



**Program Directory for
Hardware Configuration Definition and
Hardware Configuration Manager for z/VM**

function level 620

Program Number 5741-A07

for Use with
z/VM version 6 release 2
z/VM version 6 release 3

Document Date: July 2013

GI11-9804-01

Note

Before using this information and the product it supports, be sure to read the general information under “Notices” on page 31.

This program directory, dated July 2013, applies to Hardware Configuration Definition and Hardware Configuration Manager for z/VM (HCD/HCM for z/VM), function level 620, 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 that corresponds to the material and procedures for installation and service of Hardware Configuration Definition and Hardware Configuration Manager for z/VM (HCD/HCM for z/VM).

Note: It is recommended that you review this program directory in its entirety before you install or service this program, then keep this document for future reference.

The program directory contains the following sections:

- 2.0, “Program Materials” on page 3 identifies the basic and optional program materials and documentation for HCD/HCM for z/VM.
- 3.0, “Program Support” on page 6 describes the IBM support available for HCD/HCM for z/VM.
- 4.0, “Program and Service Level Information” on page 7 lists the APARs (program level) and PTFs (service level) incorporated into HCD/HCM for z/VM.
- 5.0, “Installation and Migration Requirements and Considerations” on page 9 identifies the resources and considerations for installing, migrating and using HCD/HCM for z/VM.
- 6.0, “Installation Instructions” on page 14 provides detailed installation instructions for HCD/HCM for z/VM.
- 7.0, “Service Instructions” on page 21 provides servicing instructions for HCD/HCM for z/VM.
- Appendix A, “Moving HCD/HCM for z/VM to SFS Directories and Creating a PPF Override” on page 22 describes how to move HCD/HCM for z/VM into the SFS and how to create a Product Parameter File (PPF) override.
- Appendix B, “Copy of HCD/HCM for z/VM Sample Files” on page 29 describes how to copy supplied sample files for HCD/HCM for z/VM.

Obtaining Updated Planning Information

Before you install HCD/HCM for z/VM, read 3.1, “Preventive Service Planning” on page 6. This section describes how to obtain any updates to the information and procedures presented within this program directory.

1.1 Program Description

HCD/HCM for z/VM brings a new way of performing I/O configuration tasks to z/VM customers. Using HCD/HCM for z/VM is optional.

z/VM HCD is an I/O configuration definition tool which validates channel subsystem and operating system definition at data-entry time. All I/O configuration settings are stored in an optional I/O configuration

repository called I/O Definition File (IODF). z/VM HCD is responsible for creating and maintaining the IODF. When using z/VM HCD support, z/VM Control Program (CP) reads its I/O configuration settings from the IODF during IPL. z/VM HCD allows for changing the I/O configuration dynamically by setting a new IODF active, without having to IML or IPL your VM system.

z/VM HCD supports I/O configuration for all hardware which is supported by z/VM version 6 release 2, z/VM version 6 release 1, z/VM version 5 release 4 and z/VM version 6 release 3. z/VM HCD checks a broad range of I/O configuration rules. In particular, control unit and device specific rules are checked. z/VM HCD creates valid IOCDs from the IODF by running IOCP. When using z/VM HCD support, there is no need for z/VM customers to run IOCP directly.

HCD/HCM for z/VM contains Hardware Configuration Manager (HCM) which is a Graphical User Interface (GUI) running on a Windows™ PC workstation. HCM is a client program which needs a running z/VM HCD server on a z/VM system. z/VM HCD and HCM communicate via a TCP/IP connection mediated by the z/VM HCD TCP/IP dispatcher for HCM. In addition, z/VM HCD contains several REXX programs for accomplishing I/O configuration tasks.

2.0 Program Materials

An IBM program is identified by a program number. The program number for Hardware Configuration Definition and Hardware Configuration Manager for z/VM function level 620 is 5741-A07.

The z/VM program announcement materials provide detailed information about the features supported by HCD/HCM for z/VM. If you have not already received a copy of this information, contact your IBM marketing representative.

The following sections identify:

- basic and optional program materials that are applicable to this program
- publications useful during installation and service.

2.1 Basic Machine-Readable Material

Hardware Configuration Definition and Hardware Configuration Manager for z/VM (HCD/HCM for z/VM) is distributed pre-installed on the z/VM version 6 System deliverable. Refer to the z/VM version 6 release 2 or z/VM version 6 release 3 Software Announcement for information on ordering z/VM and its features.

2.2 Optional Machine-Readable Material

There are no features or optional machine-readable materials associated with HCD/HCM for z/VM.

2.3 Program Publications

The following sections identify the basic and optional publications associated with HCD/HCM for z/VM.

2.3.1 Basic Program Publications

The following publication is part of a HCD/HCM for z/VM order but it is only available as softcopy. Refer to the section 2.3.3, “Softcopy Publications” on page 4 for the World Wide Web URL that this program directory can be found at.

Figure 1. Basic Material: Unlicensed Publications

Publication Title	Form Number
Program Directory for Hardware Configuration Definition and Hardware Configuration Manager for z/VM	GI11-9804-01

2.3.2 Base Program Publications

Figure 2 identifies the base program publications associated with HCD/HCM for z/VM.

Figure 2. Program Publications - New Editions

Publication Title	Form Number
z/VM: I/O Configuration	SC24-6198
z/OS® and z/VM: Hardware Configuration Manager User's Guide	SC33-7989
z/OS and z/VM: Hardware Configuration Definition Messages	SC33-7986

2.3.3 Softcopy Publications

The HCD/HCM for z/VM publications are supplied softcopy as part of the *IBM Online Library: z/VM Collection* in BookManager® and Adobe™ Portable Document Format (PDF). HCD/HCM for z/VM publications, except the Program Directory, are also available in the z/VM Information Center web site site:

<http://publib.boulder.ibm.com/infocenter/zvm/v6r2/index.jsp>

In addition, the HCD/HCM for z/VM softcopy publications, including this program directory, are available in Adobe Portable Document Format from the z/VM internet library home page on the World Wide Web; the URL for this home page is:

www.vm.ibm.com/library

The z/VM publications can be ordered separately, for a fee, using the specific publication number through the IBM Publication Center at:

www.ibm.com/shop/publications/order

The Publications Center is a world wide central repository for IBM product publications and marketing material. Furthermore, a large number of publications are available online in various file formats (e.g. Adobe PDF), which can currently be downloaded free of charge.

2.4 Program Source Materials

No program source materials or viewable program listings are provided with HCD/HCM for z/VM.

2.5 Publications Useful During Installation and Service

The publications listed in Figure 3 may be useful during the installation and servicing of HCD/HCM for z/VM. To order copies, visit the IBM Publications Center web site (url above) or contact your IBM representative.

Figure 3. Publications Useful During Installation / Service

Publication Title	Form Number
z/VM: I/O Configuration	SC24-6198
z/OS and z/VM: Hardware Configuration Manager User's Guide	SC33-7989
z/OS and z/VM: Hardware Configuration Definition Messages	SC33-7986
z/VM: VMSES/E Introduction and Reference	GC24-6243
z/VM: Service Guide	GC24-6247
z/VM: Installation Guide	GC24-6246
z/VM: CP Planning and Administration	SC24-6178
z/VM: CMS Commands and Utilities Reference	SC24-6166
z/VM: CMS File Pool Planning, Administration, and Operation	SC24-6167
z/VM: Other Components Messages and Codes	GC24-6207
z/VM: CMS and REXX/VM Messages and Codes	GC24-6161
z/VM: CP Messages and Codes	GC24-6177
z/VM: Reusable Server Kernel Programmer's Guide and Reference	SC24-6220
z/VM: TCP/IP Planning and Customization	SC24-6238
z/VM: TCP/IP User's Guide	SC24-6240

3.0 Program Support

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

3.1 Preventive Service Planning

Before you install HCD/HCM for z/VM, check with your IBM Support Center or use IBMLink™ (ServiceLink) to determine if Preventive Service Planning (PSP) information is available that you should know. To obtain this information, specify the appropriate UPGRADE and SUBSET values listed in Figure 4:

Figure 4. PSP Upgrade and Subset ID

RETAIN®				
COMPID	Release	Upgrade	Subset	Component Name
568411219	620	ZVMHCD620	ZVMHCD/620	HCD/HCM for z/VM
568411219	620	ZVMHCD620	yynnRSU	RSU Service Recommendations

RSU-BY-LVL information can be obtained from the z/VM service RSU web site at this URL:

www.vm.ibm.com/service/rsu

3.2 Statement of Support Procedures

With HCD/HCM for z/VM you are entitled to support under the basic warranty for z/VM version 6. Also note that the z/VM Software Subscription and Support is *automatically* added to your z/VM order. This provides zSeries® service to which you are likely accustomed. If you do not want the z/VM Software Subscription and Support, then 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.

When working with HCD/HCM for z/VM support personnel on problems associated with an active Problem Management Record (PMR), diagnostic information may occasionally be requested. In such cases, the support staff will work with you to determine how to provide them with the required documentation.

Figure 5 identifies IBM RETAIN information - the Component ID (COMPID), RETAIN Release, and Field Engineering Service Number (FESN) - that corresponds to HCD/HCM for z/VM.

Figure 5. Component IDs

RETAIN			
COMPID	Release	Component Name	FESN
568411219	620	HCD/HCM for z/VM	0409974

4.0 Program and Service Level Information

This section identifies the program level and any relevant service levels of HCD/HCM for z/VM. In this context *program level* refers to APAR fixes incorporated within the HCD/HCM for z/VM program; *service level* refers to PTFs that are supplied with this product. Information about the HCD/HCM for z/VM cumulative service tape is provided as well.

4.1 Program Level Information - HCD/HCM for z/VM

The following APAR fixes against the previous release of HCD/HCM for z/VM have been incorporated into the base of this release:

VM64410 VM64492 VM64579 VM64654 VM64672 VM64747
VM64856 VM64880

4.2 Service Level Information

The service level of HCD/HCM for z/VM is RSU 1202 which is shipped on the z/VM System deliverable plus any RSU that you may have installed during initial z/VM installation that has service on it for HCD/HCM for z/VM. HCD/HCM for z/VM RSU 1202 level includes APARs VM64976, VM65028 and VM65047.

! **Note:** In a SSI cluster with mixed z/VM releases, the service level of HCD/HCM for z/VM will remain the same as it currently is on the members that are not upgraded to the newer z/VM release. This is because the release of HCD/HCM for z/VM did not change and it is shared among all members in the SSI cluster.

Before you install and configure HCD/HCM for z/VM, you should review the ZVMHCD620 PSP (Preventive Service Planning) "bucket" for updated installation information that you should be aware of, or for information about PTFs that should be installed. Specify upgrade and subset values of **ZVMHCD620** and **ZVMHCD/620**, respectively, when you request or obtain this information.

4.3 Cumulative Service (RSU) Information

Cumulative service for HCD/HCM for z/VM, function level 620 is available through a periodic, preventive service deliverable, referred to as a Recommended Service Upgrade (RSU). The RSU is used to provide service updates for multiple z/VM components (including HCD/HCM for z/VM) and is often referred to as the *stacked* RSU. It will contain service for all of the components, features or products, in VMSES/E format, that are pre-installed on the z/VM System deliverable.

! The stacked RSU can be obtained by ordering PTF UM97vr0; where *v* indicates the version and *r* indicates the release of z/VM you are running. For example, if you are running z/VM V6.2 then the RSU

! PTF number is UM97620. If you are running z/VM version 6 release 3 then the RSU PTF number is
! UM97630.

Current RSU status and content information is available at the z/VM RSU home page on the World Wide
Web; the URL for this home page is:

www.vm.ibm.com/service/rsu

5.0 Installation and Migration Requirements and Considerations

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

5.1 Hardware Requirements

A PC workstation is required to install and run the Hardware Configuration Manager (HCM) part of HCD/HCM for z/VM. Refer to the *z/OS and z/VM: Hardware Configuration Manager User's Guide* for details. All data exchange between z/VM HCD and HCM is based on the TCP/IP protocol. Refer to the Program Directory for TCP/IP for z/VM for hardware requirements for TCP/IP.

5.2 Program Considerations

The following sections list the programming considerations for installing and activating HCD/HCM for z/VM.

5.2.1 Operating System Requirements

HCD/HCM for z/VM requires the following VM operating system:

- z/VM version 6 release 2
- z/VM version 6 release 3

A PC workstation with a Windows™ 2000, Windows™ XP, Windows™ Vista or Windows™ 7 operating system is required to install and run the Hardware Configuration Manager (HCM). Refer to the *z/OS and z/VM: Hardware Configuration Manager User's Guide* for details.

5.2.2 Other Program Product Requirements

5.2.2.1 Other Program Product Requirements - HCD/HCM for z/VM

High Level Assembler for MVS™ & VM & VSE V1.5 (HLASM V1.5), or higher is required to migrate (convert) a file containing I/O configuration (IOCP) statements into an existing work IODF (using CBDSMIGR command). For more information on CBDSMIGR see *z/VM: I/O Configuration*.

Note: If you do not have the High Level Assembler, please contact the IBM Support Center for assistance.

5.2.2.2 Other Program Product Requirements - HCM

For using the Hardware Configuration Manager (HCM) as a Graphical User Interface (GUI) to HCD/HCM for z/VM, the following program products are required:

- TCP/IP for z/VM, level 620 or level 630 must be installed and configured on your z/VM system. Refer to the Program Directory for TCP/IP for z/VM for details.
- The TCP/IP network protocol must be installed and configured on your PC workstation. Refer to the *z/OS and z/VM: Hardware Configuration Manager User's Guide* for details.

5.2.3 Migration Considerations

5.2.3.1 IODF Migration

With z/VM V5.2, HCD/HCM for z/VM started using the new version 5 (V5) IODF format. Existing V4 format IODFs, created on earlier releases of HCD/HCM for z/VM, can be read/viewed, IPLed or dynamically activated on z/VM V5.2 or higher without being permanently upgraded to the new format. HCD/HCM for z/VM detects the back level IODF format and upgrades the IODF temporarily in storage.

A permanent IODF upgrade to a V5 IODF is required before any change action is applied to the V4 IODF. The upgrade can be accomplished

- by using the COPY IODF function under HCM
- OR
- by running the CBDSCOPY exec

thereby copying the V4 IODF to a new IODF or doing a replace.

For details on upgrading the IODF to the new format refer to the *z/OS and z/VM: Hardware Configuration Manager User's Guide* or Chapter 5, section 'The New IODF Version 5 Format' and the COPY IODF function CBDSCOPY in the *z/VM: I/O Configuration*.

5.2.3.2 Customizable Parts

Two of the HCD/HCM for z/VM customizable parts have been changed. In part CBDSDFRF SAMPPROF the SFS directory check was removed because the HCD/HCM for z/VM production disk can no longer be in SFS. In part CBDCONF NAMES a new :NICK. definition was added for new CBDSDFPKG utility. If you are migrating you will have to update the PROFILE EXEC and CBDCONF NAMES file on CBDIODSP's A-disk.

If you use the migration procedure documented in the *z/VM: Installation Guide* to migrate HCD/HCM for z/VM from a z/VM V5.4 or z/VM V6.1 system, the customizable files will be migrated to z/VM version 6 release 2, where possible. If the customizable files have been changed on the new level of HCD/HCM for z/VM and you have made changes to them on your current z/VM system, you will be told to rework your changes. The HCD/HCM for z/VM production build disks (default 300 and 400) will be migrated. Also, the CBDIODSP 191 disk will be migrated.

! The above is also the case if you use the the z/VM version 6 release 3 'Upgrade Installation' procedure in the *z/VM: Installation Guide* to upgrade a z/VM version 6 release 2 system.

5.2.3.3 Increased Virtual Machine Size for z/VM HCD TCP/IP Dispatcher

With z/VM V5.2, and higher, the default storage size for the z/VM HCD TCP/IP dispatcher user ID, CBDIODSP, is defined as 256M, with a maximum size of 999M, in order to satisfy an increased storage requirement to run the IOCP program. If you migrate your CP user directory from a release of VM before z/VM V5.2 then you will need to make this change.

5.2.4 Program Installation and Service Considerations

This section describes items that should be considered before you install or service HCD/HCM for z/VM.

- HCD/HCM for z/VM is pre-installed on the z/VM System deliverable.
- With the packaging changes introduced with z/VM version 6 release 2 to provide support for a z/VM single system image (SSI), note that **all HCD/HCM for z/VM service activity now must be performed using the user ID MAINT_{vrn} (e.g. MAINT620)**.
- VMSES/E is required to install and service this product.
- If you modify or eliminate any of the IBM-supplied user IDs, minidisk addresses or SFS directory names that are associated with HCD/HCM for z/VM, you **must** create an appropriate PPF override for the **SERVP2P \$PPF** file.

You also must use the **VMFUPDAT SYSSUF** command to update the VM SYSSUF Software Inventory file, so that your PPF override for SERVP2P PPF is used for automated service processing. For more information about PPF overrides, see the *z/VM: VMSES/E Introduction and Reference*.

- An RSU deliverable will be supplied as necessary. Service between RSUs can be obtained through CORrective service.

5.3 DASD Storage and User ID Requirements

Figure 6 on page 12 lists the user IDs, minidisks and default SFS directory names that are used to install and service HCD/HCM for z/VM.

Important Installation Notes:

- All user IDs necessary for installing and using HCD/HCM for z/VM have been defined as part of the installed z/VM System deliverable. Likewise, all required minidisks have been defined. The resources are listed in Figure 6 on page 12 so you are aware of the resources that will be allocated on your behalf.

Note: The installation and set up of HCD/HCM for z/VM on the z/VM System deliverables is a standard setup. If you:

- need to set up security using an external security manager (like RACF®)

- customize
- need to review the directory entry for the z/VM HCD TCP/IP dispatcher service virtual machine (default is CBDIODSP)

please refer to Chapter 2 'Installing HCM' in the *z/OS and z/VM: Hardware Configuration Manager User's Guide* for more information. (For security, also take note of the section on 'Setting up Security').

- With the exception of the HCD/HCM for z/VM user ID that owns the service resources (6VMHCD20), **all** the HCD/HCM for z/VM server virtual machines are defined by multiconfiguration virtual machine definitions. The 6VMHCD20 user ID is defined by a single-configuration virtual machine definition. See *z/VM: CP Planning and Administration* for information on muticonfiguration and single-configuration
- If you choose to move HCD/HCM for z/VM from minidisk to the SFS (Shared File System) after initial z/VM installation or if you want to change from the default SFS file pool or directories, then you will need to follow the steps in Appendix A, “Moving HCD/HCM for z/VM to SFS Directories and Creating a PPF Override” on page 22. These steps help you create the SFS directories, move the files to the SFS directories and create a PPF override.

Figure 6 (Page 1 of 2). DASD Storage Requirements for Target Minidisks

Minidisk owner (user ID)	Default Address	Storage in Cylinders		SFS 4K Blocks (2*)	Usage
		DASD	CYLS (1*)		Default SFS Directory Name
6VMHCD20	2B2	3390	110	19800	Contains all the base code shipped with HCD/HCM for z/VM VMPSFS:6VMHCD20.VMHCD.OBJECT
6VMHCD20	2C2	3390	3	540	Contains sample files and user local modifications for HCD/HCM for z/VM VMPSFS:6VMHCD20.VMHCD.LOCAL
6VMHCD20	2D2	3390	200	36000	Contains serviced files VMPSFS:6VMHCD20.VMHCD.DELTA
6VMHCD20	2A6	3390	2	360	Contains AUX files and software inventory tables that represent the test service level of HCD/HCM for z/VM VMPSFS:6VMHCD20.VMHCD.APPLYALT

Notes:

1. Cylinder values defined in this table are based on a 4K block size.
2. For installation to SFS directories, a total of **100,620** 4K blocks are required.
3. This minidisk **CANNOT** be defined in SFS. Also this minidisk **MUST** be formatted with a 4K blksize.
4. Additional storage space may need to be allocated for the z/VM TCP/IP dispatcher virtual machine's 191 disk to accommodate the size of your I/O configuration, the logging of tracing or other activities.
5. IODF files must reside on a minidisk that is formatted with a blksize of 4K.

Figure 6 (Page 2 of 2). DASD Storage Requirements for Target Minidisks

Minidisk owner (user ID)	Default Address	Storage in Cylinders		SFS 4K Blocks (2*)	Usage
		DASD	CYLS (1*)		Default SFS Directory Name
6VMHCD20	2A2	3390	2	360	Contains AUX files and software inventory tables that represent the service level of HCD/HCM for z/VM that is currently in production. VMPSFS:6VMHCD20.VMHCD.APPLYPROD
6VMHCD20	300	3390	180	32400	Test build disk. This code will be copied to production disk 400. VMPSFS:6VMHCD20.VMHCD.BUILDST
6VMHCD20	29D	3390	12	2160	Help file disk. This code will be copied to a production disk, (e.g. MAINT 19D) so the production disk will also require this amount of free space. VMPSFS:6VMHCD20.VMHCD.BUILDHLP
6VMHCD20	191	3390	50	9000	6VMHCD20 user ID's 191 minidisk VMPSFS:6VMHCD20
CBDIODSP	191	3390	120	N/A (3*)	z/VM HCD TCP/IP dispatcher machine's 191 minidisk(4*)(5*)
CBDIODSP	400	3390	360	N/A	Production build disk.

Notes:

1. Cylinder values defined in this table are based on a 4K block size.
2. For installation to SFS directories, a total of **100,620** 4K blocks are required.
3. This minidisk **CANNOT** be defined in SFS. Also this minidisk **MUST** be formatted with a 4K blksize.
4. Additional storage space may need to be allocated for the z/VM TCP/IP dispatcher virtual machine's 191 disk to accommodate the size of your I/O configuration, the logging of tracing or other activities.
5. IODF files must reside on a minidisk that is formatted with a blksize of 4K.

6.0 Installation Instructions

HCD/HCM for z/VM was pre-installed, using VMSES/E, on the z/VM System deliverables.

This chapter describes the installation methods and the step-by-step procedures to complete the installation and activate HCD/HCM for z/VM.

Did you do an upgrade installation?

If you used the upgrade installation procedure documented in the *z/VM: Installation Guide* to upgrade a z/VM version 6 release 2 system to a z/VM version 6 release 3 system, no further enablement or customization is necessary. Your installation of HCD/HCM for z/VM is complete.

6.1 Place HCD/HCM for z/VM Into Production

6.1.1 Setting up Security for HCD/HCM for z/VM

You can exploit native CP methods to set up security or you can use an external security manager.

To set up security with native CP, go to section 6.1.1.1, “Setting Up Security with native CP.”

To set up security using an External Security Manager, go to section 6.1.1.2, “Setting Up Security with RACF/VM External Security Manager” on page 15. This section will use RACF/VM as an example.

For further information on using security with HCD/HCM for z/VM refer to Chapter 2 'Installing HCM' in the *z/OS and z/VM: Hardware Configuration Manager User's Guide* manual.

6.1.1.1 Setting Up Security with native CP

To use native CP for security the following things need to be done.

Note: If you are running in an Single System Image (SSI) cluster then these steps need to be done on each member. For any CP directory update you only update the common directory once but then you need to run DIRECTXA on every member.

1 The file CBDCONF NAMES needs to have the following entry:

```
:SECURITY.CP
```

This is the default shipped in the file.

2 In the CP directory entry for the dispatcher service virtual machine, CBDIODSP, you need to add the directory statement:

```
OPTION DIAG88
```

This is the default shipped in the file.

- 3 Make sure the password for the dispatcher service virtual machine, CBDIODSP, in the CP directory entry, is set according to your company's security rules.

If running in an SSI cluster to run DIRECTXA

Proceed with section 6.1.2, "Install Hardware Configuration Manager (HCM)" on page 17.

6.1.1.2 Setting Up Security with RACF/VM External Security Manager

To use RACF/VM as the ESM, perform the following procedure to authorize virtual machines to issue RACROUTE requests. For more information, refer to *z/VM: Security Server RACROUTE Macro Reference*.

Notes:

1. RACF must be enabled and running on your system in order to perform this procedure.
2. If running in an SSI cluster the first and second steps need to be done on every member. Step three only needs to be done once and it can be done on any member.

- 1 The file CBDCONF NAMES needs to have the following entry:
:SECURITY.ESM

- 2 Identify the RACF/VM service machine to which RACROUTE requests will be sent. Make sure the z/VM HCD TCP/IP dispatcher service virtual machine (CBDIODSP) has access to the RACF SERVMACH file. See the *z/VM: RACF Security Server System Programmer's Guide* for more information.

- 3 Give the z/VM HCD TCP/IP dispatcher permission to perform password validation using DMSPASS (which uses DIAGNOSE X'88').

Note: If you do not enable RACF profile protection for Diagnose X'88', the z/VM HCD TCP/IP dispatcher service virtual machine (CBDIODSP) must be defined with OPTION DIAG88 in its directory entry.

- a Define a RACF profile called DIAG088 in class VMCMD, if it does not already exist, and ensure that profile DIAG088 has a UACC of NONE.

```
rac rdefine vmcmd diag088 uacc(none)
```

- b Authorize the z/VM HCD TCP/IP dispatcher (CBDIODSP) to use DIAGNOSE X'88' by giving it READ access to the DIAG088 profile.

rac permit diag088 class(vmcmd) id(cbdiodsp) access(read)

- c** If the VMCMD class is not already active, use the SETROPTS commands to activate it.

rac setropts classact(vmcmd)

- d** Make sure that the protection of DIAGNOSE X'88' is active. It is active by default, if the installation has not changed the setting in the currently active VMXEVENT profile.

- 1** Check to see if active by issuing

rac setevent list

DIAG088 should say CONTROL if it is active

- 2** If DIAG088 is not currently active, then activate it

rac ralter vmxevent events1 delmem(diag088/noctl)

rac setevent refresh events1

- 4** Make sure the z/VM HCD TCP/IP dispatcher (CBDIODSP) has IUCV authorization by performing one of these two steps.
 - Update the RACF/VM service machine's (RACFVM is default) CP directory by adding IUCV ALLOW to provide global IUCV authorization, so that any user in the system can connect to the RACF/VM service machine.
 - OR -
 - Give IUCV authorization to the z/VM HCD TCP/IP dispatcher. Update the CBDIODSP CP USER directory by adding the following IUCV statement that specifies the RACF/VM service machine with which the RACROUTE issuer will be communicating.
IUCV RACFVM PRIORITY MSGLIMIT 255
See *z/VM:CP Planning and Administration* for more information.

- 5** RACF-authorize a connection to the RACF/VM service machine.

- a** Log on to a user ID that has RACF system-SPECIAL attribute.

- b** Create a profile named ICHCONN in the FACILITY class.

rac rdefine facility ichconn uacc(none)

c Give UPDATE access authority to CBDIODSP

rac permit ichconn class(facility) id(cbdiodsp) access(update)

d Activate the FACILITY class (if not already active)

rac setropts classact(facility)

e In the PROFILE EXEC for CBDIODSP (z/VM HCD TCP/IP dispatcher) initialize the connection to the RACF/VM virtual machine by removing the comment characters in the line /* RPIUCMS INIT */. To look like:

```
RPIUCMS INIT
```

Proceed with section 6.1.2, "Install Hardware Configuration Manager (HCM)."

6.1.2 Install Hardware Configuration Manager (HCM)

Install the Hardware Configuration Manager (HCM) part of HCD/HCM for z/VM using the following instructions. For your convenience these instructions can also be found in 'Chapter 2. Installing HCM' in the the *z/OS and z/VM: Hardware Configuration Manager User's Guide*.

Note: Regardless if running in an SSI cluster or not, these steps only need to be done once. In an SSI cluster they can be done on any member.

- 1** Log on to the z/VM HCD TCP/IP dispatcher user ID, CBDIODSP
- 2** Download to the PC, in binary mode, the install shield file EEQINSTMSIBIN. This file is on the CBDIODSP production disk which is the 400 minidisk. Use a transfer program of your choice. The file must be executable on the PC therefore you need to make sure it has an extension of MSI when you download it.
- 3** Invoke the HCM install utility that now resides on your workstation, e.g. choose the RUN option in the START menu. This will install HCM. The HCM installation creates an entry in your START menu, that you can use to launch HCM.

6.1.3 Start Hardware Configuration Definition (HCD)

Following are instructions for starting and stopping the z/VM HCD TCP/IP dispatcher service virtual machine in order to communicate between z/VM HCD and HCM. For your convenience these commands are also provided in *z/OS and z/VM: Hardware Configuration Manager User's Guide*.

Note: If you are running in an SSI cluster, log on to any member associated with the processor where you are going to make I/O configuration changes and perform the following steps. If you want to be able to make I/O changes from any member in an SSI cluster then you need to update the appropriate files mentioned in step 1 on every member.

- 1** Log on to the z/VM HCD TCP/IP dispatcher for HCM service virtual machine. The default user ID is CBDIODSP.

Notes:

- If the name of your TCP/IP service virtual machine is not equal to TCPIP, then you must change the TCP START command in the PROFILE RSK file (on CBDIODSP 191 A-disk). Refer to the *z/VM: Reusable Server Kernel - Programmers Guide and Reference* for information on the TCP START command.
- The z/VM HCD TCP/IP dispatcher, CBDIODSP, uses 51107 as its default port. You should reserve this port in TCP/IP's PROFILE TCPIP. You should add the following entries to the PORT section of TCP/IP's PROFILE TCPIP.

```
PORT
51107 TCP CBDIODSP    ; HCD server
51107 UDP CBDIODSP   ; HCD server
```

- Recycle TCP/IP.

Note that you can change the port to something else. If you do, update the CBDCONF NAMES file on the A-disk of the CBDIODSP user ID as well as the PROFILE TCPIP.

- 2** Start the z/VM HCD TCP/IP dispatcher for HCM by issuing the command CBDSDISP in CMS while logged on to the CBDIODSP user ID. Wait for text messages and verify that all services started correctly. Following are messages that you will see after issuing CBDSDISP:

IBM VM/ESA® Reusable Server Kernel
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International Business Machines Corporation.
All Rights Reserved.

RSK>

SUBCOM BKWSCM0000I Operation completed OK.
SUBCOM BKWSCM0000I Operation completed OK.
CONSOLE BKWCNS0000I Operation completed OK.
CONSOLE BKWCNS0000I Operation completed OK.
TCP BKWTCP0000I Operation completed OK.
CBDD200I z/VM 6.2.0 HCD TCP/IP dispatcher for HCM successfully started.
TCP BKWTCP0000I Operation completed OK.
SUBCOM BKWSCM0000I Operation completed OK.
CONSOLE BKWCNS0000I Operation completed OK.

You may disconnect this machine at this time.

- 3** On your workstation, start HCM. This can be done either by starting the executable or by double-clicking with the left mouse button on one of your saved HCM configuration files in Windows Explorer. In the latter case, the configuration is loaded as as soon as HCM is running. The Product Information window of the Hardware Configuration Manager (HCM) program is displayed.
- 4** Enter the z/VM HCD TCP/IP dispatcher service virtual machine user ID, default is CBDIODSP, and its password. Use the z/VM TCP/IP hostname or IP address, of the system where HCD is installed, and your port number (51107 is the default).
- 5** Optionally, you can switch on the HCD trace, if needed.
- 6** Work with HCM. Refer to the 'Getting Started' chapter in the *z/OS and z/VM: Hardware Configuration Manager User's Guide*.
- 7** Exit from HCM on your workstation.
- 8** Stop the z/VM HCD TCP/IP dispatcher for HCM by issuing the command 'SERVER STOP' on the CBDIODSP console. If you disconnected the dispatcher user ID then you need to log back on to issue the command. You should see the following:

```
SERVER STOP
RSK>
SERVER BKWSRV0300I Shutdown initiated.
CBDD210I z/VM 6.2.0 HCD TCP/IP dispatcher for HCM stopped.
Ready;
```

Note: The dispatcher can be started again using step 2 on page 18 above; there is no need to logoff and logon again.

HCD/HCM for z/VM is now installed and ready to use on your system. To use HCD/HCM for z/VM go to the *z/VM: I/O Configuration* and *z/OS and z/VM: Hardware Configuration Manager User's Guide* publications.

7.0 Service Instructions

Note - z/VM Automated Service Procedure

The z/VM automated service procedure (use of the **SERVICE** and **PUT2PROD** commands) is **required** for applying service to HCD/HCM for z/VM.

7.1 Servicing HCD/HCM for z/VM

Use the service instructions documented in the *z/VM: Service Guide* to receive, apply, build and place HCD/HCM for z/VM service into production.

You have finished servicing HCD/HCM for z/VM.

Appendix A. Moving HCD/HCM for z/VM to SFS Directories and Creating a PPF Override

By default, z/VM HCD is installed to minidisks, as part of the z/VM System deliverables, unless you choose to install HCD/HCM for z/VM to SFS during the initial z/VM installation. However, you can move some of the HCD/HCM for z/VM minidisks to SFS directories after installation. Refer to Figure 6 on page 12 to see which minidisks can reside in SFS. You can use either the default file pool, VMPSFS, or a file pool of your choice. If you are running in an SSI cluster then this new file pool needs to be accessible to all members. This can be accomplished by specifying the SSI startup parameter in the file pool server DMSPARMS file.

A summary of the steps that are needed to place HCD/HCM for z/VM into SFS are:

- Allocate space in the user-defined file pool
- Provide user IDs 6VMHCD20 and MAINT`vr`m with access to the file pool
- Create the necessary HCD/HCM for z/VM subdirectories
- Copy files from the minidisks to the new SFS subdirectories
- Create a PPF override, if not using the default file pool or subdirectory names.

Where to next

You need to do one of the following:

- If you want to place HCD/HCM for z/VM into SFS directories **using the defaults defined in the 6VMHCD20 PPF file** and you are running in a non-SSI or a single member SSI environment, you can use the MOVE2SFS command, as documented in the *z/VM: CP Commands and Utilities Reference*.
- If you want to place HCD/HCM for z/VM into your **own user-defined file pool or SFS directories** or want to use the default SFS directories and you are running in a multiple member SSI environment, continue with the instructions in A.1, “Setup SFS File Pool and Directories” on page 23.
- If you **only need to create a PPF override**, continue with the instructions in A.3, “Create Product Parameter File (PPF) Override” on page 25.

If you were pointed to this appendix from another section and you have completed the steps required (whether provided in this appendix or in the *z/VM: CP Commands and Utilities Reference*) you should now return to your original section to continue.

A.1 Setup SFS File Pool and Directories

Notes:

1. The steps that follow help you determine the HCD/HCM for z/VM file pool space requirements, file pool enrollment, and SFS directory definitions. If not all of these steps are required - for example, you are changing only SFS directory or subdirectory names - adapt these instructions as needed for your environment.
2. The steps that follow assume that a user-defined SFS file pool name is being used. If you will be using the VM default VMPSFS file pool name, substitute it in any place you see 'user-defined file pool' or *userfilepool*.
3. For more information about planning for, generating and managing a file pool and server, see *z/VM: File Pool Planning, Administration and Operation*.

- 1** Determine the number of 4k blocks that are required for SFS directories by adding up the 4K blocks required for each SFS directory you plan to use.

If you intend to use all of the default HCD/HCM for z/VM SFS directories, the 4K block requirements for each directory are summarized in Figure 6 on page 12.

This information is used when enrolling the user ID 6VMHCD20 in the user-defined file pool.

- 2** Enroll user 6VMHCD20 and CBDIODSP in the user-defined file pool using the ENROLL USER command:

```
ENROLL USER 6VMHCD20 userfilepool: (BLOCKS blocks)
ENROLL USER CBDIODSP userfilepool:
```

where *blocks* is the number of 4k blocks that you calculated in the previous step.

Note: This must be done from a user ID that is an administrator for the user-defined file pool.

- 3** Make the system maintenance user ID, MAINT*vrma* file pool administrator for the user-defined file pool so that it can update files on the HCD/HCM for z/VM service directories by adding the MAINT*vrma* user ID to the ADMIN startup parameter in the user-defined file pool DMSPARMS file.

- 4** Determine if there are enough blocks available in the file pool to install HCD/HCM for z/VM. This information can be obtained from the QUERY FILEPOOL STORGRP command. The output from this command is a list of storage groups in the file pool and the number of 4K blocks free. If the number of 4K blocks free is smaller than the total 4K blocks needed to install HCD/HCM for z/VM you need to add space to the file pool. See *z/VM: File*

Pool Planning, Administration, and Operation manual for information on adding space to a file pool.

- 5 Create the necessary subdirectories using the CREATE DIRECTORY command.

Note: All of the HCD/HCM for z/VM subdirectories are shown in the create directory commands. If you are not planning on creating them all then just enter the commands for the ones you plan to create.

A complete list of default HCD/HCM for z/VM SFS directories is provided in Figure 6 on page 12.

```
set filepool userfilepool:  
create directory userfilepool:6VMHCD20.VMHCD  
create directory userfilepool:6VMHCD20.VMHCD.object  
create directory userfilepool:6VMHCD20.VMHCD.applyalt  
create directory userfilepool:6VMHCD20.VMHCD.applyprd  
create directory userfilepool:6VMHCD20.VMHCD.delta  
create directory userfilepool:6VMHCD20.VMHCD.local  
create directory userfilepool:6VMHCD20.VMHCD.buildtst  
create directory userfilepool:6VMHCD20.VMHCD.buildhlp
```

If you have changed any of the default SFS directory names then use your new name in place of the old name in the create directory command.

If necessary, see the *z/VM: CMS Commands and Utilities Reference* manual for more information about the CREATE DIRECTORY command.

- 6 Give the z/VM HCD TCP/IP dispatcher service machine, CBDIODSP, READ authority to the HCD/HCM for z/VM production code using the GRANT AUTHORITY command.

```
grant auth userfilepool:6VMHCD20.vmhcd.buildtst to CBDIODSP (read newread  
grant auth userfilepool:6VMHCD20.vmhcd.local to CBDIODSP (read newread
```

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

- 7 If you intend to use an SFS directory as the work space for the 6VMHCD20 user ID, include the following IPL control statement in the 6VMHCD20 directory entry:

```
IPL CMS PARM FILEPOOL userfilepool
```

This will cause CMS to automatically access 6VMHCD20's top directory as file mode A.

A.2 Copy Minidisk (or SFS) Files to SFS Directories

- 1 Copy the files from the HCD/HCM for z/VM minidisks (or from the VMPSFS file pool, if HCD/HCM for z/VM is already installed there) to your new user-defined SFS file pool and directories using the VMFCOPY command.

Note: Repeat the ACCESS and VMFCOPY commands, that follow, for each disk or SFS directory you need to copy. Refer to Figure 6 on page 12 for the default minidisk and SFS directory names for HCD/HCM for z/VM.

```
access vdev e
```

```
access dirid f
```

```
vmfcopy * * e = f (prodid 6VMHCD20%VMHCD olddate
```

Where

- *vdev* is the minidisk you are copying files from. If you are copying from SFS then substitute in the default SFS directory name in place of *vdev*.
- *dirid* is the name of the (target) SFS directory that you are copying files to.
- 6VMHCD20%VMHCD is the PRODID defined within the 6VMHCD20 PPF file for the minidisk and SFS HCD/HCM for z/VM components.

The VMFCOPY command will update the VMSES PARTCAT file on the target directory.

A.3 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 is how to change the shared file system (SFS) file pool where HCD/HCM for z/VM files reside. Refer to the *z/VM: VMSES/E Introduction and Reference* for more information on PPF overrides.

Note: Do **not** modify the product supplied 6VMHCD20 \$PPF, 6VMHCD20 PPF, SERVP2P \$PPF or SERVP2P PPF files to change the VMPSFS file pool name or any other installation parameters. If a \$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, "VMPSFS" to "MYPOOL":

- 1 Create a new \$PPF override file or edit an existing override file for the SERVP2P \$PPF file.

xedit *overname* \$PPF *fm2*

overname is the PPF override file name (such as "myvmhcd") 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 MAINT620 51D minidisk or whatever minidisk or SFS directory contains the VMSES/E Software Inventory.

- 2 Create (or modify as required) the Variable Declarations (:DCL.) section for the VMHCDSFS and VMHCDSFSP2P override areas so that it resembles the :DCL. section as shown below.

Note: The PPF file used by SERVICE, PUT2PROD and LOCALMOD is SERVP2P PPF therefore this example shows an override to the SERVP2P PPF.

```
:OVERLST. VMHCDSFS VMHCDSFSP2P
*
*-----*
:VMHCDSFS. VMHCDSFS SERVP2P
*-----*
:DCL. UPDATE
&INS191 DIR MYPOOL:6VMHCD20 * VMSES/E WORK DISK
&LOCAL DIR MYPOOL:6VMHCD20.VMHCD.LOCAL * LOCAL DISK
&BAS1Z DIR MYPOOL:6VMHCD20.VMHCD.OBJECT * BASE DISK
&DELTZ DIR MYPOOL:6VMHCD20.VMHCD.DELTA * HCD VM SERVICE FILES
&APPLX DIR MYPOOL:6VMHCD20.VMHCD.APPLYALT * AUX AND INVENTORY FILE
&APPLZ DIR MYPOOL:6VMHCD20.VMHCD.APPLYPROD * AUX AND INVENTORY FILE
&BLD0Z DIR MYPOOL:6VMHCD20.VMHCD.BUILDTST * TEST DISK
&BLD2Z DIR MYPOOL:6VMHCD20.VMHCD.BUILDHLP * HELP FILES
&BLD3Z LINK MAINT 493 493 MR * BKWLIB TXTLIB
&DSP191 LINK CBDIODSP 191 291 MR * DISPATCHER 191 DISK
&BLD1Z LINK CBDIODSP 400 400 MR * PRODUCTION DISK
&HCDID1 USER 6VMHCD20
&RSKSRV USER CBDIODSP
:EDCL.
:END.
```

```

*-----*
:VMHCDSFSP2P. &COMP2UCP2P. SERVP2P
*-----*
:DCL. UPDATE
&INS191 DIR MYPOOL:6VMHCD20          * VMSES/E WORK DISK
&LOCAL  DIR MYPOOL:6VMHCD20.VMHCD.LOCAL * LOCAL DISK
&BAS1Z  DIR MYPOOL:6VMHCD20.VMHCD.OBJECT * BASE DISK
&DELTZ  DIR MYPOOL:6VMHCD20.VMHCD.DELTA * HCD VM SERVICE FILES
&APPLX  DIR MYPOOL:6VMHCD20.VMHCD.APPLYALT * AUX AND INVENTORY FILE
&APPLZ  DIR MYPOOL:6VMHCD20.VMHCD.APPLYPROD * AUX AND INVENTORY FILE
&BLD0Z  DIR MYPOOL:6VMHCD20.VMHCD.BUILDST * TEST DISK
&BLD2Z  DIR MYPOOL:6VMHCD20.VMHCD.BUILDHLP * HELP FILES
&BLD3Z  LINK MAINT      493  493  MR      * BKWLIB TXTLIB
&DSP191 LINK CBDIODSP  191  291  MR      * DISPATCHER 191 DISK
&BLD1Z  LINK CBDIODSP  400  400  MR      * PRODUCTION DISK
&HCDID1 USER 6VMHCD20
&RSKSRV USER CBDIODSP
:EDCL.
:END.
*-----*
*

```

This override will replace the **:DCL.** section of the VMHCDSFS and VMHCDSFSP2P override areas of the SERVP2P \$PPF file.

- 3** If your \$PPF override file was created at file mode A, copy it to the Software Inventory minidisk (MAINT620 51D). The default filemode is D.

file

copyfile *overname* \$PPF *fm* = = **d** (*olddate*)

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

vmfppf *overname* *

where *overname* is the file name of your \$PPF override file.

- 5** Update the VM SYSSUF Software Inventory table. Since you created a PPF override to the SERVP2P \$PPF file you need to make sure that the override name you created is reflected in the PPF tags for HCD/HCM for z/VM in the VM SYSSUF table. Type in the command VMFUPDAT SYSSUF. This will bring up a panel so that you can change the PPF names stored in the VM SYSSUF file. Locate 6VMHCD20 under the 'Prodid' column. Replace the PPF name for INSTPPF, BLDPPF and P2PPPF for 6VMHCD20 with your new PPF override file name. Use PF5 to process your changes.

Now that the *overname* PPF file has been created, you should specify *overname* instead of SERVP2P or 6VMHCD20 as the PPF name to be used for any VMSES/E commands that require a PPF name for HCD/HCM for z/VM.

Appendix B. Copy of HCD/HCM for z/VM Sample Files

This appendix documents copying the supplied sample files from the sample minidisk or SFS directory to the appropriate execution disk or directory. It is shown here in case you lose or need to replace the files as they were shipped on the z/VM System deliverables. Refer to the *z/VM: I/O Configuration* and *z/OS and z/VM: Hardware Configuration Manager User's Guide* manuals for detailed information on the samples files.

Note: If running in an SSI cluster, these steps need to be done on every member.

- 1** Logon to z/VM HCD TCP/IP dispatcher, **CBDIODSP**, to put sample files on the A-disk.

a If installing using minidisks

```
link 6VMHCD20 2C2 2C2 rr
access 2C2 b
```

b If installing using Shared File System

```
access VMPSFS:6VMHCD20.VMHCD.LOCAL b
```

- 2** Copy the sample HCD/HCM for z/VM profile to the A-disk of user **CBDIODSP**:

```
copyfile CBDSDHPF SAMPPROF B HCD PROFILE A
```

The COPYFILE command will create an initial HCD/HCM for z/VM profile on the A-disk of user **CBDIODSP**.

- 3** For using the Hardware Configuration Manager (HCM) as Graphical User Interface (GUI) to HCD/HCM for z/VM, perform the following steps:

a Copy the sample PROFILE EXEC to the A-disk of user **CBDIODSP**.

```
copyfile CBDSDRPF SAMPPROF B PROFILE EXEC A
```

b Copy the sample PROFILE RSK to the A-disk of user **CBDIODSP**.

```
copyfile CBDSDRPF SAMPPROF B PROFILE RSK A
```

- c** Copy the sample USERID MAP to the A-disk of user CBDIODSP. If you want to restrict the HCM instances allowed to connect to HCD/HCM for z/VM, you may want to adapt this file.

copyfile CBDSUID SAMPMAP B USERID MAP A

- d** Copy the sample SGP FILE to the A-disk of user CBDIODSP.

copyfile CBDSDSGP FILE B SGP FILE A

- e** Copy the sample NAMES file to the A-disk of user CBDIODSP. The names file is not on the sample disk or directory but instead it is on the test or production build disk or directory. This file can be modified by the customer to change default values.

- 1** If installing using minidisks

link 6VMHCD20 300 300 rr
access 300 b
copyfile CBDCONF NAMES B = = A

- 2** If installing using Shared File System

access VMPSFS:6VMHCD20.VMHCD.BUILDST b
copyfile CBDCONF NAMES B = = A

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