three character prefix of ASM to distinguish them from other products; there are three exceptions to this rule:

- `HD2345IM.Z`

- `$SVAASMT.PHASE`

- `$SVAASMT.OBJ`

5. Retrace the High Level Assembler Toolkit Feature product in the system history file.

The final step in area **5** of the job prints the component records from the system history file for High Level Assembler Toolkit Feature. Remove this step if a retrace listing is not required.

If this job has to be run again, remember first to restore the system history file, which should have been backed up before running this install job, and second to run the library allocation step again, if applicable.

Step 3: Configure VTAM

This step is required to debug your batch programs interactively using High Level Assembler Toolkit Feature.

1. Either :

- Copy the ASMTAPPL.B member, supplied in the High Level Assembler Toolkit Feature install library, to the SOURCE sublibrary containing your VTAM definition members. If you installed using the Interactive Interface, this member is also supplied as ASMIAPPL in ICCF library 62.

2. or

- Copy the High Level Assembler Toolkit Feature minor node definitions (APPL statements) from ASMTAPPL.B into one of your existing application major node definitions.

  Note: The ASMTAPPL.B defines 20 application minor node names, ASMTL001 to ASMTL020. You can define up to 999 High Level Assembler Toolkit Feature minor node names; the first five characters must be ASMTL and the last three characters must be consecutive 3-digit numbers, starting at 001.

3. Add the SOURCE sublibrary member name (ASMTAPPL, or the name of the updated member) to your VTAM start options configuration file, ATCCONxx.

4. Restart your VTAM system to activate the High Level Assembler Toolkit Feature definitions.

   Until you start your VTAM system, you can activate the High Level Assembler Toolkit Feature definitions by entering the following command from your VTAM console:

   ```
   VARY NET,ACT,ID=member-name,SCOPE=ALL
   ```

   where member-name is the SOURCE sublibrary member name (for example ASMTAPPL).

Step 4: Load High Level Assembler Toolkit Feature into Shared Virtual Area (SVA)

The High Level Assembler Toolkit Feature makes extensive use of vendor exits. All the phases in Figure 8 are required to be in the SVA.

To include them:

1. Modify the SVA statement of the VSE IPL ASI (Automated System Initialization) procedure to allow space for the phases:

   - Increase the SDL parameter by the number of new phases being added to the SVA.

   - Increase the PSIZE parameter by the amount of storage required to contain the new phases being added to the 24-bit and 31-bit SVA.

2. Modify the VSE background (BG) ASI procedure to automatically load the required phases into the SVA:

   - Modify the ALLOC statements for the partitions to ensure that the remaining storage is large enough to contain the phases.

   - Modify the LIBDEF PHASE SEARCH job control statement preceding the SET SDL statement to include the name of the sublibrary containing the High Level Assembler Toolkit Feature phases.

   - After the SET SDL statement, add the statement:

     ```
     LIST=$SVAASMT
     ```

     The load list contains the following phases.

```
ASMPCKEX
ASMPGLEX
ASMSVCEX
ASMIDFRX
```

Figure 8. List of phases to go into the SVA

The phases have been built with the option SVAPFIX. When the phases are loaded into the SVA, they will go into PFIXed storage. This has a real storage requirement of 3K bytes.

3. Shut down and Re-IPL your VSE system.

To use vendor exits the application must be authorised. The user must be authorised (DTSECTAB) to access IJBVEND and the product exit routines. These routines are shown in Figure 9 on page 79.

```
ASMPCKEX
ASMPGLEX
ASMSVCEX
```

Figure 9. List of product exit routines

The supplied SVA loadlist member $SVAASMT contains all the required High Level Assembler Toolkit Feature phases that must reside in the SVA.

For more information on loading phases into the SVA, see *VSE/ESA System Control Statements*.

A sample batch job ASMTSVA2 is supplied, which loads the phases in $SVAASMT into the SVA. This job must be run in the BG partition.

Step 5: Verify the Installation of High Level Assembler Toolkit Feature

The installation verification job will test if the product has been installed success-fully. It will assemble a small assembler program, producing SYSADATA output. It will linkedit the program and process the SYSADATA output using the language extraction program.

```
// JOB ASMTIVPS
*
* This will job will test if the HLASM Toolkit Feature
* has been installed successfully.
*
// LIBDEF *,SEARCH=(PRD2.PROD,yourlib.sublib)                          1
// DLBL SYSADAT,'SYSADATA',0,VSAM,                                        X
             CAT=VSESPUC,RECSIZE=8192,                                    X
             DISP=(,KEEP),RECORDS=(500,500)
// LIBDEF PHASE,CATALOG=yourlib.sublib                                 2
// OPTION NODECK,CATAL
   PHASE ASMBR14,*
// EXEC ASMA90,SIZE=ASMA90,PARM='ADATA'
ASMBR14 CSECT
     XR    15,15               Zero return code
     BR    14                  Exit program
     END
/*
// EXEC ASMLKEDT                                                       3
/*
// EXEC ASMLANGX,PARM='ASMBR14'                                        4
/*
/&
```

Figure 10. Job to test successful installation

1. In area 1 , change the `yourlib.sublib` values to those applicable to your installation.

2. In area **2**, change the `yourlib.sublib` values to those applicable to your installation. The indicated sublibrary will then hold the phase produced by this job.

3. In area **3**, the program is linkedited.

4. In area **4**, language extraction is performed.

Run the Installation Verification Job

Figure 10 on page 79 shows the job `ASMTIVPS.Z` provided in the installed sublibrary. If you installed High Level Assembler Toolkit Feature in a sublibrary other than the default, modify the IBM-supplied `JCL` that runs the verification job.

Run the job listed in Figure 10 on page 79 to verify the success of your installation.

A return code of 0 for the job indicates that the verification job completed successfully. A zero return code is the actual verification that the product is installed and functions correctly.

The program being assembled is not intended to be run; however, if it is run, it sets a return code of zero and returns to the caller.

When debugging batch programs interactively, REXX/VSE must be initialized and active.

Step 6: Download High Level Assembler Program Understanding Tool

Instructions to download the High Level Assembler Program Understanding Tool are contained in Appendix D, "Installing Program Understanding Tool on OS/2" on page 95 and Appendix G, "Installing Program Understanding Tool on Windows" on page 105.

Step 7: Create Cross-Reference Facility Files

The Cross-Reference Facility requires two VSAM managed SAM files to be built at install time. The JCL for this task is in the ASMXJC2S.Z member.

This JCL will copy the contents from two librarian members (using '* $$ SLI') into two VSAM managed SAM files. The user may, at a later date, update these librarian members and then rerun this JCL. When being rerun change DISP=(NEW,KEEP) to DISP=(OLD,KEEP) on the DLBL statements.

Before running this job the JCL should be examined for the following changes.

1. Change LDEST parameters to match your installation on the '* $$ JOB' statement.
2. Change the LIBDEF statement if you have installed the HLASM TOOLKIT FEATURE into another library.
3. Change the SLI statements if the HLASM TOOLKIT FEATURE library is not in the source LIBDEF search chain for the POWER partition. Do this by adding the 'S=library.sublibrary' parameter to each '* $$ SLI' statement.
4. Change the IJSYSUC value on each DLBL statement to point to the required VSAM User Catalog, if needed.

Chapter 9. Maintaining High Level Assembler Toolkit Feature on VSE

This chapter describes how to re-install or remove High Level Assembler Toolkit Feature and how to apply service updates to High Level Assembler Toolkit Feature. To effectively use the maintenance procedures, you must have already installed High Level Assembler Toolkit Feature and any required products.

In addition, this chapter describes how to remove High Level Assembler Toolkit Feature.

Re-installing High Level Assembler Toolkit Feature

You do not need to perform all the planning and installation procedures to re-install High Level Assembler Toolkit Feature. For example, you do not need to reconsider your storage needs if High Level Assembler Toolkit Feature replaces existing High Level Assembler Toolkit Feature data sets.

You do not need to remove High Level Assembler Toolkit Feature from your system before re-installing High Level Assembler Toolkit Feature, unless you intend to re-install the product in a different sublibrary from the previous installation. In this case you must remove High Level Assembler Toolkit Feature from the system history file before you can re-install it.

To re-install High Level Assembler Toolkit Feature, you follow the same steps as for installing High Level Assembler Toolkit Feature. See Chapter 8, "Installing High Level Assembler Toolkit Feature on VSE" on page 69.

Applying Service Updates

You might need to apply maintenance or service updates to High Level Assembler Toolkit Feature periodically. This section details these procedures.

What You Receive

If you report a problem with High Level Assembler Toolkit Feature to your IBM Support Center, you will receive a tape containing one or more APARs or PTFs to solve your problem.

You might also receive a list of APARs or PTFs, that should have been applied to your system before applying the current service. These APARs or PTFs might relate to High Level Assembler Toolkit Feature or any other licensed product you have installed, including VSE/ESA.

You apply service to High Level Assembler Toolkit Feature using either the VSE/ESA Interactive Interface or a batch job.

The following checklist provides a summary of steps you should use to apply service to High Level Assembler Toolkit Feature.

Checklist for Applying Service

Table 36 lists the steps for installing corrective service on High Level Assembler Toolkit Feature.

Table 36. Summary of Steps for Installing Service on High Level Assembler Toolkit Feature

Step	Description	MSHP Command or Jobname	page
__ 1	Ensure prerequisite APARs or PTFs are applied.	RETRACE	82
__ 2	Backup existing system	___	82
__ 3	Apply service	INSTALL	83
__ 4	Run the installation verification program	ASMTIVPS	84
__ 5	Service on High Level Assembler Program Understanding Tool	—	84

Step 1. Check Prerequisite APARs or PTFs

Prerequisite APARs or PTFs need to be applied to your system before you can apply the current maintenance. These APARs or PTFs might apply to High Level Assembler Toolkit Feature or any licensed program you have installed at your installation.

Your IBM Support Center has given you a list of any relevant prerequisite APARs or PTFs. Probably most have been applied to your system. You can verify this by retracing the APARs and PTFs in your system history file. The job shown in Figure 11 shows how to retrace APARs and PTFs in the system history file. This job is supplied as ASMTRETR.Z

Use this listing to check that you have already applied any pre-requisite APARs or PTFs. If you have not, arrange for your IBM Support Center to send them to you and apply them before applying other service.

```
// JOB ASMTRETR Retrace APARs and PTFs
// EXEC MSHP,SIZE=700K
RETRACE APARS
RETRACE PTFS
/*
/&
```

Figure 11. Job to Retrace APARs and PTFs

Step 2. Backup Original System

Make a backup copy of your current High Level Assembler Toolkit Feature library and the system history file. For information about backing up libraries and the system history file, see *VSE/ESA System Control Statements*.

Step 3. Apply Service

You can apply service to High Level Assembler Toolkit Feature from the provided service tape using either the Interactive Interface or a batch job.

Method 1: Apply Service Using the Interactive Interface

To apply service to High Level Assembler Toolkit Feature using the Interactive Interface, log on to the VSE/ESA Interactive Interface as the system administrator. (If you would like information about the functions of the Interactive Interface, refer to *VSE/ESA Administration*.)

Mount the service tape on an available tape drive.

In the following menus specify the highlighted items that appear after the ===> symbol.

1. **VSE/ESA FUNCTION SELECTION** menu:
   ===> *1* (Installation)

2. **INSTALLATION** menu:

   ===> *4* (IBM Service)

   a. **IBM SERVICE** menu:
      ===> *2* (PTF Handling)

   b. **PTF HANDLING** menu:

      • If you want to print the documentation about the supplied PTFs before applying the service, select:
        ===> *1* (Print Service Document)

        PRINT SERVICE DOCUMENT menu:
        ===> *cuu*
           (the address of the tape drive where you mounted the service tape)

      • If you want to apply the service directly, select:
        ===> *3* (Apply PTFs from Service Tape)

        APPLY PTF menu:
        ===> *cuu*
           (the address of the tape drive where you mounted the service tape). Press Enter.

        ===> *tapename*
           (allocate a unique name for the service tape)
           Press Enter.

   c. **JOB DISPOSITION** menu:

      Make any changes required and press Enter to submit the job and apply the service.

   d. Respond to console messages

Confirm prompt when asking for service tape.

Method 2: Apply Service Using a Batch Job

The batch job to apply service to High Level Assembler Toolkit Feature uses the MSHP system history file where High Level Assembler Toolkit Feature was installed.

A sample job to apply service using MSHP is shown in Figure 12. For more information on MSHP see *VSE/ESA System Control Statements*.

```
// JOB ASMTAPP Apply Service
// ASSGN SYS006,cuu           1
// EXEC MSHP,SIZE=700K
INSTALL SERVICE FROMTAPE      2
/*
/&
```

Figure 12. Job to Retrace APARs and PTFs

In area **1** , change *cuu* to the address of the tape drive where you have mounted the service tape.

Area **2** shows the MSHP statement to install service from a tape. The information in the system history file directs MSHP to apply the service to the sublibrary in which High Level Assembler Toolkit Feature is installed. You do not need to supply this information. This job is supplied as member ASMTAPP.Z

Step 4. Run the installation verification program (IVP)

After you have applied all the files on the service tape, run the installation verification program ASMTIVPS to ensure that High Level Assembler Toolkit Feature functions properly. See the description of ASMTIVPS in Figure 10 on page 79.

Step 5. Service on High Level Assembler Program Understanding Tool

Service which has an impact on High Level Assembler Program Understanding Tool will be indicated in the cover letter supplied with the service. Once service has been applied then High Level Assembler Program Understanding Tool should be reinstalled onto the workstation. Please refer to Appendix E, "Maintaining Program Understanding Tool on OS/2" on page 101 or Appendix H, "Maintaining Program Understanding Tool on Windows" on page 111 to update High Level Assembler Program Understanding Tool on the workstation.

Removing High Level Assembler Toolkit Feature

You do not have to remove High Level Assembler Toolkit Feature from your system before installing a new version or release.

If you do have to remove High Level Assembler Toolkit Feature for any reason, you must delete all the High Level Assembler Toolkit Feature entries from your sublibrary and remove High Level Assembler Toolkit Feature from the system history file.

A sample job ASMTDELV.Z will:

- delete all High Level Assembler Toolkit Feature members from the sublibrary where it is installed
- remove High Level Assembler Toolkit Feature from System History File
- update DTRIHIST.Z in the System Library to remove High Level Assembler Toolkit Feature from the list of installed products

Consult the instructions in the sample job (ASMTDELV.Z) for more information.

To Report a Problem with High Level Assembler Toolkit Feature

To assist with reporting any difficulties refer to the diagnostic process as shown in *IBM High Level Assembler for MVS & VM & VSE Installation and Customization Guide*.

Report any difficulties you have using this product to your IBM Support Center. In the United States, if an APAR is required, the Support Center will provide the address to which any needed documentation can be sent.

Table 37 identifies the component ID (COMP ID) for High Level Assembler Toolkit Feature.

Table 37. Component IDs

COMP ID	Component Name	REL
569623401	VSE HLA TOOLKIT FEATURE	5IM

Obtaining Service Information

Preventive Service Planning (PSP) information is continually updated as fixes are made available for problems. Check with your IBM Support Center or use either Information/Access or SoftwareXcel Extended to see whether there is additional PSP information that you need. To obtain this information, specify the following UPGRADE and SUBSET values: HLASM150 and HLASMVSE5IM.

Appendixes

Appendix A. High Level Assembler Service

The following service for High Level Assembler Toolkit Feature Release 4 has been applied to Release 5:

Table 38 (Page 1 of 2). Service History

APAR	MVS PTF	VM PTF	VSE PTF
PQ39796	UQ46661	UQ46662	UQ46663
PQ40917	UQ48537	UQ48539	UQ48541
PQ41190	UQ48085	UQ48089	UQ48091
PQ48929	UQ56327	UQ56330	UQ56333
PQ51319	UQ58015	UQ58021	UQ58025
PQ51321	UQ58015	UQ58021	UQ58025
PQ51325	UQ57987	UQ57988	UQ57989
PQ51367	UQ58015	UQ58021	UQ58025
PQ51370	UQ58015	UQ58021	UQ58025
PQ52777	UQ60967	UQ60970	UQ60973
PQ52880	UQ58688	UQ58703	UQ58708
PQ53800	UQ62349	UQ62355	UQ62364
PQ54117	UQ60711	UQ60712	UQ60714
PQ55083	UQ61417	UQ61425	UQ61448
PQ57041	UQ63626	UQ63627	UQ63628
PQ58466	UQ64558	UQ64560	UQ64565
PQ58986	UQ64540		
PQ59896	UQ65670	UQ65672	UQ65674
PQ60030	UQ65067		
PQ61002	UQ66648	UQ66650	UQ66652
PQ61239	UQ66907	UQ66928	UQ66937
PQ62267	UQ68292	UQ68294	UQ68296
PQ65354	UQ69701		
PQ66218	UQ69681	UQ69687	UQ69695
PQ66394	UQ69681	UQ69687	UQ69695
PQ66807	UQ70449	UQ70451	UQ70453
PQ67403	UQ73114	UQ73115	UQ73131
PQ69812	UQ73992		UQ73994
PQ71066		UQ73993	
PQ71106	UQ74289		

Table 38 (Page 2 of 2). Service History

APAR	MVS PTF	VM PTF	VSE PTF
PQ74641	UQ77253		UQ77281
PQ74900		UQ77271	
PQ76015	UQ78443	UQ78450	UQ78452
PQ76914	UQ81929	UQ81930	UQ81932
PQ78717	UQ80959	UQ80960	UQ80961
PQ82387	UQ83132	UQ83133	UQ83134
PQ86047	UQ86511	UQ86512	UQ86513

Appendix B. Create Product Parameter File (PPF) Override

This section provides information to help you create a product parameter file (PPF) override. The example used in this section shows how to change the shared file system (SFS) file pool where High Level Assembler Toolkit Feature files reside.

Note: Do **not** modify the product supplied 5696234H $PPF or 5696234H PPF files to change the file pool name or any other installation parameters. If the 5696234H $PPF file is serviced, the existing $PPF file will be replaced, and any changes to that file will be lost; by creating your own $PPF override, your updates will be preserved.

The following process describes changing the default file pool name, VMSYS, to MYPOOL1:

1. Create a new $PPF override file, or edit the override file created via the 'Make Override Panel' function.

Command	Explanation
xedit *overname* **$PPF** *fm***2**	*overname* is the PPF override file name (such as "myHLASM") that you want to use.
	fm is an appropriate file mode. If you create this file yourself, specify a file mode of A.

   If you modify an existing override file, specify a file mode of A or D, based on where the file currently resides (A being the file mode of a R/W 191 minidisk, or equivalent; D, that of the MAINT 51D minidisk).

2. Create (or modify as required) the Variable Declarations (:DCL.) section for the HLASMSFS override area, so that it resembles the :DCL. section shown below. This override is used for the installation of High Level Assembler Toolkit Feature.

```
:OVERLST. HLASMSFS
*
* ===================================================================== *
* Override Section for Initial Installation (Using SFS Directories)   *
* ===================================================================== *
:HLASMSFS. HLASMSFS 5696234H
:DCL. REPLACE
&191    DIR MYPOOL1:P696234H.
&SAMPZ  DIR MYPOOL1:P696234H.HLASMTL.LOCAL
&DELTZ  DIR MYPOOL1:P696234H.HLASMTL.DELTA
&APPLX  DIR MYPOOL1:P696234H.HLASMTL.APPLYALT
&APPLZ  DIR MYPOOL1:P696234H.HLASMTL.APPLYPROD
&BLD0Z  DIR MYPOOL1:P696234H.HLASMTL.TBUILD
&BAS1Z  DIR MYPOOL1:P696234H.HLASMTL.OBJECT
&HLAID1 USER  P696234H
:EDCL.
:END.
*
```

(This override replaces the :DCL. section of the HLASMSFS override area of the 5696234H $PPF file.)

3. If your $PPF override file was created on the A disk, copy it to file mode D—the Software Inventory minidisk (MAINT 51D). Then erase it from filemode A.

Command	Explanation
`copyfile` *overname* `$PPF` *fm* `= = d (olddate`	Move PPF file to software inventory disk.
`erase` *overname* `$PPF` *fm*	Erase redundant file on *fm* disk.

Options:

OLDDATE Use the date and time on the input file as the date and time of last update of the output file.

4. Compile your changes to create the usable *overname* PPF file.

Command	Explanation
`vmfppf` *overname* `HLASMSFS`	*overname* is the file name of your $PPF override file.

Now that the *overname* PPF file has been created, you should specify *overname* instead of 5696234H as the PPF name for those VMSES/E commands that require a PPF name.

Appendix C. Planning for Installing Program Understanding Tool on OS/2

This section contains the following planning information to help you properly install High Level Assembler Program Understanding Tool on OS/2:

- Worksheet: Planning for Installing High Level Assembler Program Understanding Tool on OS/2
- Verify workstation requirements
- Verify required workstation software
- Host connectivity

Worksheet: Planning for Installing High Level Assembler Program Understanding Tool on OS/2

Before you begin the installation, you should:

___ 1. Verify workstation requirements

Refer to "Verify Workstation Requirements" on page 94.

___ 2. Verify that required software is at the level needed.

Refer to "Verify Workstation Software" on page 94.

___ 3. Verify connection to Host

Refer to "Verify Host Connectivity" on page 94.

Verify Workstation Requirements

The following hardware requirements must be satisfied to use High Level Assembler Program Understanding Tool:

- Intel 80486-based 75Mhz processor or faster

- 16 megabytes (16 MB) of memory (RAM) or more

- 20 megabytes (20 MB) of available hard disk space

- A communications package that can download host files.

- An SVGA display configured to display at least 256 colors

Verify Workstation Software

The following software requirements must be satisfied to use High Level Assembler Program Understanding Tool:

- IBM OS/2 Warp Version 4.0 or subsequent releases, at or above fixpack 8 level.

- A program capable of downloading binary files from a host system running z/OS, OS/390, z/VM, or VSE/ESA. For example, eNetwork Personal Communications for OS/2 V4.2, or later.

Verify Host Connectivity

To install High Level Assembler Program Understanding Tool, files are downloaded from the host.

Useful Publications

The reference manual for this tool is Chapter 4 of *Toolkit Feature User's Guide*.

As well, the tool contains extensive online help, which is accessible once High Level Assembler Program Understanding Tool is running.

Appendix D. Installing Program Understanding Tool on OS/2

This section contains the following instructions to install High Level Assembler Program Understanding Tool on OS/2:

- Worksheet: Installing High Level Assembler Program Understanding Tool on OS/2
- Prepare the Installation
- Download the Product
- Start the Install
- Verify successful installation

Worksheet: Installing High Level Assembler Program Understanding Tool on OS/2

Before you begin the installation, you should:

__ 1. Prepare the Installation

   Refer to "Step 1: Prepare the Installation" on page 96.

__ 2. Download the Product

   Refer to "Step 2: Download the Product Files" on page 97.

__ 3. Start the Install

   Refer to "Step 3: Start the Install" on page 100.

__ 4. Verify successful Installation

   Refer to "Step 4: Verify Successful Installation" on page 100.

Step 1: Prepare the Installation

Download product files. These files are the compressed files which make up the product.

Preparing from MVS

Tasks

1. Select a 3270 Emulation session and logon onto TSO

2. Ensure the session is left with a TSO READY prompt

Preparing from VM

Tasks

1. Select a 3270 Emulation session

2. Logon onto user P696234H

3. Establish the correct minidisk order

   The VMFSETUP command accesses all the required disks or SFS directories to establish the needed CMS filemodes.

   Issue the following command:

   ```
   VMFSETUP 5696234H {HLASM|HLASMSFS}
   ```

   5696234H is the PPF that is shipped with High Level Assembler Program Understanding Tool. If you have your own PPF override, substitute your PPF name for 5696234H.

   Use HLASM if the High Level Assembler Program Understanding Tool is installed on a minidisk. Use HLASMSFS if High Level Assembler Program Understanding Tool is installed in SFS.

4. The download process using the *RECEIVE* command is prone to interruption by messages being sent to the VM userid that being used to download the files. In order to minimize this impact please issue the following commands:

   QUERY SET to display the status of many SET command functions. Please note the values for MSG, IMSG and SMSG.

   SET MSG OFF indicates whether messages sent from other users by means of the CP MESSAGE command are to be displayed. ON specifies that messages are displayed. OFF specifies that messages are not displayed.

   SET IMSG OFF indicates whether informational messages associated with certain CP commands are to be displayed. ON specifies that informational responses are displayed. OFF specifies that the responses are not displayed.

   SET SMSG OFF specifies whether a virtual machine is receiving special messages. OFF indicates the virtual machine cannot receive special messages. ON indicates the virtual machine can receive special messages.

5. Ensure the session is left with a blank CMS screen

Preparing from VSE

Tasks

1. Sign on to the VSE host and switch to file transfer mode by doing one of the following:

   - Escape to CICS (PF6/PF9) if you are allowed to do so

   - If you are an administrator, select fast path 3-8-6

   - If you are a programmer, select fast path 5-9-6

   - If you have installed VSE Workdesk, open the folder *OPERATIONS* and select *PC File Transfer* and *OK*.

   Workstations are to be in DFT mode with the Extended Data Stream (EXTDS) feature for each device associated with a host session. This is done in the CICS terminal control table (TCT). If you are unsure what mode your session is in, use the CICS/VSE transaction INWQ to determine the mode of your 3270 session is in.

Step 2: Download the Product Files

The syntax of the following RECEIVE commands will work with Communications Manager/2 or Personal Communications/3270.

Downloading from MVS

Tasks

1. Open an *OS/2 Window* or an *OS/2 Full Session*.

2. Create the directory into which you will download these compressed files used to install the product. When you install the product, it is installed into this same directory. Enter the following command at the OS/2 command prompt:

   ```
   MD <P>
   ```

   <P>   is the directory where you want to receive these files. For example,

   ```
   MD ASMPUT
   ```

3. Position the window to point to this directory. Enter the following command at the OS/2 command prompt:

   ```
   CD <P>
   ```

   <P>   is the directory where you want to receive the file.

4. Enter the following commands at the OS/2 command prompt:

   ```
   RECEIVE <P>ASMPUTI.EXE <S>:'<HLQ>SASMPUT2(ASMV50F0)'
   RECEIVE <P>READ.ME     <S>:'<HLQ>SASMPUT2(ASMVREAD)'
   RECEIVE <P>INSTALL.CMD <S>:'<HLQ>SASMPUT2(ASMVINS)'
   ```

   where

   <P>   is the path name where you want to receive the Installation file. When you enter the directory, add a trailing back slash (\).

   <S>   is the emulator session which you want to use to download the Installation Utility.

<HLQ> this is the high level qualifier (HLQ) for the partitioned data set which holds the member in binary form.

Example: When you want to receive these files from host session *A* to the path *C:\ASMPUT* using a high level qualifier of *IBM.JMQ415a* enter

```
RECEIVE C:\ASMPUT\ASMPUTI.EXE A:'IBM.JMQ415a.SASMPUT2(ASMV50F0)'
RECEIVE C:\ASMPUT\READ.ME    A:'IBM.JMQ415a.SASMPUT2(ASMVREAD)'
RECEIVE C:\ASMPUT\INSTALL.CMD A:'IBM.JMQ415a.SASMPUT2(ASMVINS)'
```

Downloading from VM

Tasks
1. Open an *OS/2 Window* or an *OS/2 Full Session*.

2. Create the directory into which you will download the product files used to install the product. When you install the product, it is installed into this same directory. Enter the following command at the OS/2 command prompt:

   ```
   MD <P>
   ```

   <P>   is the directory where you want to receive the product files For example,

   ```
   MD ASMPUT
   ```

3. Position the window to point to this directory. Enter the following command at the OS/2 command prompt:

   ```
   CD <P>
   ```

   <P>   is the directory where you want to receive the product files.

4. Enter the following commands at the OS/2 command prompt:

   ```
   RECEIVE <P>ASMPUTI.EXE <S>:ASMV50F0 BASEPF11 <M>
   RECEIVE <P>READ.ME     <S>:ASMVREAD BASEPF11 <M>
   RECEIVE <P>INSTALL.CMD <S>:ASMVINS  BASEPF11 <M>
   ```

   where

   <P>   is the path name where you want to receive the product files. When you enter the directory, add a trailing back slash (\).

   <S>   is the emulator session which you want to use to download the Installation file.

   <M>   is the CMS filemode of the disk where the files reside. This will be *P696234H*'s 29E disk.

Example: When you want to receive these product files from host session *A* to the path *C:\ASMPUT* with a CMS filemode of *I* enter

```
RECEIVE C:\ASMPUT\ASMPUTI.EXE A:ASMV50F0 BASEPF11 I
RECEIVE C:\ASMPUT\READ.ME     A:ASMVREAD BASEPF11 I
RECEIVE C:\ASMPUT\INSTALL.CMD A:ASMVINS  BASEPF11 I
```

Downloading from VSE

Tasks

1. Open an *OS/2 Window* or an *OS/2 Full Session*.

2. Create the directory into which you will download the product files used to install the product. When you install the product, it is installed into this same directory. Enter the following command at the OS/2 command prompt:

   ```
   MD <P>
   ```

   <P>   is the directory where you want to receive the product files. For example,

   ```
   MD ASMPUT
   ```

3. Position the window to point to this directory. Enter the following command at the OS/2 command prompt:

   ```
   CD <P>
   ```

   <P>   is the directory where you want to receive the product files.

4. Enter the following commands at the OS/2 command prompt:

   ```
   RECEIVE <P>ASMPUTI.EXE  <S>:ASMV50F0 W
      (FILE=LIB L=<LIB> S=<SUBLIB> BINARY
   RECEIVE <P>READ.ME       <S>:ASMVREAD W
      (FILE=LIB L=<LIB> S=<SUBLIB> BINARY
   RECEIVE <P>INSTALL.CMD  <S>:ASMVINS  W
      (FILE=LIB L=<LIB> S=<SUBLIB> BINARY
   ```

   where

   <P>   is the path name where you want to receive the product files. When you enter the directory, add a trailing back slash (\).

   <S>   is the emulator session which you want to use to download the Installation file.

   <LIB>   is the name of the library where High Level Assembler Program Understanding Toolis installed.

   <SUBLIB> is the name of the sublibrary where High Level Assembler Program Understanding Toolis installed.

   Example: When you want to receive the product files from host session *A* to the path *C:\ASMPUT* from *PRD2.PROD* enter

   ```
   RECEIVE C:\ASMPUT\ASMPUTI.EXE  A:ASMV50F0 W
      (FILE=LIB L=PRD2 S=PROD BINARY
   RECEIVE C:\ASMPUT\READ.ME       A:ASMVREAD W
      (FILE=LIB L=PRD2 S=PROD BINARY
   RECEIVE C:\ASMPUT\INSTALL.CMD  A:ASMVINS  W
      (FILE=LIB L=PRD2 S=PROD BINARY
   ```

Step 3: Start the Install

Invoke the INSTALL.CMD by typing in **INSTALL** at an OS/2 prompt. Be sure to do this from within the directory which contains the downloaded product files. The product is installed into this directory.

The installation adds the user specified directory and an ASMPUT icon to the desktop. An 'Uninstall' icon is also added to the ASMPUT folder. It can be used to remove the product from your system. Check the LIBPATH statement in the CONFIG.SYS file to see if the '.' parameter is present. If it is not, then manually update this statement to include the '.' value. After this change a reboot is required. This will enable the loading of DLLs from the installation directory.

Additional information is contained in the READ.ME file within the installation directory.

Step 4: Verify Successful Installation

To verify the successful installation of High Level Assembler Program Understanding Tool, invoke High Level Assembler Program Understanding Tool by double-clicking the icon on the desktop.

High Level Assembler Program Understanding Tool is now installed and ready for use.

Appendix E. Maintaining Program Understanding Tool on OS/2

This section contains the following instructions to maintaining and removing High Level Assembler Program Understanding Tool on OS/2:

- Worksheet: Maintaining High Level Assembler Program Understanding Tool on OS/2
- Maintaining High Level Assembler Program Understanding Tool
- Uninstalling High Level Assembler Program Understanding Tool from OS/2

Worksheet: Maintaining High Level Assembler Program Understanding Tool on OS/2

These are the actions performed in this Appendix.

__ 1. Maintaining High Level Assembler Program Understanding Tool

Refer to "Maintaining High Level Assembler Program Understanding Tool" on page 102.

__ 2. Uninstallation of High Level Assembler Program Understanding Tool from OS/2 (Optional)

Refer to "Uninstalling High Level Assembler Program Understanding Tool from OS/2" on page 102.

Maintaining High Level Assembler Program Understanding Tool

To maintain this product, the user should

1. Uninstall this product on the workstation

   This is covered in "Uninstalling High Level Assembler Program Understanding Tool from OS/2."

2. Apply service on the host

   The normal service stream via PTFs will be applied to the parts on the host.

3. Install this product on the workstation

Uninstalling High Level Assembler Program Understanding Tool from OS/2

To remove High Level Assembler Program Understanding Tool carry out the following tasks.

Tasks

1. Ensure you have a current backup of this product.

2. Save user files.

   Please note that you should copy any files that you have stored in the \DATA subdirectory to another directory, and you should delete these files from the \DATA directory before you can uninstall the product.

3. If the **ASMPUT** folder is open click on it to make it active window, or click on the **ASMPUT** icon.

4. Double click on the **Uninstall** icon. This will remove the product from the workstation.

Appendix F. Planning for Installing Program Understanding Tool on Windows

This section contains the following planning information to help you properly install High Level Assembler Program Understanding Tool on Windows:

- Worksheet: Planning for Installing High Level Assembler Program Understanding Tool on Windows
- Verify workstation requirements
- Verify required workstation software
- Host connectivity

Worksheet: Planning for Installing High Level Assembler Program Understanding Tool on Windows

Before you begin the installation, you should:

___ 1. Verify workstation requirements

Refer to "Verify Workstation Requirements" on page 104.

___ 2. Verify that required software is at the level needed.

Refer to "Verify Workstation Software" on page 104.

___ 3. Verify connection to Host

Refer to "Verify Host Connectivity" on page 104.

Verify Workstation Requirements

The following hardware requirements must be satisfied to use High Level Assembler Program Understanding Tool:

- Intel 80486-based 75Mhz processor or faster

- 16 megabytes (16 MB) of memory (RAM) or more

- 20 megabytes (20 MB) of available hard disk space

- A communications package that can download host files.

- An SVGA display configured to display at least 256 colors

Verify Workstation Software

The following software requirements must be satisfied to use High Level Assembler Program Understanding Tool:

- Windows 95 at Service Pack 1, or

- Windows 98, or

- Windows NT V4.0 at Service Pack 3, or

- A program capable of downloading binary files from a host system running z/OS, OS/390, z/VM, or VSE/ESA. For example, eNetwork Personal Communications for Windows V4.2, or later.

Verify Host Connectivity

To install High Level Assembler Program Understanding Tool, files are downloaded from the host.

Useful Publications

The reference manual for this tool is Chapter 4 of *Toolkit Feature User's Guide*.

As well, the tool contains extensive online help, which is accessible once High Level Assembler Program Understanding Tool is running.

Appendix G. Installing Program Understanding Tool on Windows

This section contains the following instructions to install High Level Assembler Program Understanding Tool on Windows:

- Worksheet: Installing High Level Assembler Program Understanding Tool on Windows
- Prepare the Installation
- Download the Product
- Start the Install
- Verify successful installation

Worksheet: Installing High Level Assembler Program Understanding Tool on Windows

Before you begin the installation, you should:

___ 1. Prepare the Installation

Refer to "Step 1: Prepare the Installation" on page 106.

___ 2. Download the Product

Refer to "Step 2: Download the Product Files" on page 107.

___ 3. Start the Install

Refer to "Step 3: Start the Install" on page 109.

___ 4. Verify successful Installation

Refer to "Step 4: Verify Successful Installation" on page 109.

Step 1: Prepare the Installation

Download product files. These files are the compressed files which make up the product. They are both binary files.

Preparing from MVS

Tasks
1. Select a 3270 Emulation session and logon onto TSO

2. Ensure the session is left with a TSO READY prompt

Preparing from VM

Tasks
1. Select a 3270 Emulation session

2. Logon onto user P696234H

3. Establish the correct minidisk order

   The VMFSETUP command accesses all the required disks or SFS directories to establish the needed CMS filemodes.

   Issue the following command:

   ```
   VMFSETUP 5696234H {HLASM|HLASMSFS}
   ```

   5696234H is the PPF that is shipped with High Level Assembler Program Understanding Tool. If you have your own PPF override, substitute your PPF name for 5696234H.

   Use HLASM if the High Level Assembler Program Understanding Tool is installed on a minidisk. Use HLASMSFS if High Level Assembler Program Understanding Tool is installed in SFS.

4. The download process using the *RECEIVE* command is prone to interruption by messages being sent to the VM userid that being used to download the files. In order to minimize this impact please issue the following commands:

   QUERY SET to display the status of many SET command functions. Please note the values for MSG, IMSG and SMSG.

   SET MSG OFF indicates whether messages sent from other users by means of the CP MESSAGE command are to be displayed. ON specifies that messages are displayed. OFF specifies that messages are not displayed.

   SET IMSG OFF indicates whether informational messages associated with certain CP commands are to be displayed. ON specifies that informational responses are displayed. OFF specifies that the responses are not displayed.

   SET SMSG OFF specifies whether a virtual machine is receiving special messages. OFF indicates the virtual machine cannot receive special messages. ON indicates the virtual machine can receive special messages.

5. Ensure the session is left with a blank CMS screen

Preparing from VSE

Tasks

1. Sign on to the VSE host and switch to file transfer mode by doing one of the following:

    - Escape to CICS (PF6/PF9) if you are allowed to do so

    - If you are an administrator, select fast path 3-8-6

    - If you are a programmer, select fast path 5-9-6

    - If you have installed VSE Workdesk, open the folder *OPERATIONS* and select *PC File Transfer* and *OK*.

    Workstations are to be in DFT mode with the Extended Data Stream (EXTDS) feature for each device associated with a host session. This is done in the CICS terminal control table (TCT). If you are unsure what mode your session is in, use the CICS/VSE transaction INWQ to determine the mode of your 3270 session is in.

Step 2: Download the Product Files

The syntax of the following RECEIVE commands will work with Communications Manager/2 or Personal Communications/3270.

Downloading from MVS

Tasks

1. Create a temporary directory where you will be downloading the compressed files used to install the product.

2. Download the following members from the HLASM Toolkit target library as **binary** files:

    ```
    '<HLQ>SASMPUT2(ASMWREAD)'
    '<HLQ>SASMPUT2(ASMPUTW)'
    ```

    where `<HLQ>` is the high level qualifier (HLQ) for the partitioned data set which holds the member in binary form.

    Please download member `ASMWREAD` as `READ.ME` and download member `ASMPUTW` as `ASMPUTW.EXE`.

Downloading from VM

Tasks

1. Create a temporary directory where you will be downloading the compressed files used to install the product.

2. Download the following CMS files from the HLASM Toolkit production disk (P696234H.29E) as binary files:

    ```
    ASMWREAD BASEPF11
    ASMPUTW  BASEPF11
    ```

    Please download file `ASMWREAD BASEPF11` as `READ.ME` and download file `ASMPUTW BASEPF11` as file `ASMPUTW.EXE`.

Downloading from VSE

Tasks

1. Create a temporary directory where you will be downloading the product files used to install the product.

2. Download the following .W books from the HLASM Toolkit library as binary files:

   ```
   ASMWREAD.W
   ASMPUTW.W
   ```

   Please download member `ASMWREAD.W` as `READ.ME` and download member `ASMPUTW.W` as `ASMPUTW.EXE`.

   To do this:

   a. Open a Command Prompt session. For example, under Windows 95, click the **Start** menu, then click **Programs**, then click **MS-DOS Prompt**.

   b. Change to the temporary directory. Enter:

      ```
      CD \<P>
      ```

      where <P> is the temporary directory.

   c. Receive the READ.ME file by entering:

      ```
      RECEIVE <P>READ.ME <S>:ASMWREAD W
         (FILE=LIB L=<LIB> S=<SUBLIB> BINARY
      ```

      Receive the ASMPUTW.EXE file by entering:

      ```
      RECEIVE <P>ASMPUTW.EXE  <S>:ASMPUTW  W
         (FILE=LIB L=<LIB> S=<SUBLIB> BINARY
      ```

      where

<P>	is the path name where you want to receive the product files. When you enter the directory, add a trailing back slash (\).
<S>	is the emulator session which you want to use to download the Installation file.
<LIB>	is the name of the library where High Level Assembler Program Understanding Tool is installed.
<SUBLIB>	is the name of the sublibrary where High Level Assembler Program Understanding Tool is installed.

      Example: When you want to receive the product files from host session *A* to the path *C:\TEMP* from *PRD2.PROD* enter

      ```
      RECEIVE C:\TEMP\READ.ME  A:ASMWREAD W
         (FILE=LIB L=PRD2 S=PROD BINARY
      RECEIVE C:\TEMP\ASMPUTW.EXE  A:ASMPUTW W
         (FILE=LIB L=PRD2 S=PROD BINARY
      ```

Step 3: Start the Install

Read the READ.ME file using a text editor such as WORDPAD, and carry out the instructions contained in this file.

Step 4: Verify Successful Installation

To verify the successful installation of High Level Assembler Program Understanding Tool, invoke High Level Assembler Program Understanding Tool by using the START button, selecting PROGRAMS and clicking on ASMPUT.

High Level Assembler Program Understanding Tool is now installed and ready for use.

Appendix H. Maintaining Program Understanding Tool on Windows

This section contains the following instructions to maintaining and removing High Level Assembler Program Understanding Tool on Windows:

- Worksheet: Maintaining High Level Assembler Program Understanding Tool on Windows
- Maintaining High Level Assembler Program Understanding Tool
- Uninstalling High Level Assembler Program Understanding Tool from Windows

Worksheet: Maintaining High Level Assembler Program Understanding Tool on Windows

These are the actions performed in this Appendix.

__ 1. Maintaining High Level Assembler Program Understanding Tool

Refer to "Maintaining High Level Assembler Program Understanding Tool" on page 112.

__ 2. Uninstalling High Level Assembler Program Understanding Tool from Windows (Optional)

Refer to "Uninstallating High Level Assembler Program Understanding Tool from Windows" on page 112.

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Maintaining High Level Assembler Program Understanding Tool

To maintain this product, the user should

1. Uninstall this product on the workstation

   This is covered in "Uninstallating High Level Assembler Program Understanding Tool from Windows."

2. Apply service on the host

   The normal service stream via PTFs will be applied to the parts on the host.

3. Install this product on the workstation

Uninstallating High Level Assembler Program Understanding Tool from Windows

In the event you wish to remove High Level Assembler Program Understanding Tool carry out the following tasks.

Tasks

1. Ensure you have a current backup of this product.

2. Save user files.

   Please note that you should copy any files that you have stored in the \DATA subdirectory to another directory, and you should delete these files from the \DATA directory before you can uninstall the product.

3. From the toolbar, select **Start**, **Settings**, **Control Panel**, **Add/Remove Programs**. From the list of software, select ASMPUT, and click **Add/Remove**, then click **Yes**.

Bibliography

High Level Assembler Publications

HLASM General Information, GC26-4943

HLASM Installation and Customization Guide, SC26-3494

HLASM Language Reference, SC26-4940

HLASM Licensed Program Specifications, GC26-4944

HLASM Programmer's Guide, SC26-4941

Toolkit Feature Publications

HLASM Toolkit Feature User's Guide, GC26-8710

HLASM Toolkit Feature Debug Reference Summary, GC26-8712

HLASM Toolkit Feature Interactive Debug Facility User's Guide, GC26-8709

HLASM Toolkit Feature Installation and Customization Guide, GC26-8711

Related Publications (Architecture)

Enterprise Systems Architecture/390 Principles of Operation, SA22-7201

System/370 Enterprise Systems Architecture Principles of Operation, SA22-7200

System/370 Principles of Operation, GA22-7000

System/370 Extended Architecture Principles of Operation, SA22-7085

z/Architecture Principles of Operation, SA22-7832-02

z/Architecture Reference Summary, SA22-7871-01

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z/OS:

z/OS MVS JCL Reference, SA22-7597

z/OS MVS JCL User's Guide, SA22-7598

z/OS MVS Programming: Assembler Services Guide, SA22-7605

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z/OS MVS System Codes, SA22-7626

z/OS MVS System Commands, SA22-7627

z/OS MVS System Messages, Volumes 1 - 10, SA22-7631 - SA22-7640

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OS/390 MVS JCL Reference, GC28-1757

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OpenEdition:

MVS/ESA OpenEdition MVS User's Guide, SC23-3013

z/OS UNIX System Services User's Guide, SA22-7801

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MVS/DFP Version 3.3: Utilities, SC26-4559

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DFSMS/MVS:

z/OS DFSMS Program Management, SC27-1130

TSO/E (z/OS):

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OS/390 TSO/E Command Reference, SC28-1869

SMP/E (z/OS):

SMP/E Messages, Codes and Diagnosis, GA22-7770

SMP/E Reference, SA22-7772

SMP/E User's Guide, SA22-7773

SMP/E (OS/390):

SMP/E Messages and Codes, SC28-1738

SMP/E Reference, SC28-1806

SMP/E User's Guide, SC28-1740

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z/VM:

z/VM CMS Application Development Guide,
SC24-6002

*z/VM CMS Application Development Guide for
Assembler*, SC24-6003

z/VM CMS User's Guide, SC24-5968

z/VM CMS Command Reference, SC24-5969

*z/VM CMS File Pool Planning, Administration, and
Operation*, SC24-6058

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z/VM XEDIT User's Guide, SC24-5972

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SC24-5973

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SC24-5967

z/VM Planning and Administration, SC24-5995

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z/VM VMSES/E Introduction and Reference,
GC24-5994

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VSE/ESA Administration, SC33-6705

VSE/ESA Guide to System Functions, SC33-6711

VSE/ESA Installation, SC33-6704

VSE/ESA Planning, SC33-6703

VSE/ESA System Control Statements, SC33-6713

VSE/ESA Messages and Codes, Vols.1 - 3,
SC33-6796, SC33-6798, SC33-6799

General Publications

*BRIEF OS/390 Software Management Cookbook,
SG24-4775*

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Glossary

This glossary defines terms and abbreviations that are used in this book. If you do not find the term you are looking for refer to the index, to the glossary of the appropriate high-level language (HLL) manual, or to the *IBM Dictionary of Computing*, New York: McGraw-Hill, 1994.

A

abend. Abnormal end of application.

accept. An SMP/E process that moves distributed code and programs to the distribution libraries.

activate. To make a program available for use.

addressing mode (AMODE). An attribute that refers to the address length that a routine is prepared to handle upon entry. Addresses may be 24 or 31 bits long.

address space. Domain of addresses that are accessible by an application.

AMODE. Addressing mode.

APAR. Authorized program analysis report.

authorized program analysis report (APAR). A request for correction of a problem caused by a defect in a current unaltered release of a program.

authorized program facility (APF). The authorized program facility (APF) is a facility that an installation manager uses to protect the system. In MVS, certain system functions, such as all or part of some SVCs, are sensitive; their use must be restricted to users who are authorized. An authorized program is one that executes in supervisor state, or with APF authorization.

auxiliary file. In CMS, a file that contains a list of file types of update files to be applied to a particular source file.

B

base. The core product, upon which features may be separately ordered and installed.

batch. Pertaining to activity involving little or no user action. Contrast with *interactive*.

byte. The basic unit of storage addressability, usually with a length of 8 bits.

C

cataloged procedure. A set of control statements placed in a library and retrievable by name.

CBPDO. Custom-Built Product Delivery Offering.

CE. IBM customer engineer.

CLIST. TSO command list.

CMS. Conversational monitor system.

compiler options. Keywords that can be specified to control certain aspects of compilation. Compiler options can control the nature of the load module generated by the compiler, the types of printed output to be produced, the efficient use of the compiler, and the destination of error messages.

component. (1) Software that is part of a functional unit. (2) A set of modules that performs a major function within a system.

condition code. A code that reflects the result of a previous input/output, arithmetic, or logical operation.

control block. A storage area used by a computer program to hold control information.

control file. In CMS, a file that contains records that identify the updates to be applied and the macrolibraries, if any, needed to assemble a particular source program.

control program (CP). A computer program designed to schedule and to supervise the execution of programs of a computer system.

control section (CSECT). The part of a program specified by the programmer to be a relocatable unit, all elements of which are to be loaded into adjoining main storage locations.

control statement. (1) In programming languages, a statement that is used to alter the continuous sequential execution of statements; a control statement can be a conditional statement, such as IF, or an imperative statement, such as STOP. (2) In JCL, a statement in a job that is used in identifying the job or describing its requirements to the operating system.

conversational monitor system (CMS). A virtual machine operating system that provides general interactive time sharing, problem solving, and program devel-

opment capabilities, and operates only under the control of the VM/370 control program.

corrective maintenance. Maintenance performed specifically to overcome existing problems.

CP command. In VM, a command by which a terminal user controls his or her virtual machine. The VM/370 control program commands are called CP commands.

CPPL. Command processor parameter list.

CP privilege class. In VM, one or more classes assigned to a virtual machine user in the user's VM directory entry; each privilege class allows access to a logical subset of the CP commands.

CSI. Consolidated software inventory data set.See *SMPCSI*.

CSECT. Control section.

cumulative service tape. A tape sent with a new function order, containing all current PTFs for that function.

Custom-Built Installation Process Offering (CBIPO). A CBIPO is a tape that has been specially prepared with the products (at the appropriate release levels) requested by the customer. A CBIPO simplifies installing various products together.

Custom-Built Product Delivery Offering (CBPDO). A CBPDO is a tape that has been specially prepared for installing a particular product and the related service requested by the customer. A CBPDO simplifies installing a product and the service for it.

D

data definition name (DDNAME). The logical name of a file within an application. The DDNAME provides the means for the logical file to be connected to the physical file.

data set. On MVS, a named collection of related data records that is stored and retrieved by an assigned name. Equivalent to a CMS *file*.

data set name (dsname). The data set name on the DD statement in the JCL or the dsname operand of the TSO ALLOC command.

DBCS. Double-byte character set.

DDDEF. Dynamic data definition.

DDNAME. Data definition name.

default. A value that is used when no alternative is specified.

DD statement. In MVS, connects the logical name of a file and the physical name of the file.

DELTA disk. In VM, the virtual disk that contains program temporary fixes (PTFs) that have been installed but not merged.

distribution libraries. IBM-supplied partitioned data sets on tape containing one or more components that the user restores to disk for subsequent inclusion in a new system.

distribution medium. The medium on which software is distributed to the user; for example, 9-track magnetic tape, tape cartridge.

distribution zone. In SMP/E, a group of VSAM records that describe the SYSMODs and elements in the distribution libraries.

DITTO utility. Data Interfile Transfer, Testing and Operations utility.

double-byte character set (DBCS). A collection of characters represented by a 2-byte code.

driving system. The system used to install the program. Contrast with target system.

dsname. Data set name.

dynamic data definition (DDDEF). The process of defining a data set and allocating auxiliary storage space for it while, rather than before, a job step executes.

dynamic storage. Storage acquired as needed at run time. Contrast with *static storage*.

E

ECMODE. Extended control mode.

executable program. (1) A program that has been link-edited and therefore can run in a processor. (2) The set of machine language instructions that constitute the output of the compilation of a source program.

Extended control mode (ECMODE). A mode in which all features of a System/370 computing system, including dynamic address translation, are operational.

Extended Service Option (ESO). A service option that gives a customer all the new fixes for problems in IBM licensed programs that operate under that customer's operating system.

F

feature.   A part of an IBM product that may be ordered separately by a customer.

feature number.   A four-digit code used by IBM to process hardware and software orders.

file.   A named collection of related data records that is stored and retrieved by an assigned name. Equivalent to an MVS *data set*.

FILEDEF.   File definition statement.

file definition statement (FILEDEF).   In CMS, connects the logical name of a file and the physical name of a file.

fix.   A correction of an error in a program, usually a temporary correction or bypass of defective code.

FMID.   Function modification identifier.

function.   A routine that is invoked by coding its name in an expression. The routine passes a result back to the invoker through the routine name.

function modification identifier (FMID).   The value used to distinguish separate parts of a product. A product tape or cartridge has at least one FMID.

I

IBM customer engineer (CE).   An IBM service representative who performs maintenance services for IBM hardware.

IBM program support representative (PSR).   An IBM service representative who performs maintenance services for IBM software at a centralized IBM location.

IBM service representative.   An individual in IBM who performs maintenance services for IBM products or systems.

IBM Software Distribution (ISD).   The IBM department responsible for software distribution.

IBM Support Center.   The IBM department responsible for software service.

IBM systems engineer (SE).   An IBM service representative who performs maintenance services for IBM software in the field.

initial program load (IPL).   (1) The initialization procedure that causes an operating system to commence operation. (2) The process by which a configuration image is loaded into storage, as at the beginning of a

work day or after a system malfunction or as a means to access updated parts of the system. (3) The process of loading system programs and preparing a system to run jobs.

inline.   Sequential execution of instructions, without branching to routines, subroutines, or other programs.

IPL.   Initial program load.

interactive.   Pertaining to a program or system that alternately accepts input and responds. In an interactive system, a constant dialog exists between user and system. Contrast with *batch*.

Interactive Interface.   A series of panels, allowing the user to use the facilities of the VSE/ESA operating. This interface runs within CICS/VSE.

ISD.   IBM Software Distribution.

J

JCL.   Job control language.

JCLIN data.   The JCL statements associated with the ++JCLIN statement or saved in the SMPJCLIN data set. They are used by SMP/E to update the target zone when the SYSMOD is applied. Optionally, SMP/E can use the JCLIN data to update the distribution zone when the SYSMOD is accepted.

JES.   Job Entry Subsystem

Job Entry Subsystem.   A system facility for spooling, job queueing, and managing the scheduler work area.

job control language (JCL).   A sequence of commands used to identify a job to an operating system and to describe a job's requirements.

job step.   You enter a program into the operating system as a job step. A job step consists of the job control statements that request and control execution of a program and request the resources needed to run the program. A job step is identified by an EXEC statement. The job step can also contain data needed by the program. The operating system distinguishes job control statements from data by the contents of the record.

L

librarian.   In VSE, the set of programs that maintains, services, and organizes the system and private libraries.

library.   A collection of functions, subroutines, or other data.

Glossary

link pack area (LPA). In MVS, an area of main storage containing reenterable routines from system libraries. Their presence in main storage saves loading time when a reenterable routine is needed.

linkage editor. A program that resolves cross-references between separately assembled object modules and then assigns final addresses to create a single relocatable load module. The linkage editor then stores the load module in a program library in main storage.

link-edit. To create a loadable computer program by means of a linkage editor.

load module. An application or routine in a form suitable for execution. The application or routine has been compiled and link-edited; that is, address constants have been resolved.

logical saved segment. A portion of a physical saved segment that CMS can manipulate. Each logical saved segment can contain different types of program objects, such as modules, text files, execs, callable services libraries, language repositories, user-defined objects, or a single minidisk directory. A system segment identification file (SYSTEM SEGID) associates a logical saved segment to the physical saved segment in which it resides. See *physical saved segment* and *saved segment*.

LPA. Link pack area.

M

maintain system history program (MSHP). In VSE, a program used for automating and controlling various installation, tailoring, and service activities for a VSE system.

MCS. Modification control statement

minidisk. In VM, all, or a logical subdivision of, a physical disk storage device that has its own address, consecutive storage space for data, and an index or description of stored data so that the data can be accessed. Synonymous with virtual disk.

module. A language construct that consists of procedures or data declarations and can interact with other such constructs.

MSHP. Maintain system history program.

MVS. Multiple Virtual Storage operating system.

N

Named Saved System. A copy of an operating system that a user has named and saved in a file. The user can load the operating system by its name, which is more efficient than loading it by device number.

national language support (NLS). Translation requirements affecting parts of licensed programs; for example, translation of message text and conversion of symbols specific to countries.

NLS. National language support.

nonexecutable components. Components of a product that cannot be run.

non reentrant. A program that cannot be shared by multiple users.

nonreenterable. See *non reentrant*.

NSS. named saved system

O

object code. Output from a compiler or assembler which is itself executable machine code or is suitable for processing to produce executable machine code.

object deck. Synonymous with *object module, text deck*.

object module. A portion of an object program suitable as input to a linkage editor. Synonymous with *text deck, object deck*.

online. (1) Pertaining to a user's ability to interact with a computer. (2) Pertaining to a user's access to a computer via a terminal.

operating system. Software that controls the running of programs; in addition, an operating system may provide services such as resource allocation, scheduling, input/output control, and data management.

P

parameter. Data items that are received by a routine.

partition. A fixed-size division of storage.

phase. In VSE, the smallest complete unit of executable code that can be loaded into virtual storage.

physical saved segment. One or more pages of storage that have been named and retained on a CP-owned volume (DASD). When created, it can be loaded within a virtual machine's address space or

outside a virtual machine's address space. Multiple users can load the same copy. A physical saved segment can contain one or more logical saved segments. A system segment identification file (SYSTEM SEGID) associates a physical saved segment to its logical saved segments. See *logical saved segment* and *saved segment*.

preventive maintenance.   Maintenance performed specifically to prevent problems from occurring.

preventive service planning (PSP).   The online repository of program temporary fixes (PTFs) and other service information. This information could affect installation.

procedure.   A named block of code that can be invoked, usually via a call.

procedure library (PROCLIB).   A program library in direct access storage with job definitions. The reader/interpreter can be directed to read and interpret a particular job definition by an execute statement in the input stream.

PROCLIB.   Procedure library.

program level.   The modification, release, version, and fix level of a product.

program number.   The seven-digit code (in the format *xxxx-xxx*) used by IBM to identify each program product.

program temporary fix (PTF).   A temporary solution or bypass of a problem diagnosed by IBM as resulting from a defect in a current unaltered release of the program.

PSP.   Preventive service planning.

PSR.   IBM program support representative.

PTF.   Program temporary fix.

Q

qualifier.   A modifier that makes a name unique.

R

reentrant.   The attribute of a routine or application that allows more than one user to share a single copy of a load module.

reenterable.   See *reentrant*

relative file tape (RELFILE tape).   A standard label tape made up of two or more files. It contains a file of

the MCSs for one or more function SYSMODs and one or more relative files containing unloaded source data sets and unloaded, link-edited object data sets at the distribution library level. A relative file tape is one way of packaging SYSMODs, and is typically used for function SYSMODs.

relative files (RELFILEs).   Files containing modification text and JCL input data associated with a SYSMOD.

RELFILEs.   Relative files

RELFILE tape.   Relative file tape

relocatable load module.   On CMS, a combination of object modules having cross references resolved and prepared for loading into storage for execution.

residence mode (RMODE).   The attribute of a load module that specifies whether the module, when loaded, must reside below the 16MB virtual storage line or may reside anywhere in virtual storage.

resident modules.   A module that remains in a particular area of storage.

return code.   A code produced by a routine to indicate its success. It can be used to influence the execution of succeeding instructions.

RIM.   Related installation materials

RMODE.   Residence mode.

run.   To cause a program, utility, or other machine function to be performed.

S

save area.   Area of main storage in which contents of registers are saved.

SBCS.   Single-byte character set.

SE.   IBM systems engineer.

service level.   The modification level, release, version, and fix level of a program. The service level incorporates PTFs if there are any.

saved segment.   A segment of storage that has been saved and assigned a name. Saved segments can be physical saved segments that CP recognizes or logical saved segments that CMS recognizes. The segments can be loaded and shared among virtual machines, which helps use real storage more efficiently, or a private, nonshared copy can be loaded into a virtual machine. See *logical saved segment* and *physical saved segment*.

shared segment.   In VM, a feature of a saved system that allows one or more segments of reenterable code in real storage to be shared among many virtual machines.

shared storage.   An area of storage that is the same for each virtual address space. Because it is the same space for all users, information stored there can be shared and does not have to be loaded in the user region.

shared virtual area (SVA).   In VSE, a high address area of virtual storage that contains a system directory list (SDL) of frequently used phases, resident programs that can be shared between partitions, and an area for system support.

severity code.   A part of run-time messages that indicates the severity of the error condition (1, 2, 3, or 4).

single-byte character set (SBCS).   A collection of characters represented by a 1-byte code.

SMPCSI.   The SMP/E data set that contains information about the structure of a user's system as well as information needed to install the operating system on a user's system. The SMPCSI DD statement refers specifically to the CSI that contains the global zone. This is also called the master CSI.

softcopy.   One or more files that can be electronically distributed, manipulated, and printed by a user.

software inventory disk.   In VM, the disk where the system level inventory files reside.

source code.   The input to a compiler or assembler, written in a source language.

source program.   A set of instructions written in a programming language that must be translated to machine language before the program can be run.

SREL.   System release identifier

stacked tape.   An IBM-supplied, product-shipment tape containing the code of two or more licensed programs.

statement.   In programming languages, a language construct that represents a step in a sequence of actions or a set of declarations.

sublibrary.   In VSE, a subdivision of a library.

SUBSET.   The value that specifies the function modifier (FMID) for a product level. It further specifies an entry in RETAIN* for a product level.

subsystem.   A secondary or subordinate system, or programming support, usually capable of operating

independently of or asynchronously with a controlling system. Examples are CICS and IMS.

SVA.   Shared virtual area.

syntax.   The rules governing the structure of a programming language and the construction of a statement in a programming language.

SYSMOD.   system modification.

SYSMOD ID.   system modification identifier.

system abend.   An abend caused by the operating system's inability to process a routine; can be caused by errors in the logic of the source routine.

T

target disk.   In VM, the disk to which a program is installed.

target libraries.   In SMP/E, a collection of data sets in which the various parts of an operating system are stored. These data sets are sometimes called system libraries.

target zone.   In SMP/E, a collection of VSAM records describing the target system macros, modules, assemblies, load modules, source modules, and libraries copied from DLIBs during system generation, and the system modifications (SYSMODs) applied to the target system.

text deck.   Synonym for *object module, object deck*.

time sharing option/extended (TSO/E).   An option on the operating system; for System/370, the option provides interactive time sharing from remote terminals.

TSO/E.   Time sharing option/extended.

U

UCLIN.   In SMP/E, the command used to initiate changes to SMP/E data sets. Actual changes are made by subsequent UCL statements.

UPGRADE.   An alphanumeric identifier that specifies a product level.

user exit.   A routine that takes control at a specific point in an application.

USERMOD.   User modification.

user modification (USERMOD).   A change to product code that the customer initiates.

V

virtual machine (VM).   (1) A functional simulation of a computer and its associated devices. Each virtual machine is controlled by a suitable operating system. (2) In VM, a functional equivalent of either a System/370 computing system or a System/370-Extended Architecture computing system.

VMFINS.   An installation aid supplied as part of VMSES/E to make installation on VM consistent.

VM Serviceability Enhancements Staged/Extended (VMSES/E).   A program product for installing and maintaining products on VM.

VMSES/E.   VM Serviceability Enhancements Staged/Extended.

VOLSER.   Volume serial number.

volume.   (1) A certain portion of data, together with its data carrier, that can be handled conveniently as a unit. (2) A data carrier mounted and demounted as a unit; for example, a reel of magnetic tape, a disk pack.

volume label.   An area on a standard label tape used to identify the tape volume and its owner. This area is the first 80 bytes and contains VOL 1 in the first four positions.

volume serial number (VOLSER).   A number in a volume label assigned when a volume is prepared for use in a system.

VSAM.   Virtual storage access method. A high-performance mass storage access method. Three types of data organization are available: entry sequenced data sets (ESDS), key sequenced data sets (KSDS), and relative record data sets (RRDS).

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High Level Assembler for MVS & VM & VSE
Toolkit Feature Installation
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Release 5

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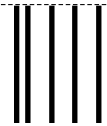
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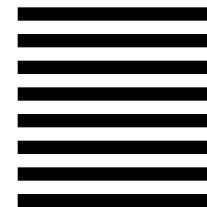
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