



# **Program Directory for z/VM**

version 6 release 4

Program Number 5741-A07

for Use with  
z/VM V6.4

Document Date: November 2016

GI13-3472-00

**Note!**

Before using this information and the product it supports, be sure to read the general information under “Notices” on page 34.

This program directory, dated November 2016, applies to IBM® z/VM® version 6 release 4 , Program Number 5741-A07.

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## 1.0 Introduction

This program directory is intended for the system programmer responsible for program installation and maintenance. It contains information concerning the material and procedures associated with the installation of z/VM version 6 release 4. You should read all of this program directory before installing the program and then keep it for future reference. Section 3.1, "Preventive Service Planning" on page 7, tells you how to find any updates to the information and procedures in this program directory.

The program directory contains the following sections:

- 2.0, "Program Materials" on page 2 identifies the basic and optional program materials and documentation for z/VM.
- 3.0, "Program Support" on page 7 describes the IBM support available for z/VM.
- 4.0, "Program and Service Level Information" on page 12 lists the program levels of the required licensed products and the service level of z/VM.
- 5.0, "Installation Requirements and Considerations" on page 13 identifies the resources and considerations for installing and using z/VM.
- 6.0, "Installation Instructions" on page 18 provides information regarding the installation process for z/VM.
- 7.0, "Service Instructions" on page 20 provides information regarding the service process for z/VM.
- Appendix A, "z/VM APARs Included From Previous Release" on page 21 lists the APARs and PTFs incorporated into z/VM.
- Appendix B, "z/VM Inclusion of Requirements and FINS" on page 25 lists the requirement, FIN APARs and FIN PITS problem records incorporated into z/VM.
- Appendix C, "z/VM Object Code Only Modules" on page 26 lists the Object Code Only modules within z/VM.

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## 2.0 Program Materials

An IBM program is identified by a program number. The program number for z/VM version 6 release 4 is 5741-A07.

The program announcement material describes the features supported by z/VM version 6 release 4. Ask your IBM marketing representative for this information if you have not already received a copy.

The following sections identify:

- The basic and optional program materials available with this program
- National Language Support (NLS).

---

### 2.1 Basic Machine-Readable Material

Refer to the *IBM z/VM V6.4* Software Announcement for information about ordering z/VM version 6 release 4 and its features. This announcement can be found using the links under the heading 'New! z/VM V6.4 Enhancements' on the z/VM home page:

[www.vm.ibm.com](http://www.vm.ibm.com)

The distribution media for the z/VM System Deliverable is DVD or electronic internet delivery. The DVD and electronic deliverables are a binary image and not in DDR format. The DVD and electronic delivery support installation of z/VM to 3390 DASD, model 3 (3339 cylinders) and model 9 (10,017 cylinders) and model 27 (32,760 cylinders). The DVDs and electronic delivery also support installation to FCP-attached IBM System Storage SCSI disks or equivalent.

**Note:** Electronic internet delivery of the z/VM operating system (z/VM System Deliverable) and any IBM z/VM Licensed Products is only available when ordered through Shopz at url:

<https://www.ibm.com/software/shopzseries>

**Please refer to the Media Description Report, that comes with your order, for a description of the contents of each individual deliverable.**

See section 6.0, "Installation Instructions" on page 18 for more information about how to install the program.

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### 2.2 National Language Support (NLS)

The distribution medium for NLS is available electronic ordering the z/VM SDO through Shopz.



## 2.2.1 NLS Basic Machine-Readable Material

The NLS basic material that is available is DFSMS/VM™ Kanji. It is shipped as a separately orderable free feature of the z/VM V6.4 SDO (5741-A06). If you need DFSMS/VM Kanji you can order it when you order z/VM through the SDO. If you are installing on SCSI disks and you need DFSMS/VM Kanji, you must order it electronically.

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## 2.3 Optional Machine-Readable Material

The DFSMS/VM feature of z/VM does not come as part of the z/VM system deliverable. It is an optionally orderable free feature of the z/VM V6.4 SDO.

[www.vm.ibm.com/related/dfsms/](http://www.vm.ibm.com/related/dfsms/)

The z/VM Restricted Source feature and the PL/X Source feature are not shipped with the z/VM system deliverable. Both are available as no-charge downloads from IBM Resource Link™ at:

[www.ibm.com/servers/resourcelink/](http://www.ibm.com/servers/resourcelink/)

In order to download either of these features you need to:

- be registered with Resource Link
- have a license for z/VM V6.4

Entitlement will be verified when you request this source code. After your verification, you will receive instructions describing how to download the source code for these features.

Information on downloading the source features can be found in section 6.2.1.1, “(Optional) Restricted and PL/X Source Installation” on page 18.

### Notes:

1. The optional machine-readable source material contains “Restricted Materials of IBM.”

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## 2.4 Program Publications

The following sections identify the basic and optional publications for z/VM version 6 release 4.

### 2.4.1 Basic Program Publications

Figure 1 identifies the basic program publications for the z/VM base. One copy of each of these publications is included when you order the basic materials for z/VM version 6 release 4. For additional copies of any publication, visit the IBM Publications Center at their World Wide Web site:

[www.ibm.com/shop/publications/order](http://www.ibm.com/shop/publications/order)

or the z/VM Information Center web site:

<http://publib.boulder.ibm.com/infocenter/zvm/v6r4/index.jsp>

*Figure 1. Basic Material: Publications for z/VM - New Editions*

<b>Publication Title</b>	<b>Form Number</b>
z/VM: Installation Guide	GC24-6246
z/VM: Agreements and License Information DVD	LC27-5378

Figure 2 identifies the informal shipped documentation for z/VM. One copy of the associated publication is included with your z/VM V6.4 order for any priced feature that you order.

*Figure 2. Basic Material: Informal Documentation*

<b>Publication Title</b>	<b>Form Number</b>
Memo to Users IBM z/VM Single System Image Feature	GI13-3479
Memo to Users IBM Performance Toolkit for VM™	GI13-3480
Memo to Users IBM Directory Maintenance Facility for z/VM	GI13-3481
Memo to Users IBM Remote Spooling Communications Subsystem (RSCS) Networking for z/VM	GI13-3482
Memo to Users IBM RACF® Security Server for z/VM	GI13-3483

Figure 3 identifies the informal documentation for z/VM and the priced features of z/VM. The program directories are softcopy only.

*Figure 3 (Page 1 of 2). Basic Material: Informal Documentation*

<b>Publication Title</b>	<b>Form Number</b>
Program Directory for z/VM	GI13-3472
Program Directory for TCP/IP for z/VM	GI13-3474
Program Directory for Open Systems Adapter Support Facility Feature	GI11-9805-02

Figure 3 (Page 2 of 2). Basic Material: Informal Documentation

Publication Title	Form Number
Program Directory for Hardware Configuration Definition and Hardware Configuration Manager for z/VM	GI13-3484
Program Directory for Environmental Record Editing and Printing (EREP)	GI10-8140-01
Program Directory for Device Support Facilities ICKDSF	GI10-4514-02
RSU Stacked Memo	GI13-3473
Program Directory for Performance Toolkit for VM	GI13-3475
Program Directory for Directory Maintenance Facility for z/VM	GI13-3476
Program Directory for Remote Spooling Communications Subsystem (RSCS) Networking for z/VM	GI13-3477
Program Directory or RACF® Security Server for z/VM	GI13-3478
IBM Wave for z/VM: Administration and Customization	SC27-6118

## 2.4.2 Optional Base Program Publications

The optional publications available for z/VM are listed in the chapter "z/VM Library Guide" in the *z/VM: General Information* manual.

Optional publications are supplied in Adobe® Portable Document Format (PDF) or BookManager® format with z/VM. z/VM publications, except Program Directories, are also available in the z/VM Information Center web site:

<http://publib.boulder.ibm.com/infocenter/zvm/v6r4/index.jsp>

z/VM offers unlicensed publications in softcopy displayable form for several products that run on z/VM. The *IBM Online Library: z/VM Collection* contains all of the IBM libraries (unlicensed books only) that are available in PDF format for current VM system products and IBM licensed programs that run on z/VM. It also contains all of the z/VM base, additional facility and optional feature publications that are currently available in Adobe PDF. The *IBM Online Library: z/VM Collection* is available as a downloadable zip file that can be obtained from the IBM Publications Center. Figure 4 identifies the z/VM softcopy displayable form number for the online library collection downloadable zip file.

Figure 4. Optional Material: Softcopy Displayable

Publication Title	Form Number
IBM Online Library: z/VM Collection	SK5T-7054

PDF and Bookmanager versions of the z/VM publications can also be found at:

[www.vm.ibm.com/library/](http://www.vm.ibm.com/library/)

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## 2.5 Program Source Materials

Customers with access to View Program Listings (VPL) can use the VPL facility for online viewing of available program listings. Those customers without access to VPL can contact their IBM representative.

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## 3.0 Program Support

This section describes the IBM support available for z/VM.

**Note:**

Service for z/VM Cloud Manager Appliance and the IBM Wave for z/VM feature are not provided through Shopz. Both are serviced through FixCentral.

- For service information for z/VM Cloud Manager Appliance shipped with your order refer to:  
<http://www.vm.ibm.com/sysman/openstk.html>
- For service information for the optionally priced feature IBM Wave for z/VM refer to:  
<http://www.ibm.com/systems/z/solutions/virtualization/wave>

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## 3.1 Preventive Service Planning

### 3.1.1 Recommended Service Upgrade (RSU)

**Before installing z/VM, you should see if you received the most current Stacked RSU available. If there is a higher RSU available, or if you did not receive an RSU with your order and there is now one available, you should order it and apply it when you install z/VM.**

Be aware that there is a Stacked RSU package level which includes products at their individual RSU level. These levels are different. When checking for the current level you should check the current individual product RSU level. If you are not at the current product RSU level then you should order the z/VM Stacked RSU, UM97640. Refer to the following z/VM RSU internet site:

[www.vm.ibm.com/service/rsu/stk640.html](http://www.vm.ibm.com/service/rsu/stk640.html)

to see information about the Stacked RSU package level and corresponding product individual RSU level. You can also find information about ordering z/VM service, preventive (RSU) or CORrective, at the z/VM service internet Web site:

[www.vm.ibm.com/service](http://www.vm.ibm.com/service)

**Note:** You can click on 'Notify me' in the left navigation area of the z/VM RSU page and complete the form that is displayed so that you will be notified whenever the stk640.html file gets changed. A change to this file is an indication that a new RSU is available.

### 3.1.2 Obtaining Preventive Service

**Before installing z/VM, check with your IBM Support Center or use IBMLink™ (ServiceLink) to see whether there is additional Preventive Service Planning (PSP) information and service recommendations that you should have.** You should request the PSP information for the z/VM components and z/VM features that you are using. Refer to Figure 5 on page 8 for PSP Upgrade and Subset information.

Use the appropriate product Service Procedures to apply any service recommendations in the PSP Bucket **AFTER** installation has been completed.

To obtain the PSP information, specify the UPGRADE and SUBSET values from Figure 5.

The features and other pre-installed products are shown after the double line in the figure.

*Figure 5 (Page 1 of 2). PSP Upgrade and Subset ID - z/VM*

Upgrade	Subset	RETAIN® Release
ZVM640	CP	640
ZVM640	DVF	640
ZVM640	GCS	640
ZVM640	CMS	640
ZVM640	TSAF	640
ZVM640	VMSES	640
ZVM640	REXX	640
ZVM640	AVS	640
ZVM640	LE	620
ZVM640	yynnRSU	RSU
TCPIP640	VM640	640
TCPIP640	yynnRSU	RSU
VMOSASF440	OSASF	440
VMOSASF440	yynnRSU	RSU
ZVMHCD640	ZVMHCD/640	640
ZVMHCD640	yynnRSU	RSU
VMPTK640	PTK/640	640
VMPTK640	yynnRSU	RSU
DIRM640	DIRM/640	640
DIRM640	yynnRSU	RSU

Figure 5 (Page 2 of 2). PSP Upgrade and Subset ID - z/VM

Upgrade	Subset	RETAIN® Release
RACFVM640	RACF640	640
RACFVM640	yynnRSU	RSU
RSCS640	RSCS/640	640
RSCS640	yynnRSU	RSU
DFSMSVM221	SMS221	221
ICKDSF017	CMS0H14	H14
EREP350	VMEREP/350	500

### 3.2 Statement of Support Procedures

With z/VM you are entitled to support under the basic warranty for z/VM. You should note that the z/VM Software Subscription and Support (5741-SNS) is **automatically** added when you order z/VM. This provides zSeries service to which you are likely accustomed. If you do not want the z/VM Software Subscription and Support for z/VM you must take specific action to decline it when ordering z/VM.

With the IBM z/VM Single System Image Feature you are entitled to support under the basic warranty for z/VM. You should note that the Software Subscription and Support for the VMSSI feature is **automatically** added to your order. This provides zSeries service to which you are likely accustomed. If you do not want the z/VM Software Subscription and Support for this feature you must take specific action to decline it when ordering z/VM.

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 is to be sent.

Figure 6 identifies the component IDs (COMPID), Retain Release and Field Engineering Service Numbers (FESN) for z/VM.

Figure 6 (Page 1 of 2). Component IDs and Field Engineering Numbers

Retain		Component Name	PRODID	FESN
COMPID	Release			
568411201	640	CMS	6VMCMS40	0460181
568411202	640	CP	6VMCPR40	0460647
568411204	640	AVS	6VMAVS40	0460648
568411205	640	REXX™	6VMREX40	0460185
568411206	640	TSAF	6VMTSA40	0460186
568411208	640	DVF	6VMDVF40	0460188
568411209	640	VMSES/E	6VMSES40	0460646

Figure 6 (Page 2 of 2). Component IDs and Field Engineering Numbers

<b>Retain</b>				
<b>COMPID</b>	<b>Release</b>	<b>Component Name</b>	<b>PRODID</b>	<b>FESN</b>
568411211	640	GCS	6VMGCS40	0460191
568411220	620	LE	6VMLEN20	0410741
568819802	620	LE COBOL RTL	6VMLEN20	0562227
568819803	620	LE PL/I RTL	6VMLEN20	0562228
568411201	A64	CMS JAPANESE KANJI	6VMCMS40	0460181
568411202	A64	CP JAPANESE KANJI	6VMCPR40	0460647
568411204	A64	AVS JAPANESE KANJI	6VMAVS40	0460648
568411205	A64	REXX JAPANESE KANJI	6VMREX40	0460185
568411206	A64	TSAF JAPANESE KANJI	6VMTSA40	0460186
568411208	A64	DVF JAPANESE KANJI	6VMDVF40	0460188
568411209	A64	VMSES/E JAPANESE KANJI	6VMSES40	0460646
568411211	A64	GCS JAPANESE KANJI	6VMGCS40	0460191
568411220	A62	LE JAPANESE KANJI	6VMLEN20	0410741
568819802	A62	LE COBOL RTL JAPANESE KANJI	6VMLEN20	0562227
568819803	A62	LE PL/I RTL JAPANESE KANJI	6VMLEN20	0562228

For your convenience, Figure 7 identifies the component IDs (COMPID), Retain Release and Field Engineering Service Numbers (FESN) for the features and products that are pre-installed on the z/VM deliverable.

Figure 7 (Page 1 of 2). Component IDs and Field Engineering Numbers

<b>Retain</b>				
<b>COMPID</b>	<b>Release</b>	<b>Component Name</b>	<b>PRODID</b>	<b>FESN</b>
568411219	640	HCD/HCM for z/VM	6VMHCD40	0409974
565510400	440	OSA/SF for VM	4OSASF40	0401298
5735FAL00	640	TCP/IP for z/VM	6VMTCP40	0461035
568411218	640	Performance Toolkit for VM	6VMPTK40	0408274
5749DVH00	640	DirMaint™	6VMDIR40	6415301
576700201	640	RACF	6VMRAC40	6700201
568409601	640	RSCS	6VMRSC40	0401165
565899201	H14	ICKDSF	5684042J	5499201



Figure 7 (Page 2 of 2). Component IDs and Field Engineering Numbers

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<b>Retain</b>				
<b>COMPID</b>	<b>Release</b>	<b>Component Name</b>	<b>PRODID</b>	<b>FESN</b>
565426001	500	EREP VM	\$5654260	5426001

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## 4.0 Program and Service Level Information

This section identifies the program and any relevant service levels of z/VM. The program level refers to the APAR fixes incorporated into the program. The service level refers to the PTFs integrated.

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### 4.1 Program Level Information

z/VM version 6 release 3 APARs, which are fixed in z/VM version 6 release 4, are listed in Appendix A, “z/VM APARs Included From Previous Release” on page 21 of this document.

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### 4.2 Service Level Information

EREP V3.5 is at SDO service level SDO-1600 and ICKDSF V1.17 is at the SDO service level ESO-1606.

When you complete installation, the following products will be at the Service Level provided on the GA z/VM System Deliverable plus the GA RSU, if applicable. (If you install a higher level RSU then the products may be at a higher level.)

*Figure 8. Feature/Component RSU Levels GA System Deliverable*

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Product Name	Release Level	RSU Level
OSA/SF for VM	FL 440	1401
LE	620	1602

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#### Notes:

1. Products not listed are at base level (or an RSU level, if serviced on an RSU that you installed).

---

### 4.3 Cumulative Service

The Recommended Service Upgrade (RSU) for z/VM version 6 release 4 is cumulative.

The RSU is used to provide service updates for all z/VM components, features or products, in VMSES/E format, that are pre-installed on the z/VM System Deliverables. It is referred to as a stacked RSU.

The RSU can be ordered using the PTF number **UM97640**.

---

## 5.0 Installation Requirements and Considerations

The following sections identify the system requirements for installing z/VM.

### 5.1.1 Programming Requirements

A license for the following products is required to order z/VM version 6 release 4. These products are already installed on the z/VM System Deliverables.

*Figure 9. Products Required for z/VM version 6 release 4*

Product Name	Product Level	Product Number
EREP	3.5.0	5654-260
ICKDSF*	1.17.0	5747-DS1
ICKDSF/VM*	1.17.0	5684-042

**Note:** \*Only one ICKDSF product license (ICKDSF or ICKDSF/VM) is required.

**A license for the following products is required in order to enable and run them.** These products are installed on the z/VM System Deliverables disabled. Refer to the z/VM V6.4 Software Announcement for information on obtaining a license for these products.

*Figure 10. Features or Products Requiring a License*

Product/Feature Name	Product Level	Product Number
z/VM Single System Image Feature	640	5741-A07
Performance Toolkit for VM	640	5741-A07
DirMaint	640	5741-A07
RACF Security Server	640	5741-A07
RSCS	640	5741-A07

**A license for the following products is required in order to run them.** These products are **not** installed on the z/VM System Deliverables. Refer to the z/VM V6.4 Software Announcement for information on obtaining a license for these products.

*Figure 11. Features or Products Requiring a License*

Product/Feature Name	Product Level	Product Number
IBM Wave for z/VM Feature	120	5741-A07

## 5.1.2 DASD Storage Requirements

Figure 12 on page 14 identifies the DASD required to install z/VM version 6 release 4.

**Note:** During installation INSTPLAN will tell you exactly how many DASD volumes are required.

Figure 12. DASD Requirements for System Residence, Work, Spool and Page

DASD Type	Number of DASD	Reason
3390-Mod 3 (3339 cylinders)	11 for non-SSI or 11 plus six more for each additional member for an SSI	if you select to load to minidisk
	9 for non-SSI or 9 plus six more for each additional member for an SSI	if you select to load to SFS Note that if you load to both minidisk and SFS you will need either nine or eleven volumes for first system or member
3390-Mod 9 (10017 cylinders)	6 for non-SSI or 6 plus four more for each additional member for an SSI	
3390-Mod 27 (32760 cylinders)	5 for non-SSI or 5 plus three more for each additional member for an SSI	
FBA	5 - if FBA volume greater than 9.7 GB or 6 - if FBA volume is less than 9.7 GB	Note that SCSI disk install is non-SSI only

## 5.1.3 Media Requirements

The following media types are supported:

- DVD
- electronic delivery

## 5.1.4 Hardware Requirements

For installation hardware requirements make sure you review the appropriate 'Review and understand the requirements' section in the *z/VM: Installation Guide*. **This is especially important if you will be installing from DVD.**

For z/VM product hardware requirements refer to the 'Hardware and storage requirements' section in the *z/VM: General Information*.

## 5.1.5 Software Program Requirements

For z/VM software program requirements refer to the 'Software (program) requirements' section in the *z/VM: General Information*.

## 5.1.6 Programming and Migration Considerations

### 5.1.6.1 Migration Considerations

The *z/VM:General Information, CP Planning and Administration Part 5 'Single System Image Clusters Planning and Administration'*, *z/VM:Migration Guide* and the product Program Directories **should be reviewed** as they contain important information needed when migrating from one release to another.

#### 5.1.6.1.1 System Support Task

- **You must create a new stand-alone dump tape** to use with z/VM V6.4. When you run the HCPSADMP EXEC (reference *z/VM: Installation Guide*, Chapter 11 Step 1) you must answer YES to the question on 'DO YOU WANT TO CREATE A NEW HCPSDC MODULE?'. This will create new HCPSDC ASSEMBLE and HCPSDC TEXT files.
- If you are running in a mixed release level cluster you **MUST** install the following APARs on your z/VM 620 system to pick up support for maintaining common parts in an VMSSI cluster.

Figure 13. APARs for z/VM 630

Component	APAR number
VMSES/E	VM65317
CMS	VM65319
CP	VM65318
RACF	VM65320

#### 5.1.6.1.2 VMSES/E Packaging Changes

- The following are the new file identifiers for the source product parameter files (\$PPF)

Figure 14. New \$PPF File Names

Componet/Feature	\$PPF file name and file type
AVS	6VMAVS40 \$PPF
CMS	6VMCMS40 \$PPF
CP	6VMCPR40 \$PPF
Dump Viewing Facility	6VMDVF40 \$PPF
GCS	6VMGCS40 \$PPF
REXX	6VMREX40 \$PPF
TSAF	6VMTSA40 \$PPF
VMSES/E	6VMSES40 \$PPF
TCPIP	6VMTCP40 \$PPF
Performance Toolkit for VM	6VMPTK40 \$PPF
DirMaint	6VMDIR40 \$PPF
RSCS	6VMRSC40 \$PPF
RACF	6VMRAC40 \$PPF
VMHCD	6VMHCD40 \$PPF

**Notes:**

1. OSA is still at FL440 level with a \$PPF file name of 4OSASF40.
  2. LE is still at the 620 level with a \$PPF file name of 6VMLEN20.
- The default PPF used to service all components and features of z/VM is SERVP2P. In the SERVP2P \$PPF there is a set of component overrides used by the SERVICE command and a set used by the PUT2PROD command. The SERVP2P \$PPF overrides the base component in the component or product \$PPF file (for example, 6vmaaa40 \$PPF). If you have created an override to the ZVM \$PPF it will not be included in the SERVP2P \$PPF. You should change your PPF override to override all the appropriate components in the SERVP2P \$PPF file instead of the ZVM \$PPF file as **the ZVM \$PPF file is no longer shipped**.
  - The SERVP2P PPF is now used instead of the ZVM PPF to build the shipped z/VM segments.
  - All pre-installed components and features are serviced using the MAINT640 user ID instead of MAINT or the product/feature user ID.
  - VMPSFS is the new default shared file system (SFS) file pool, used instead of VMSYS for the base component service disks. VMSYS is still used by the byte file system and by the SSL and LDAP servers.
  - If you have created a PPF override, you can update the VM SYSSUF file to reflect your PPF override name by issuing the VMFUPDAT SYSSUF command. You must do this so that your PPF override will be used by the SERVICE, PUT2PROD and LOCALMOD commands.

- Placing the z/VM base components and pre-installed features into production is now done by moving just the serviced objects to the production disk rather than copying the entire test build disk to the corresponding production disk.

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## 6.0 Installation Instructions

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### 6.1 z/VM Base Installation

Installation instructions are contained in the *z/VM: Installation Guide* included in your z/VM product shipment.

**Note:** The z/VM System Deliverable is received as part of your SDO (System Delivery Option) Package order. You should review Chapters 1 and 2 in the SDO Program Directory to get an overview of the SDO package. Chapter 2 in the SDO Program Directory will point you to the *z/VM: Installation Guide* in order to install the z/VM System Deliverable, the stacked RSU and any z/VM optional features.

For information on tailoring the z/VM component customizable files refer to the appropriate z/VM component (CP, CMS, VMSES, LE, etc) publications.

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### 6.2 z/VM Cloud Manager Appliance

Installation instructions are contained in the *README.txt* included within your z/VM Cloud Manager product media. Additional installation information and publication links are contained at [www.vm.ibm.com/sysman/osmntlvl.html](http://www.vm.ibm.com/sysman/osmntlvl.html)

#### 6.2.1.1 (Optional) Restricted and PL/X Source Installation

If you have a need for the z/VM Restricted or PL/X source code you can download it from Resource Link on the internet at:

[www.ibm.com/servers/resourcelink/](http://www.ibm.com/servers/resourcelink/)

You need to have a license for z/VM V6.4 in order to access this source code.

**Note:** To store all the restricted and PL/X source files you will need several hundred cylinders of space. See the installation instructions for the Restricted and PL/X Source at [www.vm.ibm.com/install/srcinst.html](http://www.vm.ibm.com/install/srcinst.html) for space requirements.

You need to be registered with Resource Link so you can sign in to it to retrieve the source files. If you are a new user to Resource Link you need to use your IBM ID to sign in to Resource Link. If you do not have an IBM ID you can register for one at:

[www.ibm.com/account/profile](http://www.ibm.com/account/profile)

If you are a current Resource Link user you can use your Resource Link user ID until told to use your IBM ID.

Once signed in to Resource Link you need to:



- click on [Tools](#) on the left navigation
- click on [z/VM and VM/ESA®](#) under the **Software** heading
- click on [Restricted and PL/X Source](#) under the **z/VM and VM/ESA** heading
- click on [Register for version 6.4.0 Restricted and PLX Source](#)

Next you will be asked to fill out the Restricted and PL/X Source Registration form so that your entitlement to z/VM V6.4 can be verified. This form will ask for your customer number. **The customer number you enter must be the same customer number you used when you ordered z/VM V6.4.** You will also need to provide a phone number where you can be reached in case IBM needs to contact you about your entitlement. Once the form is filled out, click on the submit button. You will receive a confirmation screen with a control identification number. You should make a note of this number, in case you need to call IBM about your registration.

Once you have submitted the registration you should be provided with access within two business days. Once you receive confirmation that you are registered to access the Restricted and PL/X source, you will see a new link on the z/VM version 6 Restricted and PLX Source web page (the page where you originally clicked on [Register for version 6.4.0 Restricted and PLX Source](#)). This link says **"If you are already registered and authorized [access the V6.4.0 Restricted and PLX source](#).** Click on [access the V6.4.0 Restricted and PLX source](#).

The next web page will display the files that can be downloaded and a pointer to the installation instructions. You should review the installation instructions before downloading the files. The installation instructions have information on how to upload the envelope files to the z/VM host, including detailed information on the resources you need to install the files on z/VM, how to de-compact the envelope files and the installation instructions.

When you click on any one of the downloadable files you will be asked to review the License Agreement and select "I agree". When you select "I agree" you will begin to download the source code, which is stored on the server as tersed (compacted) servlink envelope files. On the File Download window you should click on the Save button to save the files to your workstation. You will be presented with the License Agreement for each file that you choose to download. You must select "I agree" for each file. After the files are on your workstation you need to follow the installation instructions.

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## 7.0 Service Instructions

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### 7.1 z/VM Base Service

The *z/VM: Service Guide* contains the instructions for servicing your z/VM system.

**Notes:**

1. You can use MAINTvrm's 500 disk to hold your electronically delivered service. You should access it as file mode 'C'.
2. VMSES/E uses MAINTvrm's A-disk as a work disk. You must not reduce the size of the A-disk to save space.
3. The component "Memo to Users" file on an RSU contains information about the service applied to that component; such as APAR/PTF numbers, additional disk requirements, etc.
4. If you are running a SCSI only system, and you have no supported tape drives, then you will need to order service on CD-ROM, DVD or electronically from ServiceLink in IBMLink, if you have it, or from the Shopz web site at:

**<https://www.ibm.com/software/shopzseries>**

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### 7.2 z/VM Cloud Manager Appliance Service

Service information and publication links are contained at:

**<http://www.vm.ibm.com/sysman/openstk.html>**

The above link leads to the *Enabling z/VM for OpenStack (Support for OpenStack Liberty Release)* publication. Refer to the **Installation and service information for OpenStack enablement and xCAT** section for the latest OpenStack Release publications.

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## Appendix A. z/VM APARs Included From Previous Release

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### A.1 z/VM prior release APARs for the VMSES/E component

The following z/VM prior release VMSES/E APARs have been included in the z/VM version 6 release 4 base code.

Figure 15. z/VM prior release VMSES/E APARs included in z/VM version 6 release 4 Base

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VM64924	VM65181	VM65198	VM65209	VM65282	VM65349	VM65388
VM65424	VM65505	VM65516	VM65521	VM65651	VM65654	VM65660
VM65702	VM65821					

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### A.2 z/VM prior release APARs for the CP component

The following z/VM prior release CP APARs have been included in the z/VM version 6 release 4 base code.

Figure 16 (Page 1 of 2). z/VM prior release CP APARs included in z/VM version 6 release 4 Base

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VM64460	VM64543	VM64587	VM64668	VM64700	VM64741	VM64761
VM64770	VM64890	VM64941	VM64952	VM64971	VM64979	VM64999
VM65007	VM65010	VM65011	VM65012	VM65015	VM65019	VM65022
VM65027	VM65041	VM65042	VM65045	VM65049	VM65050	VM65052
VM65057	VM65060	VM65061	VM65062	VM65064	VM65065	VM65066
VM65067	VM65069	VM65070	VM65072	VM65073	VM65074	VM65076
VM65077	VM65079	VM65080	VM65085	VM65086	VM65088	VM65089
VM65093	VM65097	VM65098	VM65101	VM65102	VM65104	VM65105
VM65106	VM65107	VM65111	VM65115	VM65117	VM65121	VM65122
VM65123	VM65124	VM65126	VM65127	VM65132	VM65133	VM65134
VM65136	VM65141	VM65142	VM65145	VM65146	VM65147	VM65150
VM65152	VM65153	VM65154	VM65156	VM65158	VM65159	VM65165
VM65166	VM65167	VM65170	VM65171	VM65173	VM65175	VM65176
VM65180	VM65186	VM65187	VM65188	VM65189	VM65190	VM65191
VM65193	VM65194	VM65196	VM65199	VM65200	VM65203	VM65206
VM65210	VM65212	VM65213	VM65216	VM65218	VM65219	VM65220
VM65224	VM65225	VM65226	VM65227	VM65228	VM65230	VM65231
VM65232	VM65234	VM65237	VM65238	VM65240	VM65241	VM65242
VM65246	VM65248	VM65250	VM65253	VM65254	VM65255	VM65258
VM65259	VM65262	VM65268	VM65269	VM65272	VM65275	VM65277
VM65280	VM65285	VM65286	VM65287	VM65289	VM65299	VM65300
VM65302	VM65303	VM65304	VM65306	VM65308	VM65309	VM65310
VM65313	VM65322	VM65329	VM65332	VM65333	VM65335	VM65336
VM65339	VM65341	VM65346	VM65348	VM65350	VM65352	VM65354
VM65356	VM65358	VM65360	VM65364	VM65365	VM65366	VM65367

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Figure 16 (Page 2 of 2). z/VM prior release CP APARs included in z/VM version 6 release 4 Base

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VM65368	VM65371	VM65373	VM65375	VM65378	VM65380	VM65381
VM65382	VM65384	VM65386	VM65387	VM65390	VM65391	VM65392
VM65393	VM65395	VM65397	VM65398	VM65401	VM65402	VM65403
VM65405	VM65406	VM65407	VM65410	VM65415	VM65416	VM65417
VM65418	VM65419	VM65420	VM65422	VM65423	VM65426	VM65427
VM65429	VM65440	VM65441	VM65443	VM65445	VM65446	VM65447
VM65449	VM65450	VM65451	VM65452	VM65453	VM65454	VM65455
VM65456	VM65457	VM65461	VM65462	VM65466	VM65467	VM65468
VM65469	VM65470	VM65471	VM65472	VM65475	VM65479	VM65480
VM65483	VM65484	VM65486	VM65488	VM65490	VM65492	VM65499
VM65500	VM65501	VM65503	VM65506	VM65508	VM65509	VM65510
VM65511	VM65512	VM65514	VM65515	VM65517	VM65518	VM65519
VM65520	VM65522	VM65523	VM65524	VM65525	VM65530	VM65534
VM65537	VM65538	VM65540	VM65544	VM65547	VM65549	VM65551
VM65552	VM65554	VM65555	VM65557	VM65558	VM65560	VM65562
VM65566	VM65567	VM65575	VM65577	VM65581	VM65583	VM65584
VM65586	VM65587	VM65596	VM65597	VM65600	VM65601	VM65603
VM65606	VM65607	VM65611	VM65618	VM65619	VM65621	VM65622
VM65626	VM65629	VM65630	VM65633	VM65635	VM65636	VM65637
VM65638	VM65640	VM65642	VM65643	VM65645	VM65646	VM65649
VM65655	VM65657	VM65659	VM65661	VM65665	VM65666	VM65668
VM65672	VM65674	VM65677	VM65678	VM65680	VM65681	VM65683
VM65684	VM65691	VM65692	VM65695	VM65696	VM65701	VM65703
VM65705	VM65709	VM65710	VM65712	VM65713	VM65716	VM65720
VM65725	VM65726	VM65727	VM65732	VM65733	VM65738	VM65740
VM65743	VM65745	VM65748	VM65754	VM65755	VM65758	VM65760
VM65762	VM65764	VM65766	VM65768	VM65771	VM65777	VM65778
VM65785	VM65790	VM65791	VM65794	VM65797	VM65798	VM65799
VM65801	VM65804	VM65805	VM65813	VM65815	VM65816	VM65819
VM65820	VM65823	VM65824	VM65825	VM65826	VM65832	VM65837
VM65838	VM65839	VM65841	VM65842	VM65844	VM65845	VM65847
VM65854	VM65869	VM65873	VM65876			

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### A.3 z/VM prior release APARs for the DVF component

The following z/VM prior release DVF APARs have been included in the z/VM version 6 release 4 base code.

Figure 17. z/VM prior release DVF APARs included in z/VM version 6 release 4 Base

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VM65144	VM65572
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## A.4 z/VM prior release APARs for the CMS component

The following z/VM prior release CMS APARs have been included in the z/VM version 6 release 4 base code.

*Figure 18. z/VM prior release CMS APARs included in z/VM version 6 release 4 Base*

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VM19423	VM64534	VM65055	VM65063	VM65083	VM65118	VM65131
VM65139	VM65148	VM65151	VM65162	VM65163	VM65174	VM65179
VM65184	VM65197	VM65202	VM65217	VM65221	VM65245	VM65249
VM65252	VM65257	VM65260	VM65261	VM65263	VM65270	VM65271
VM65278	VM65291	VM65293	VM65298	VM65312	VM65323	VM65326
VM65328	VM65351	VM65362	VM65376	VM65385	VM65408	VM65421
VM65425	VM65432	VM65437	VM65442	VM65460	VM65463	VM65465
VM65476	VM65477	VM65482	VM65487	VM65513	VM65535	VM65539
VM65541	VM65550	VM65563	VM65568	VM65570	VM65574	VM65576
VM65578	VM65593	VM65594	VM65610	VM65614	VM65623	VM65625
VM65627	VM65628	VM65631	VM65634	VM65650	VM65652	VM65662
VM65663	VM65667	VM65670	VM65671	VM65675	VM65676	VM65682
VM65685	VM65694	VM65706	VM65714	VM65717	VM65721	VM65723
VM65724	VM65731	VM65736	VM65739	VM65744	VM65749	VM65753
VM65761	VM65765	VM65769	VM65774	VM65780	VM65781	VM65782
VM65787	VM65793	VM65803	VM65806	VM65807	VM65809	VM65810
VM65811	VM65814	VM65817	VM65822	VM65831	VM65834	VM65835
VM65851	VM65852	VM65853	VM65855	VM65861	VM65862	VM65868
VM65881						

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## A.5 z/VM prior release APARs for the VM/REXX component

There are no z/VM prior release APARs for REXX included in the z/VM version 6 release 4 base code.

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## A.6 z/VM prior release APARs for the GCS component

There are no z/VM prior release APARs for GCS included in the z/VM version 6 release 4 base code.

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## **A.7 z/VM prior release APARs for the TSAF component**

There are no z/VM prior release APARs for TSAF included in the z/VM version 6 release 4 base code.

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## **A.8 z/VM prior release APARs for the AVS component**

There are no z/VM prior release APARs for AVS included in the z/VM version 6 release 4 base code.

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## **A.9 z/VM version 6 release 2 APARS for the LE component**

z/VM Language Environment stayed at the version 6 release 2 level in z/VM version 6 release 4.

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## Appendix B. z/VM Inclusion of Requirements and FINS

In addition to the APARs identified in Appendix A, “z/VM APARs Included From Previous Release,” z/VM version 6 release 4 includes the following officially opened requirements and FIN (Fixed In Next Release) problems that were reported against previous releases. In some cases, an APAR was opened and closed with a closing code of FIN.

---

### B.1 VM FINS or Requirements for all components

The following VM FINS or Requirements have been included in the z/VM version 6 release 4 base code.

*Figure 19. VM FINS included in z/VM version 6 release 4 Base*

<b>Internal Problem ID</b>	<b>FIN APAR or Requirement</b>	<b>Description</b>
Base code	MR0513111155	Improve duplicate IP address handling on VSWITCH
Base code	MR063011175	Keep in-use zLinux guest pages in real storage when running under z/VM
Base code	MR1019112549	Support greater than 256gig
Base code	MR0426125518	DIRMAP's UNSORT file should contain SUBCONFIG and member data
Base Code	MR0907111236	Standalone dump load without tape
Base Code	MR1220054748	Able to direct standalone dump output to DASD
Base Code	MR0809063354	SADUMP
Base Code	MR0110082559	Standalone dump load from DVD/CD DASD
Base Code	MR0216102445	z/VM support SA DUMP on SCSI
Base Code	MR0825111220	Improve VSWITCH failover and MIH detection
Base Code	MR061112320	PRIROUTER configuration failure enhancement
VM65313	n/a	System attached HYPERPAV ALIASES not ONLINE after HYPERSWAP

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## Appendix C. z/VM Object Code Only Modules

Object Code Only modules are distributed only in object code form. No source program materials are available for these modules.

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### C.1 VMSES/E Object Code Only Modules

There are no OCO modules for VMSES/E in z/VM version 6 release 4 base.

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### C.2 CP Object Code Only Modules

The following CP Object Code Only modules are ASSEMBLE source files.

*Figure 20. CP OCO Assemble Modules*

---

HCPACL	HCPALC	HCPALE	HCPALM	HCPAPJ	HCPARD	HCPARP
HCPASI	HCPASM	HCPASN	HCPBIE	HCPBOT	HCPCBI	HCPCCF
HCPCCG	HCPCCM	HCPCCN	HCPCCO	HCPCCR	HCPCCY	HCPCWB
HCPDGE	HCPDQG	HCPDMV	HCPDMW	HCPESS	HCPFOB	HCPFXR
HCPGDT	HCPGLP	HCPGMC	HCPHIC	HCPHMS	HCPHPM	HCPHPV
HCPHTT	HCPIDX	HCPIOT	HCPIOX	HCPIPM	HCPIPN	HCPIPP
HCPIPX	HCPIPY	HCPIQD	HCPIQE	HCPIQQ	HCPIQR	HCPKAV
HCPKAE	HCPKAI	HCPKAP	HCPKAQ	HCPKAR	HCPKAU	HCPKEY
HCPKFC	HCPKFL	HCPKFR	HCPLDF	HCPLLN	HCPLFP	HCPLFS
HCPLLT	HCPLLX	HCPLPC	HCPMCB	HCPMCH	HCPMCI	HCPMEO
HCPMEP	HCPMFA	HCPMFB	HCPMFC	HCPMFE	HCPMFF	HCPMFG
HCPMFH	HCPMFI	HCPMFJ	HCPMFK	HCPMFL	HCPMFM	HCPMFN
HCPMFO	HCPMFP	HCPMFQ	HCPMFR	HCPMFT	HCPMFU	HCPMFV
HCPMFW	HCPMFX	HCPMFY	HCPMFZ	HCPMF1	HCPMF2	HCPMIX
HCPMPA	HCPMPC	HCPMPX	HCPMVP	HCPNET	HCPOFI	HCPPAB
HCPPBF	HCPPBS	HCPPCB	HCPPCD	HCPPCH	HCPPCI	HCPPCJ
HCPPCK	HCPPCM	HCPPCO	HCPPCQ	HCPPCR	HCPPCS	HCPPCT
HCPPCU	HCPPCV	HCPPCW	HCPPCX	HCPPEB	HCPTY	HCPPTZ
HCPQSC	HCPRFG	HCPRFI	HCPRID	HCPRLP	HCPLRZ	HCPRQU
HCP SAS	HCP SAT	HCP SCM	HCP SDP	HCP SDQ	HCP SDU	HCP SDV
HCPSEA	HCPSED	HCPSEI	HCPSEW	HCPSGF	HCPSIT	HCPSTI
HCPSWA	HCPSWB	HCPSWC	HCPSWD	HCPSWF	HCPSWG	HCPSWH
HCPSWI	HCPSWM	HCPSWP	HCPSWR	HCPSWS	HCPSWU	HCPSYE
HCPTBH	HCPTER	HCPTES	HCPTGD	HCPTGF	HCPTGR	HCPTPO
HCPTPS	HCPTPT	HCPTPX	HCPTRD	HCPTRF	HCPTRI	HCPTRP
HCPTRR	HCPTRW	HCPTRX	HCPTXO	HCPTZI	HCPVAI	HCPVAP
HCPVAQ	HCPVAT	HCPVLC	HCPVNS	HCPVNQ	HCPVOP	HCPVOU
HCPVPD	HCPVQA	HCPVQB	HCPVQE	HCPVQF	HCPVQG	HCPVQO
HCPVQP	HCPVQQ	HCPVQR	HCPVQS	HCPVQT	HCPVQU	HCPWAT
HCPWED	HCPWHI	HCPWIS	HCPWKY	HCPWLB	HCPWLG	HCPWPR
HCPWRU	HCPWRW	HCPWSA	HCPWSI	HCPWVS	HCPWZD	HCPXDS
HCPXPG	HCPXSC	HCPXSM	HCPZMG	HCPZMI	HCPZMX	HCPZSI



The following CP Object Code Only modules are PL/X source files.

Figure 21. CP OCO PL/X Modules

---

HCPADQ	HCPAMR	HCPAST	HCPA2F	HCPCCS	HCPCDM	HCPCDR
HCPCDT	HCPCIO	HCPCM2	HCPCM3	HCPCM4	HCPCM5	HCPCUP
HCPDDP	HCPDDQ	HCPDD1	HCPDEX	HCPDMC	HCPDUF	HCPDUP
HCPGIS	HCPGRB	HCPHCD	HCPHDS	HCPHSE	HCPHSR	HCPICP
HCPIDF	HCPIGA	HCPMDF	HCPMDP	HCPMD1	HCPMD2	HCPMD3
HCPMD4	HCPMD5	HCPMOG	HCPMTE	HCPMTS	HCPMXD	HCPMXW
HCPMXX	HCPMXY	HCPMXZ	HCPNFC	HCPNTP	HCPQDD	HCQDE
HCPQED	HCPQTZ	HCPQVO	HCPQVW	HCPSTR	HCPSVI	HCPTAM
HCPTPP	HCPTTR	HCPTUP	HCPTZF	HCPTZO	HCPTZS	HCPTZT
HCPVAR	HCPVDU					

The following CP Object Code Only modules are C source files.

Figure 22. CP OCO C Modules

---

HCPCRR	HCPSZB	HCPSZD	HCPSZE	HCPSZG	HCPSZJ	HCPSZK
HCPSZL	HCPSZM	HCPSZN	HCPSZO	HCPSZQ	HCPSZR	HCPSZT
HCPSZW	HCPSZX	HCPSZY	HCPSZZ	HCWAIX	HCWAI1	HCWAI2
HCWAI3	HCWAI4	HCWAI5	HCWAI6	HCWAI7	HCWAI8	HCWAI9
HCWA10	HCWA11	HCWA12	HCWA13	HCWA14	HCWA15	HCWA16
HCWA17	HCWA18	HCWA19	HCWA20	HCWA23	HCWA24	HCWA25
HCWCSP	HCWCS1	HCWCS2	HCWCS4	HCWEFS	HCWEF1	HCWFC0
HCWFC1	HCWIOS	HCWIO1	HCWIO2	HCWMPI	HCWPAI	HCWPA1
HCWPA2	HCWPA3	HCWPA4	HCWPA5	HCWPA7	HCWPA8	HCWPER
HCWPSI	HCWPS1	HCWPS2	HCWPS3	HCWSCS	HCWSC1	

### C.3 DVF Object Code Only Modules

The following DVF Object Code Only modules are ASSEMBLE source files.

Figure 23. DVF OCO Assemble Modules

---

HCSAMP	HCSCLR	HCSCVT	HCSDMR	HCSDTA	HCSFRD	HCSFRP
HCSFRI	HCSHEX	HCSIDT	HCSINT	HCSLOC	HCSMPA	HCSMPN
HCSMTA	HCSPMA	HCSUPA	HCSUPAA	HCSUPAB	HCSUME	HCSUMEA
HCSUMEB						

The following DVF Object Code Only modules are PL/X source files.

Figure 24. DVF OCO Modules

HCSACC	HCSACF	HCSADD	HCSADI	HCSADM	HCSADP	HCSADV
HCSAMX	HCSASF	HCSASI	HCSASW	HCSBLC	HCSBLD	HCSBLE
HCSBLF	HCSBLI	HCSBLP	HCSBLS	HCSCDT	HCSCFP	HCSCMP
HCSCMS	HCSCOM	HCSCPA	HCSCPR	HCSCPU	HCSCSP	HCSCST
HCSCVP	HCSC2D	HCSDFP	HCSDFR	HCSDID	HCSDIR	HCSDIS
HCSDSA	HCSDSC	HCSDSG	HCSDSI	HCSDSM	HCSDSP	HCSDSR
HCSDSS	HCSDST	HCSDSX	HCSDVS	HCSDXC	HCSDXI	HCSDXT
HCSD2C	HCSEDA	HCSEDB	HCSEDE	HCSEDF	HCSEDH	HCSEDI
HCSEDJ	HCSEDS	HCSEQU	HCSEXR	HCSFDS	HCSFOR	HCSFRE
HCSFTV	HCSGET	HCSGPA	HCSGPP	HCSGPV	HCSGSO	HCSGTR
HCSHLP	HCSHSA	HCSHSB	HCSHSC	HCSHSD	HCSHSE	HCSHSF
HCSHSG	HCCLMOVE	HCCLMP	HCCLOD	HCSMAP	HCSMIM	HCSMLK
HCSMNP	HCSMOD	HCSMPP	HCSMPR	HCSMPS	HCSMPT	HCSMSG
HCSMSG2	HCSMSR	HCSMVS	HCSNMP	HCSNOT	HCSPAR	HCSPCM
HCSPFN	HCSPID	HCSPMP	HCSPOP	HCSPRC	HCSPRI	HCSPRN
HCSPRO	HCSPRP	HCSPRT	HCSPRY	HCSPUP	HCSPVD	HCSQUI
HCSRAB	HCSRBC	HCSRCD	HCSRDB	HCSRDM	HCSRDS	HCSRER
HCSRER	HCSRIB	HCSRIF	HCSRIG	HCSRIL	HCSRIL	HCSRIL
HCSRIK	HCSRIO	HCSRIT	HCSRIX	HCSRIZ	HCSRSR	HCSSAV
HCSSCD	HCSSCI	HCSSCQ	HCSSCR	HCSSDF	HCSSSEL	HCSSHV
HCSSIO	HCSSNP	HCSSPF	HCSSPT	HCSSRC	HCSSRS	HCSSRU
HCSSTA	HCSSUB	HCSSYD	HCSSYM	HCSSYP	HCSS5U	HCSTBS
HCSTCD	HCSTES	HCSTOD	HCSTPF	HCSTRA	HCSTRC	HCSTRD
HCSTRM	HCSTRP	HCSTRR	HCSTRS	HCSTRT	HCSTSA	HCSTSC
HCSTSD	HCSTSF	HCSTSG	HCSTSK	HCSTSM	HCSTSO	HCSTSP
HCSTSS	HCSTST	HCSTSV	HCSTSX	HCSUPPER	HCSVCI	HCSVDF
HCSVFI	HCSVLF	HCSVRG	HCSVRP	HCSVUI	HCSVUT	HCSXED
HCSX2C						

## C.4 CMS Object Code Only Modules

The following CMS Object Code Only modules are ASSEMBLE source files.

Figure 25. CMS OCO Assemble Modules

AMQERROR	DMSBAESW	DMSBIBLD	DMSBIBTC	DMSBIBVS	DMSBIBPAL	DMSBIBPCL
DMSBIBPCS	DMSBIBPDS	DMSBIBPGM	DMSBIBPIA	DMSBIBPST	DMSBIBXSIS	DMSBIBXS18
DMSIBCP	DMSIBNV	IEWBIBZP6	NM_BIND	RXMIBQVCLT	RXMIBQVLIT	UAMIBQMSGT

The following CMS Object Code Only modules are PL/X source files.

Figure 26 (Page 1 of 4). CMS OCO PL/X Modules

AMQZASMA	AMQZASM0	AMQZASM1	AMQZASM2	AMQZASM3	AMQZASM4	AMQZASM5
AMQZASM6	AMQZASM7	AMQZASM8	AMQZASM9	DMSBAEC1	DMSBAEJ1	DMSBAEO1
DMSBAET1	DMSBAIE1	DMSBAIE2	DMSBAIS0	DMSBAIX0	DMSBAI00	DMSBAXC1
DMSBAXI1	DMSBAXO1	DMSBAXP1	DMSBAXR1	DMSBAXSD	DMSBAXS1	DMSBAXS2

Figure 26 (Page 2 of 4). CMS OCO PL/X Modules

DMSBAXWD	DMSBCC00	DMSBCILK	DMSBCILS	DMSBCMEX	DMSBCOPC	DMSBCOPP
DMSBCOPS	DMSBCPLS	DMSBKEI0	DMSBKTIO	DMSBLCLX	DMSBLCL0	DMSBLCL9
DMSBLDRL	DMSBLINT	DMSBLMSG	DMSBLPOF	DMSBLRLC	DMSBLSV0	DMSBxBD0
DMSBXMSG	DMSBXNUC	DMSBXPDE	DMSBXPSC	DMSBXSHS	DMSBXS1B	DMSBXS13
DMSBXS14	DMSBXS28	DMSBXS40	DMSBXS63	DMSBXS7A	DMSBX1CH	DMSBX1CL
DMSBX1FT	DMSBX1LN	DMSBX1OP	DMSBX1RE	DMSBX1ST	DMSBX1WR	DMSBX2WX
DMSJMD	DMSJSD	DMSRXR	DMSZCTRC	DMSZEDAT	DMSZEDCM	DMSZEDEX
DMSZEDFN	DMSZEDSK	DMSZEEHT	DMSZEFAI	DMSZEGAI	DMSZEGA2	DMSZEGHA
DMSZEGHC	DMSZEGHN	DMSZEGHT	DMSZEGH2	DMSZEGH3	DMSZEGNI	DMSZEGSN
DMSZEGSP	DMSZEOPN	DMSZERIN	DMSZERMQ	DMSZERQD	DMSZERQU	DMSZERSN
DMSZERSR	DMSZESHT	DMSZESMT	DMSZESRT	DMSZETRR	DMSZLOCK	DMSZPTON
DMSZSPRN	DMSZUNLO	DMS2AE	DMS2CA	DMS2CB	DMS2CC	DMS2CD
DMS2CE	DMS2LA	DMS2TA	DMS2TB	DMS2TC	DMS2TD	DMS2TE
DMS2TF	DMS2TG	DMS2TR	DMS2TX	DMS3AA	DMS3AB	DMS3AC
DMS3AD	DMS3AE	DMS3AF	DMS3AG	DMS3AH	DMS3AI	DMS3AJ
DMS3AK	DMS3AL	DMS3AM	DMS3AN	DMS3AO	DMS3AP	DMS3AQ
DMS3AR	DMS3AS	DMS3AT	DMS3AU	DMS3AV	DMS3AW	DMS3AX
DMS3AY	DMS3AZ	DMS3BA	DMS3BB	DMS3BC	DMS3BD	DMS3BE
DMS3BF	DMS3BG	DMS3BH	DMS3BI	DMS3BJ	DMS3BK	DMS3BL
DMS3BM	DMS3BN	DMS3BO	DMS3BP	DMS3BQ	DMS3BR	DMS3BS
DMS3BT	DMS3BU	DMS3BV	DMS3BW	DMS3BX	DMS3BY	DMS3BZ
DMS3CA	DMS3CB	DMS3CC	DMS3CD	DMS3CE	DMS3CF	DMS3CG
DMS3CH	DMS3CI	DMS3CJ	DMS3CK	DMS3CL	DMS3CM	DMS3CN
DMS3CS	DMS3CZ	DMS3DA	DMS3DB	DMS3DC	DMS3DD	DMS3DE
DMS3DF	DMS3DW	DMS3DX	DMS3EZ	DMS3GL	DMS3GM	DMS3LA
DMS3LB	DMS3LC	DMS3LF	DMS3MF	DMS3NA	DMS3NB	DMS3NC
DMS3ND	DMS3NE	DMS3NF	DMS3N1	DMS3N2	DMS3N3	DMS3N4
DMS3N5	DMS3N6	DMS3N7	DMS3N8	DMS3N9	DMS3OF	DMS3ON
DMS3OR	DMS3RA	DMS3RB	DMS3RC	DMS3RD	DMS3RE	DMS3RF
DMS3RU	DMS3RV	DMS3RW	DMS3SB	DMS3SC	DMS3SM	DMS3SN
DMS3SP	DMS3SR	DMS3TA	DMS3TB	DMS3TC	DMS3TD	DMS3TE
DMS3TF	DMS3TG	DMS3TH	DMS3TI	DMS3TO	DMS3TP	DMS3TQ
DMS3TR	DMS3UP	DMS3VA	DMS3VB	DMS3VC	DMS3VD	DMS3VE
DMS3WM	DMS3WR	DMS3XG	DMS3XH	DMS3XL	DMS3XM	DMS3XP
DMS3XU	DMS3XX	DMS3XZ	DMS4AA	DMS4AB	DMS4AC	DMS4AD
DMS4AE	DMS4AF	DMS4AG	DMS4AH	DMS4AI	DMS4AJ	DMS4AK
DMS4AL	DMS4AM	DMS4AN	DMS4AO	DMS4AP	DMS4AQ	DMS4AR
DMS4AS	DMS4AT	DMS4AU	DMS4AV	DMS4AW	DMS4AX	DMS4AY
DMS4AZ	DMS4BA	DMS4BB	DMS4BC	DMS4BD	DMS4BE	DMS4BF
DMS4BG	DMS4BH	DMS4BI	DMS4BJ	DMS4BK	DMS4BL	DMS4BM
DMS4BN	DMS4BO	DMS4BP	DMS4BQ	DMS4BR	DMS4BS	DMS4BT
DMS4BU	DMS4BV	DMS4BW	DMS4BX	DMS4BY	DMS4CI	DMS4CJ
DMS4CK	DMS4CL	DMS4CN	DMS4DB	DMS4DC	DMS4DD	DMS4DE
DMS4DF	DMS4DH	DMS4DI	DMS4DJ	DMS4DK	DMS4DL	DMS4DM
DMS4DN	DMS4DO	DMS4DP	DMS4DQ	DMS4DR	DMS4DS	DMS4DT
DMS4DU	DMS4DV	DMS4DW	DMS4DX	DMS4DY	DMS4DZ	DMS4EA
DMS4EB	DMS4EC	DMS4ED	DMS4EE	DMS4EF	DMS4EG	DMS4EH
DMS4EX	DMS4EY	DMS4EZ	DMS4FA	DMS4FB	DMS4FD	DMS4FE
DMS4FG	DMS4FH	DMS4FI	DMS4FJ	DMS4FK	DMS4FL	DMS4FM

Figure 26 (Page 3 of 4). CMS OCO PL/X Modules

DMS4FO	DMS4FP	DMS4FR	DMS4GA	DMS4GB	DMS4GD	DMS4GE
DMS4GH	DMS4GI	DMS4GJ	DMS4GK	DMS4GL	DMS4GM	DMS4GN
DMS4GO	DMS4GP	DMS4GQ	DMS4GR	DMS4GS	DMS4GT	DMS4GW
DMS4GY	DMS4GZ	DMS4HA	DMS4HC	DMS4HZ	DMS4JA	DMS4JB
DMS4JC	DMS4JD	DMS4JE	DMS4JF	DMS4JG	DMS4JH	DMS4JI
DMS4JJ	DMS4JK	DMS4JL	DMS4JS	DMS4KA	DMS4KB	DMS4KC
DMS4KD	DMS4KE	DMS4KF	DMS4KH	DMS4KI	DMS4KJ	DMS4KK
DMS4KM	DMS4KO	DMS4KP	DMS4KR	DMS4LA	DMS4LB	DMS4LC
DMS4LD	DMS4LE	DMS4LF	DMS4LG	DMS4LH	DMS4LI	DMS4LJ
DMS4LK	DMS4LL	DMS4LM	DMS4LN	DMS4LO	DMS4LP	DMS4LQ
DMS4LR	DMS4LS	DMS4LT	DMS4LU	DMS4LV	DMS4LW	DMS4LX
DMS4LY	DMS4NA	DMS4NB	DMS4NC	DMS4ND	DMS4NE	DMS4NF
DMS4NG	DMS4NH	DMS4NI	DMS4NJ	DMS4NK	DMS4NL	DMS4NM
DMS4NO	DMS4NP	DMS4NQ	DMS4NR	DMS4NS	DMS4NT	DMS4NU
DMS4NV	DMS4NW	DMS4NX	DMS4ON	DMS4OP	DMS4OQ	DMS4OR
DMS4OS	DMS4OT	DMS4OU	DMS4PA	DMS4PB	DMS4PC	DMS4PD
DMS4PF	DMS4PG	DMS4PI	DMS4QA	DMS4QB	DMS4QC	DMS4QD
DMS4QE	DMS4QF	DMS4QG	DMS4QH	DMS4QJ	DMS4QK	DMS4QL
DMS4QM	DMS4QN	DMS4QO	DMS4QP	DMS4QQ	DMS4QR	DMS4QS
DMS4QX	DMS4QY	DMS4QZ	DMS4RA	DMS4RB	DMS4RC	DMS4RD
DMS4RE	DMS4RF	DMS4RG	DMS4RH	DMS4RI	DMS4RJ	DMS4RL
DMS4RM	DMS4RN	DMS4RX	DMS4RY	DMS4RZ	DMS4SB	DMS4SR
DMS4SS	DMS4SU	DMS4UA	DMS4UB	DMS4UE	DMS5AA	DMS5BA
DMS5BB	DMS5BC	DMS5BD	DMS5BE	DMS5BF	DMS5BG	DMS5BH
DMS5BI	DMS5BJ	DMS5BK	DMS5BM	DMS5BT	DMS5CA	DMS5CB
DMS5CC	DMS5CD	DMS5CE	DMS5CF	DMS5CP	DMS5CS	DMS5CV
DMS5CX	DMS5DA	DMS5DB	DMS5DC	DMS5DD	DMS5DE	DMS5DF
DMS5DG	DMS5DH	DMS5DI	DMS5DK	DMS5DS	DMS5DT	DMS5DU
DMS5FA	DMS5FB	DMS5FC	DMS5FD	DMS5FE	DMS5FF	DMS5GA
DMS5GB	DMS5GC	DMS5GD	DMS5GM	DMS5GN	DMS5GO	DMS5GR
DMS5HA	DMS5HB	DMS5HC	DMS5HE	DMS5IA	DMS5IB	DMS5IC
DMS5ID	DMS5IE	DMS5IF	DMS5IG	DMS5IL	DMS5IN	DMS5IP
DMS5JE	DMS5MA	DMS5MB	DMS5MT	DMS5MU	DMS5MV	DMS5NA
DMS5NB	DMS5NC	DMS5ND	DMS5NE	DMS5NF	DMS5PQ	DMS5PR
DMS5PS	DMS5PT	DMS5PW	DMS5PX	DMS5PY	DMS5PZ	DMS5QA
DMS5QB	DMS5QE	DMS5SB	DMS5SC	DMS5SD	DMS5SE	DMS5SF
DMS5SH	DMS5SI	DMS6LA	DMS6LB	DMS6LC	DMS6LD	DMS6LE
DMS6LF	DMS6LG	DMS6LH	DMS6LI	DMS6LJ	DMS6LK	DMS6LL
DMS6LM	DMS6LN	DMS6LO	DMS6LP	DMS6LQ	DMS6SA	DMS6SB
DMS6SC	DMS6SD	DMS6SE	DMS6SF	DMS6SG	DMS6SH	DMS6SI
DMS6SJ	DMS6SK	DMS6SL	DMS6SM	DMS6SN	DMS6SO	DMS6SP
DMS6SQ	DMS6SR	DMS6SS	DMS6ST	DMS6SU	DMS6SV	DMS7AA
DMS7AB	DMS7AC	DMS7AD	DMS7AE	DMS7AF	DMS7AG	DMS7AH
DMS7AI	DMS7AJ	DMS7AK	DMS7AL	DMS7AM	DMS7AN	DMS7AO
DMS7AP	DMS7AQ	DMS7AS	DMS7AT	DMS7AU	DMS7AV	DMS7AW
DMS7AX	DMS7BA	DMS7BB	DMS7BC	DMS7BD	DMS7BE	DMS7BI
DMS7BJ	DMS7BK	DMS7BR	DMS7BS	DMS7BX	DMS7BY	DMS7CC
DMS7CD	DMS7CE	DMS7CF	DMS7CG	DMS7CH	DMS7CI	DMS7CL
DMS7CP	DMS7CR	DMS7CS	DMS7CT	DMS7CU	DMS7CW	DMS7CX

Figure 26 (Page 4 of 4). CMS OCO PL/X Modules

DMS7CY	DMS7CZ	DMS7DA	DMS7DB	DMS7DC	DMS7DD	DMS7DE
DMS7DF	DMS7DG	DMS7DH	DMS7DI	DMS7LF	DMS7MC	DMS7MF
DMS7NH	DMS7RA	DMS7RB	DMS7RC	DMS7RD	DMS7RE	DMS7SI
DMS7SM	DMS7TA	DMS7TC	DMS7TD	DMS7TE	DMS7TF	DMS7TG
DMS7TI	DMS7TJ	DMS7TN	DMS7TP	DMS7TQ	DMS7TR	DMS7TS
DMS7TU	DMS7TV	DMS7TW	DMS7TX	DMS7TY	DMS7TZ	DMS7VC
DMS7WC	DMS7WU	DMS8BA	DMS8BB	DMS8BC	DMS8BD	DMS8BE
DMS8BF	DMS8BG	DMS8BH	DMS8BI	DMS8BJ	DMS8BK	DMS8BL
DMS8BM	DMS8BN	DMS8BO	DMS8BP	DMS8BQ	DMS8BR	DMS8BS
DMS8BT	DMS8BU	DMS8BV	DMS8BW	DMS8BX	DMS8BY	DMS8BZ
DMS8CC	DMS8CE	DMS8CF	DMS8CG	DMS8CH	DMS8CI	DMS8CJ
DMS8CL	DMS8CR	DMS8CS	DMS8CU	DMS8CW	DMS8CX	DMS8CY
DMS8CZ	DMS8C1	DMS8C2	DMS8C3	DMS8C4	DMS8DA	DMS8DB
DMS8DC	DMS8DD	DMS8DE	DMS8FX	DMS8GC	DMS8GD	DMS8GG
DMS8GM	DMS8GZ	DMS8G9	DMS8LI	DMS8LM	DMS8LS	DMS8LU
DMS8LX	DMS8LY	DMS8LZ	DMS8L1	DMS8L2	DMS8L3	DMS8L4
DMS8L5	DMS8L6	DMS8L7	DMS8L8	DMS8OV	DMS8VU	IEWBODEF
RXMQVBAK	RXMQVBDL	RXMQVBGO	RXMQVBMD	RXMQVBOD	RXMQVBPO	RXMQVBRO
RXMQVBXH	RXMQVEPA	RXMQVEVT	RXMQVGET	RXMQVHXT	RXMQVINQ	RXMQVMGO
RXMQVMMD	RXMQVMOD	RXMQVMPO	RXMQVPUT	RXMQVQSI	RXMQVSET	RXMQVSYC
RXMQVTMM						

The following CMS Object Code Only modules are C source files.

Figure 27 (Page 1 of 2). CMS OCO C Modules

ALLOCENV	AMQCCXAX	AMQCCITA	AMQCCI6A	AMQCCMXA	AMQCDLLA	AMQCERRA
AMQCLIBA	AMQCMEMA	AMQCPRSA	AMQRAFNA	AMQRCDFX	AMQRCMSV	AMQRERRA
AMQREXTA	AMQRFILA	AMQRFPTA	AMQRMSSA	AMQRREQA	AMQRREQB	AMQRSCFA
AMQZSIA0	AMQZSJBX	AMQZUTR0	AR	AWK	AWK0	AWK1
AWK2	AWK3	AWK4	BASE	BASENAME	BC	BC_EXEC
BC_LEX	BC_MAIN	BCXMEM	BUFF	C_CMS	C_MALLOC	C_TEST
CATCLOSE	CATGETS	CATOPEN	CHGRP	CHMOD	CHOWN	CKSUM
CMP	CMSFILE	COMM	COMPRESS	CONFSTR	COPYRITE	CP
CPIO	CPIOFNS	CRCCITT	CRC16	DAG	DATE	DC
DC_ADD	DC_ARRAY	DC_COM	DC_DIV	DC_ELT	DC_EXP	DC_INPUT
DC_MUL	DC_N	DC_NUM	DC_OP	DC_PARSE	DC_PRINT	DC_REL
DC_SQRT	DC_STACK	DD	DIFF	DIFFH	DIFF1	DIRNAME
DMAKE	DUMP	ECHO	ED0	ED1	ED2	ED3
ENV	EPRINTF	EXPR	FALSE	FEXECVE	FEXECVP	FNMATCH
FNS	FOLD	FSPEC	FUNCS	GENCAT	GETCONF	GETINP
GETOPT	GETPASS	GETUT	GLOB	GREP	GSUCAT	GSUCUT
GSUCXX	GSUC89	GSUFIND	GSUJOIN	GSULINK	GSUPARSE	GSUPASTE
GSUPRNTF	GSUSORT	GSUTIME	HEAD	ICONV	ID	IEWBNDMG
IEWBUCAP	IEWBUCUT	INFER	ISABSNAM	ISWABSNA	ISYES	L_BASE
L_DFA	L_MAIN	L_OUT	LDCONV	LEX	LN	LOCALE
LOGGER	LOGGER2	LOGNAME	LP	LP2	LS	M_ARCOPV

Figure 27 (Page 2 of 2). CMS OCO C Modules

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M_ARLOOK	M_ARMEMB	M_ARNEXT	M_ARTOUC	M_AUDMOD	M_BINSRC	M_CESCAP
M_CMDNAM	M_COMP	M_CONFST	M_CRCPOS	M_CUSERI	M_DEC	M_DIRNAM
M_ERROR	M_ERRORR	M_ERRORX	M_ESCAPE	M_FGETS	M_FGETWS	M_FPUTMB
M_FSOPEN	M_FTW	M_FWOPEN	M_GETAUD	M_GROUPL	M_LLOXOP	M_LLOXSE
M_LLOXTY	M_LLOXCL	M_LOCK	M_LOXCLO	M_LOXOPE	M_LOXSEC	M_LOXSTR
M_LOXTYP	M_MALLOC	M_MBSCHR	M_MBSPBR	M_MBSRCH	M_MBSTOW	M_MBSWID
M_MKPARD	M_NAMEMA	M_NLSPAT	M_ORD	M_PATHCA	M_PATHMA	M_PSREAD
M_READDA	M_READMO	M_READNU	M_REALLO	M_SIG	M_STRDUP	M_STRMOD
M_STRMSG	M_SYMBOL	M_TEXT	M_TMPNAM	M_TOPRIN	M_VARIAN	M_WALLOW
M_WCSDUP	M_WCSSET	M_WCSTOM	M_WINSIZ	MACPARSE	MAILDATE	MAIL0
MAIL1	MAIL2	MAIL3	MAIL4	MAIL5	MAIN	MAKE
MAKE_EXP	MKDIR	MKFIFO	MKNOD	MKTEMP	MV	NEWGRP
NM	NMEXESYM	NOHUP	OD	PATH	PATHCHK	PAX
PAXFNS	PERCENT	POPEN	PORT	PR	PS	PUTENV
PWD	QUIT	REG	REGCOMP	REGDOSBA	REGDOSUB	REGERROR
REGEX	REGEXEC	RM	RMDIR	RULES	RULETAB	RULPARSE
SED0	SED1	SED2	SH	SHBLTIN	SHBUF	SHDATE
SHFORK	SHMVS	SHSTAT	SH1	SH2	SH3	SH4
SH5	SH6	SH7	SH8	SH9	SLEEP	SNASTUBS
SSIGNAL	STAT	STRBTOK	STRDSTR	STRDUP	STRING	STRIP
STRSAN	STRTOCOL	STTY	STUBS	SU	SUFFIX	SWAB
SWAW	SYM	SYSINTF	SYSTEM	TAIL	TAR	TARFNS
TEE	TEMPNAM	TOUCH	TR	TRUE	TSMAIL	TTY
ULIMIT	UNAME	UNCOMPRES	UNIQ	UPDATE	VAR	WC
WORDEXP	XARGS	XMEM	Y_CLOSE	Y_CONF	Y_COPYP	Y_ECHO
Y_EPRED	Y_ERROR	Y_EXTERN	Y_GOTO	Y_GRAM	Y_INIT	Y_ITEM
Y_LALIST	Y_LALR	Y_LEX	Y_LLIST	Y_MAIN	Y_MEM	Y_NEWWR
Y_NEWSYM	Y_NULL	Y_PRED	Y_PUTD	Y_SET	Y_SETI	Y_SETP
Y_SGEN	Y_SIG	Y_SQUEEZ	Y_STATE	Y_TAB	Y_TGEN	Y_TOPT
Y_TWWRITE	Y_USELES	Y_WRAPUP	YYCOMMNT	YYERROR	YYMAIN	YYMAPCH
YYWRAP						

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## C.5 VM/REXX Object Code Only Modules

There are no OCO modules for VM/REXX in z/VM version 6 release 4 base.

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## C.6 GCS Object Code Only Modules

There are no OCO modules for GCS in z/VM version 6 release 4 base.

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## C.7 TSAF Object Code Only Modules

There are no OCO modules for TSAF in z/VM version 6 release 4 base.

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## C.8 AVS Object Code Only Modules

The following AVS Object Code Only modules are PL/X source files.

*Figure 28. AVS OCO PL/X Modules*

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AGWACF	AGWACS	AGWACT	AGWCMC	AGWCMD	AGWCMF	AGWCMH
AGWCMJ	AGWCMQ	AGWCTR	AGWDGW	AGWDSP	AGWEOT	AGWFAS
AGWGAB	AGWGGW	AGWGMD	AGWGSP	AGWIIS	AGWINI	AGWIOM
AGWIUE	AGWMGM	AGWOLM	AGWPGT	AGWSET	AGWTIM	AGWTRM
AGWTRS	AGWUSM	AGWVAF	AGWVBC	AGWVCB	AGWVCC	AGWVCP
AGWVDA	AGWVFD	AGWVGB	AGWVIP	AGWVMC	AGWVME	AGWVMF
AGWVMP	AGWVMR	AGWVMS	AGWVMX	AGWVMY	AGWVPS	AGWVRA
AGWVRC	AGWVRM	AGWVRS	AGWVRT	AGWVRX	AGWVTA	AGWVTB
AGWVTC	AGWVTD	AGWVTE	AGWVTF	AGWVTP	AGWVTS	AGWVTT
AGWVTX	AGWZAM	AGWZCV	AGWZDS	AGWZEN	AGWZEX	AGWZGC
AGWZGW	AGWZMA	AGWZMN	AGWZMO	AGWZRS	AGWZSG	AGWZTD
AGWZTE	AGWZTF	AGWZTO	AGWZTR	AGWZTS	CSIYTXEB	

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## C.9 Language Environment Object Code Only Modules

All of Language Environment is Object Code Only, except for the supplied sample files.

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