



Program Directory for Directory Maintenance Facility for z/VM

function level 540

Program Number 5741-A05

for Use with
z/VM version 5 release 4

Document Date: September 2008

GI11-2892-00

Note!

Before using this information and the product it supports, be sure to read the general information under “Notices” on page 61.

This program directory, dated September 2008, applies to IBM Directory Maintenance Facility for z/VM, function level 540 (DirMaint™), Program Number 5741-A05.

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Summary of Changes

The following describes the different revision indicators used and the time frame when they were inserted:

- The -00 suffix level is September 2008.

DirMaint™ Web Information

The DirMaint web page can be visited at URL:

www.ibm.com/eserver/zseries/zvm/related/dirmaint

There you will find:

- Additional useful information, hints, and tips.
- A PDF version of the DirMaint FL540 program directory available for viewing.
- The ability to subscribe to future updates.

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 DirMaint. You should read all of this program directory before installing the program and then keep it for future reference.

When you are ready to install DirMaint, read section 3.1, "Preventive Service Planning" on page 7. This section 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 4 identifies the basic and optional program materials and documentation for DirMaint.
- 3.0, "Program Support" on page 7 describes the IBM support available for DirMaint.
- 4.0, "Program and Service Level Information" on page 8 lists the APARs (program level) and PTFs (service level) incorporated into DirMaint.
- 5.0, "Installation and Migration Requirements and Considerations" on page 10 identifies the resources and considerations for installing, migrating and using DirMaint.
- 6.0, "Installation Instructions" on page 21 provides detailed installation and customization instructions for DirMaint.
- 7.0, "Service Instructions" on page 30 provides detailed servicing instructions for DirMaint.
- Appendix A, "Local Modification Example: \$EXEC File" on page 45 provides a local modification example for DirMaint.
- Appendix B, "Applying a Recommended Service Upgrade (RSU) For DirMaint" on page 48 provides detailed RSU installation instructions for DirMaint.
- Appendix C, "Moving DirMaint to SFS Directories and Creating a PPF Override" on page 54 provides detailed information on moving DirMaint into the shared file system (SFS) and overriding the default Product Parameter File (PPF).
- Appendix D, "Disabling DirMaint" on page 60 provides a description of disabling DirMaint FL540, when DirMaint is not licensed.

1.1 Program Description

Directory Maintenance Facility for z/VM, function level 540 provides:

- Commands to allow general users to control those portions of their directory entry not directly affecting their privileges or resources, relieving the system administrators of this chore;
- Commands to allow system administrators to easily make updates to the directory affecting user privileges and resource allocations, improving productivity;

- Integrity checking and verification services to avoid accidental damage to the directory or overlapping of DASD allocations.

1.2 Enhancements for Directory Maintenance Facility for z/VM, function level 540

The following enhancements were made in DirMaint FL540 in support of z/VM version 5 release 4:

- Support is added for allowing users to authenticate using an External Security Manager password phrase. Password phrases are now supported in the PRESET prefix on the command line and on the prefix menu panel, as well as at password prompts when NEEDPASS YES is in use.
- Support is added for user and administrator setting of password phrases. Password phrases are now supported on the DIRMaint PW and SETPW commands, menu panels and prompts. Prompt support is added for specifying passwords and password phrases on the SETPW command.
- A new USE_RACF configuration statement is added to configure DirMaint automatic RACF communication. This new statement will support turning automatic communication with the RACF server on and off completely or for specific exits.
- Support is added for DirMaint to receive command requests via IUCV communication instead of VMCF communication. This is due to the limitation that VMCF may only be used by one application at a time. Since DirMaint uses the RAC command for automatic RACF communication and the RAC command uses VMCF, DirMaint could not reliably use the RAC command and receive command requests via VMCF.
- Support is added to the DirMaint installation function (DIR2PROD) to issue an informative message when a sample configuration file has been serviced and may need manual configuration.

The following enhancements were made in DirMaint FL530 in support of z/VM V5.3:

- A new CLEANUP command is added, to unhang a DATAMOVE machine by cleaning up internal files and retrying or canceling all workunits assigned to the machine. Also, you can subsequently use this operand to delete those debug files that DirMaint creates during cleanup processing.
- A new COMMAND command is added, to add, replace, delete, or query the COMMAND statements in a directory entry.
- A new *ASYNCMD operand is added to the IUCV command, to specify the asynchronous CP command response system service.
- The ESM_PASSWORD_AUTHENTICATION_EXIT was changed from DVHDA0 MODULE to DVHXPX EXEC to authenticate mixed-case passwords. Refer to section 5.2.3.4, “ External Security Manager (ESM) Password Authentication” on page 11 for more information.

The following enhancements were made in DirMaint FL510 in support of z/VM V5.4:

- The PTF for APAR VM63700 provides the necessary function to support near 1 TB SCSI disks.
- The PTF for APAR VM63733 provides the necessary function to support the following:
 - Simplified user administration with the coordination of DirMaint and RACF® changes.

- Improved DirMaint directory management performance by allowing changes to the online directory without requiring reprocessing of the entire directory.
- Support for the CRYMeasure keyword on the OPTION statement for Crypto Express 2 Accelerator.

The following enhancements were made in DirMaint FL510; compared to DirMaint FL410:

- Publications library refresh
- Introduction of DirMaint-RACF connector
- Addition of DASD management commands, e.g. DASD DASDM
- Support for SMAPI
- Introduction of FLASHCOPY for CLONEDISK commands for faster results
- Five new user exits.

The following enhancements were made in DirMaint FL410; compared to DirMaint 1.5.0:

- Directory Maintenance Facility for z/VM, function level 540 is pre-installed disabled on z/VM.
- Directory Maintenance Facility for z/VM, function level 540 service is now available on the stacked RSU.

The following enhancements were made in DirMaint V1.5.0: compared to DirMaint 1.4.0:

- VMSES/E Enablement for installation and service
- Publications library refresh
- Improved networking support
- Distributed administration
- Providing separate commands to manipulate every directory statement reducing the need for get/replace
- Provide six new user exits and twenty-six new system exits
- Changing the way DASD allocation is done based on size of disk to minimize fragmentation
- No longer holds a work unit lock if the work unit fails
- Conditionally eliminate printed password warning notices
- Purge old reader file notices
- Supporting set password as being already in the warning period
- Elimination of the 15 minute wait between consecutive VM minidisk requests
- Exploiting DFSMS/VM™ copy function if DFSMS™ is installed
- No longer arbitrarily upper case directory file information
- Support alternate source and alternate object directories

2.0 Program Materials

An IBM program is identified by a program number and a feature code. The program number for DirMaint is 5741-A05.

The program announcement material describes the features supported by DirMaint. 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

2.1 Basic Machine-Readable Material

DirMaint is distributed pre-installed as part of the z/VM version 5 release 4 system deliverables. Therefore there are no basic machine readable materials. DirMaint is a priced feature, so it is installed disabled. **If you want to enable and use DirMaint then you MUST order the Directory Maintenance Facility for z/VM, function level 540 to obtain a license for it.** Refer to the z/VM version 5 release 4 software announcement for information on ordering z/VM version 5 release 4 and its features.

2.2 Optional Machine-Readable Material

There are no optional machine-readable materials for DirMaint.

2.3 Program Publications

The following sections identify the basic and optional publications for DirMaint.

2.3.1 Basic Program Publications

One copy of the following is included when you order the basic materials for DirMaint.

Figure 1. Basic Material: Unlicensed Publications

Publication Title	Form Number
Program Directory for Directory Maintenance Facility for z/VM	GI11-2892

2.3.2 Base Program Publications

Figure 2 identifies the base program publications associated with DirMaint.

Figure 2. Program Publications: New Editions

Publication Title	Form Number
z/VM: Directory Maintenance Facility Tailoring and Administration Guide	SC24-6135
z/VM: Directory Maintenance Facility Commands Reference	SC24-6133
z/VM: Directory Maintenance Facility Messages	SC24-6134

2.3.3 Softcopy Publications

The DirMaint publications are supplied softcopy as part of the *IBM Online Library: z/VM Collection* in BookManager® and Adobe® Portable Document Format (PDF). One copy of the *IBM Online Library: z/VM Collection on DVD* is included when you order the basic materials for z/VM.

In addition, the DirMaint 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.ibm.com/eserver/zseries/zvm/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 Microfiche Support

No program source materials or viewable program listings are provided for DirMaint.

2.5 Publications Useful During Installation and Service

The publications listed in Figure 3 may be useful during the installation of DirMaint.

Figure 3 (Page 1 of 2). Publications Useful During Installation / Service on z/VM version 5 release 4

Publication Title	Form Number
z/VM: Directory Maintenance Facility Tailoring and Administration Guide	SC24-6135
z/VM: VMSES/E Introduction and Reference	GC24-6130
z/VM: Service Guide	GC24-6117

Figure 3 (Page 2 of 2). Publications Useful During Installation / Service on z/VM version 5 release 4

Publication Title	Form Number
z/VM: CP Planning and Administration	SC24-6083
z/VM: CP Commands and Utilities Reference	SC24-6081
z/VM: CMS Commands and Utilities Reference	SC24-6073
z/VM: CMS File Pool Planning, Administration, and Operation	SC24-6074
z/VM: Guide for Automated Installation and Service	GC24-6099
z/VM: CP Messages and Codes	GC24-6119
z/VM: CMS and REXX/VM Messages and Codes	GC24-6118
z/VM: Other Components Messages and Codes	GC24-6120

3.0 Program Support

This section describes the IBM support available for DirMaint.

3.1 Preventive Service Planning

Before installing DirMaint, check with your IBM Support Center or use IBMLink™ (ServiceLink) to see whether there is additional Preventive Service Planning (PSP) information. To obtain this information, specify the following UPGRADE and SUBSET values:

Figure 4. PSP Upgrade and Subset ID

Retain				
COMPID	Release	Upgrade	Subset	Description
5749DVH00	540	DIRM540	DIRM/540	Install information
5749DVH00	540	DIRM540	yynnRSU	RSU service recommendations

Note: RSU-BY-LVL information can be obtained from the vm service rsu web site at url:

www.ibm.com/eserver/zseries/zvm/service/rsu

3.2 Statement of Support Procedures

When you order Directory Maintenance Facility for z/VM, function level 540, you are entitled to support under the basic warranty for z/VM version 5 release 4. You should note that the Software Subscription and Support for Directory Maintenance Facility for z/VM, function level 540 is *automatically* added to your order. This provides zSeries® service to which you are likely accustomed. If you do not want the Software Subscription and Support for DirMaint, then you must take specific action to decline it when ordering DirMaint. Refer to the applicable z/VM version 5 release 4 software announcement for ordering information.

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

Figure 5 identifies the component IDs (COMPID), Retain Release and Field Engineering Service Numbers (FESN) for DirMaint.

Figure 5. Component IDs

Retain			
COMPID	Release	Component Name	FESN
5749DVH00	540	DirMaint FL540	6415401

4.0 Program and Service Level Information

This section identifies the program and any relevant service levels of DirMaint. The program level refers to the APAR fixes incorporated into the program. The service level refers to the PTFs shipped with this product. Information about cumulative service is also provided.

4.1 Program Level Information

The following APAR fixes against DirMaint FL530 have been incorporated into this release:

VM64146	VM64237	VM64275	VM64328	VM64363	VM64396
VM64231	VM64263	VM64278	VM64334	VM64395	VM64464

The following APAR fixes against DirMaint FL510 were incorporated in DirMaint FL530 and hence are included in DirMaint FL540.

VM63386	VM63639	VM63751	VM63861	VM63977	VM64047
VM63521	VM63656	VM63783	VM63873	VM64010	VM64048
VM63566	VM63659	VM63789	VM63932	VM64022	VM64089
VM63584	VM63668	VM63848	VM63948	VM64024	VM64104
VM63635	VM63733	VM63849	VM63966	VM64030	

4.2 Service Level Information

Check the DIRM540 PSP bucket upgrade for any additional PTFs that should be installed or any additional install information. This can be accomplished by checking with your IBM Support Center or using IBMLink (ServiceLink). In addition, review the Directory Maintenance Facility for z/VM, function level 540 web page at:

www.ibm.com/eserver/zseries/zvm/related/dirmaint

for any additional service hints, tips, and concerns.

4.3 Cumulative Service

Cumulative service for DirMaint is available through a periodic, preventive service deliverable, the Recommended Service Upgrade (RSU). The RSU is used to provide service updates for multiple z/VM components and features (including DirMaint) and is often referred to as a *stacked* RSU.

See the PSP bucket upgrade DIRM540 and subset yynnRSU (where yynn is the year and the RSU service level) for the latest RSU available. For the list of PTF's included on the RSU, see the RSU service memo on the deliverable or the VM service web site.

The stacked RSU can be obtained by ordering PTF UM975*n*0, where *n* indicates the release of z/VM.

5.0 Installation and Migration Requirements and Considerations

The following sections identify the system requirements for installing and activating DirMaint.

5.1 Hardware Requirements

There are no special hardware requirements for DirMaint.

5.2 Program Considerations

The following sections list the programming considerations for installing and activating DirMaint.

5.2.1 Operating System Requirements

DirMaint FL540 supports the following VM operating systems:

- z/VM version 5 release 4

5.2.2 Other Program Product Requirements

No other products are required for DirMaint.

5.2.3 Migration Considerations

5.2.3.1 Customizable Parts

If you use the new migration procedure, as documented in the *z/VM: Guide for Automated Installation and Service*, to migrate DirMaint FL540 from a z/VM V5.1, z/VM V5.2 or z/VM V5.3 system to z/VM V5.4, then the customizable files will be migrated to z/VM V5.4, where possible. If the customizable files have been changed on the new level of DirMaint and you have made changes to them on your previous system you will be told to rework your changes. The DirMaint directory file disks, (e.g. 1DF) will not be automatically migrated, nor will the customizable files on those disks. You will need to migrate those disks and files yourself.

5.2.3.2 Place into Production EXEC name change

The EXEC used to place DirMaint into production was changed in DirMaint FL530 from IN2PROD to DIR2PROD. If you have any of your programs that call the old EXEC then you need to change your own programs to call the new EXEC.

5.2.3.3 Minidisks Definitions

The DIRMAINT 1DE must be formatted as stated in the notes in Figure 8 on page 18. It is shipped formatted this way on the z/VM V5.4 system deliverable. But if you plan on using the DIRMAINT 1DE minidisk from a prior release you **MUST** reformat it. Otherwise, the delta directory support will not function properly.

5.2.3.4 External Security Manager (ESM) Password Authentication

With the ESM_PASSWORD_AUTHENTICATION_EXIT, mixed case passwords and password phrases are supported for authentication by DirMaint when the ESM has been configured for mixed case passwords and password phrase support.

For more information on mixed-case passwords and password phrases, see your ESM documentation.

The default ESM_PASSWORD_AUTHENTICATION_EXIT provided with DirMaint was changed from DVHDA0 MODULE (which uses diagnose x'A0' to authenticate a user ID/password pair with an ESM) to DVHXPX EXEC (which uses the new DMSPASS CSL routine to authenticate a user ID/password pair with an ESM) in DirMaint FL530. In order to use the DMSPASS CSL routine, the user directory entry for the DIRMAINT machine must contain OPTION DIAG88. The DIRMAINT user directory entry as shipped with the z/VM system does contain this option.

5.2.4 Program Installation/Service Considerations

This section describes items that should be considered before you install or service DirMaint.

- VMSES/E is required to install and service this product.
- If multiple users install and maintain licensed products on your system, there may be a problem getting the necessary access to MAINT's 51D disk. If you find that there is contention for write access to the 51D disk, you can eliminate it by converting the Software Inventory from minidisk to Shared File System (SFS). See the *z/VM: VMSES/E Introduction and Reference* manual, section 'Changing the Software Inventory to an SFS Directory', for information on how to make this change.
- RSUs will be supplied as necessary. Service between RSUs can be obtained via CORrective service.
- A section of the *Directory Maintenance Facility Tailoring and Administration Guide* entitled "Directory Entries for the DirMaint Machines" provides useful background information on the server directories.

5.3 DASD Storage and User ID Requirements

Sections 5.3.1, "Required DASD Storage for DirMaint" on page 13 and 5.3.2, "Required DASD Storage for DirMaint Based on Source Directory Size" on page 17 lists the user IDs and minidisks that are required to install and service DirMaint. Sections 5.3.3, "Optional DASD Storage for DirMaint" on page 18 and 5.3.4, "Optional DASD Storage for DirMaint Based on Source Directory Size" on page 19 lists the user IDs and minidisks that are optional for DirMaint.

Important Installation Notes:

Note - z/VM Automated Service Procedure

If you modify any of the IBM-supplied default user IDs, minidisk addresses, or SFS directory names associated with DirMaint and you plan on using the z/VM automated service procedure (the **SERVICE** and **PUT2PROD** commands) to service your z/VM system, then you must create a PPF override for the **SERVP2P \$PPF** file.

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

- The user IDs and minidisks shown in Figure 6 on page 13 through Figure 9 on page 19 are already defined when you install z/VM version 5 release 4 because DirMaint is preinstalled on the system DDR.
- 5VMDIR40 is a default user ID and can be changed. If you choose to change the name of the installation user ID you need to create a Product Parameter Override (PPF) to reflect this change. See C.3, "Create Product Parameter File (PPF) Override" on page 57 for an example of creating a PPF override.
- If you chose to change the installation user ID, you must ensure that all the default virtual minidisk addresses for DirMaint are unique on the new installation user ID. You will have to create a PPF override to change any minidisk address conflicts. Use of the shared file system will help reduce these conflicts. However, any disk with *NONSFS listed in the SFS 4K block column of Figure 6 on page 13 must remain a minidisk.
- The DIRMSAT user ID and minidisk resources are only required if you plan on using a DirMaint Satellite server machine. This server is only necessary if you plan on maintaining multiple object directories on a single system or within a Cross System Extension (CSE) cluster. If this is not your environment, then there is no need to obtain the DIRMSAT user ID or any of the resources it owns.
- The DIRMAINT 15D minidisk is **only** required if you plan on using a DirMaint Satellite server (DIRMSAT) machine. Otherwise, the 15D minidisk should not be defined for the DIRMAINT user ID.

5.3.1 Required DASD Storage for DirMaint

The table in Figure 6 contains the required DASD for the 5VMDIR40, MAINT, and DirMaint server user IDs in order to install and service DirMaint FL540.

Important DASD Notes:

- Most of the minidisks are already defined on the z/VM System deliverables. If you need to add a minidisk then it **MUST** be CMS formatted.
- **It is not recommended** that the 5VMDIR40 492, 491, 41F, or 11F minidisks, or any disks owned by DirMaint servers reside in a shared file system directory. In the event of shared file system problems, it may be impossible to make any directory changes. And it is possible that one or more directory changes, such as allocating more DASD space, may be necessary to make the shared file system operational again. The DIRMAINT 15D minidisk must not reside in a shared file system directory.
- The DIRMAINT 1AA, and 1FA, the DATAMOVE 1AA, and the DIRMSAT 1AA minidisks are in the required list since they are strongly recommended.
 - The 1AA minidisks are used to maintain history files for debugging purposes. If your system has an ESM (external security manager) that allows for authorized virtual machines to write log records into the ESM audit trail, then you may wish to omit the 1AA minidisks in favor of the ESM's audit trail.
 - If you have a DIRMAINT V1.4.0 112 minidisk, you can use that disk in place of the DIRMAINT 1FA minidisk by customizing the DVHPROFA DIRMAINT file.

<i>Figure 6 (Page 1 of 4). DASD Storage Requirements for (Required) Target Minidisks</i>						
Minidisk owner (user ID)	Default Address	Storage in Cylinders		FB-512 Blocks	SFS 4K Blocks	Usage
		DASD	CYLS			Default SFS Directory Name
5VMDIR40	2B2	3390	13	18720	2340	Contains all of the base code shipped with DirMaint VMSYS:5VMDIR40.DIRM.OBJECT
Notes:						
1. Cylinder values defined in this table are based on a 4k block size. FB-512 and SFS block values are derived from the 3390 cylinder values in this table.						
2. *NONSFS in the SFS 4K block column means that disk cannot be installed to the shared file system and must remain a minidisk.						
3. Cylinder values for the 2B1 minidisk are based on the source files in packed format. In order to create updates and assemble the files they will need to be unpacked. Disk sizes unpacked will be approximately double that which is shown in this table.						
4. Directory entries for the DATAMOVE 5F0 and 5FF minidisks are required for DASD management processing. These directory entries are used as a place holder and then need to specify 3380 as the DASD. A physical 3380 DASD volume with a label of \$\$\$\$\$\$ is not needed.						

Figure 6 (Page 2 of 4). DASD Storage Requirements for (Required) Target Minidisks

Minidisk owner (user ID)	Default Address	Storage in Cylinders		FB-512 Blocks	SFS 4K Blocks	Usage
		DASD	CYLS			Default SFS Directory Name
5VMDIR40	2B1	3390	10	14400	1800	Contains optional source files (3*) VMSYS:5VMDIR40.DIRM.SOURCE
5VMDIR40	2C2	3390	2	2880	360	Used for DirMaint sample files VMSYS:5VMDIR40.DIRM.SAMPLE
5VMDIR40	2C4	3390	1	1440	180	Used for user local modifications for DirMaint VMSYS:5VMDIR40.DIRM.LOCALMOD
5VMDIR40	2D2	3390	50	72000	9000	Contains serviced files VMSYS:5VMDIR40.DIRM.DELTA
5VMDIR40	2A6	3390	4	5760	720	Contains AUX files and version vector table that represents your test level of DirMaint VMSYS:5VMDIR40.DIRM.APPLYALT
5VMDIR40	2A2	3390	4	5760	720	Contains AUX files and version vector table that represent your production level of DirMaint VMSYS:5VMDIR40.DIRM.APPLYPROD
5VMDIR40	29D	3390	9	12960	1620	Contains American English help files for DirMaint VMSYS:5VMDIR40.DIRM.HELP
5VMDIR40	29E	3390	1	1440	180	Test disk for DirMaint code belonging on MAINT's 19E VMSYS:5VMDIR40.DIRM.MAINT19E

Notes:

1. Cylinder values defined in this table are based on a 4k block size. FB-512 and SFS block values are derived from the 3390 cylinder values in this table.
2. *NONSFS in the SFS 4K block column means that disk cannot be installed to the shared file system and must remain a minidisk.
3. Cylinder values for the 2B1 minidisk are based on the source files in packed format. In order to create updates and assemble the files they will need to be unpacked. Disk sizes unpacked will be approximately double that which is shown in this table.
4. Directory entries for the DATAMOVE 5F0 and 5FF minidisks are required for DASD management processing. These directory entries are used as a place holder and then need to specify 3380 as the DASD. A physical 3380 DASD volume with a label of \$\$\$\$\$\$ is not needed.

Figure 6 (Page 3 of 4). DASD Storage Requirements for (Required) Target Minidisks

Minidisk owner (user ID)	Default Address	Storage in Cylinders		FB-512 Blocks	SFS 4K Blocks	Usage
		DASD	CYLS			Default SFS Directory Name
5VMDIR40	492	3390	10	21600	*NONSFS	Test disk for DirMaint servers, also contains sample directories and other system files and new source files. Also servers 192 disk
5VMDIR40	491	3390	10	21600	*NONSFS	Production disk for DirMaint servers, also servers 191 disk
5VMDIR40	41F	3390	8	11520	*NONSFS	Test disk for DirMaint interface code
5VMDIR40	11F	3390	8	11520	*NONSFS	Production disk for DirMaint interface code also servers 11F disk
5VMDIR40	191	3390	9	12960	1620	5VMDIR40 user ID's 191 minidisk VMSYS:5VMDIR40.
MAINT	19E	3390	1	1440	180	Production disk for DirMaint user exec.
DATAMOVE	155	3390	9	12960	*NONSFS	Server's A-disk
DIRMSAT	155	3390	9	12960	*NONSFS	Server's A-disk
DIRMAINT	1AA	3390	9	12960	*NONSFS	Contains CONSOLE and TRANSLOG files
DATAMOVE	1AA	3390	9	12960	*NONSFS	Contains CONSOLE and TRANSLOG files
DIRMSAT	1AA	3390	9	12960	*NONSFS	Contains CONSOLE and TRANSLOG files
DIRMAINT	15D	3390	1	1440	*NONSFS	Intersystem locking disk Required when using Satellite servers
DIRMAINT	1FA	3390	9	12960	*NONSFS	Temporary storage for arriving spool files
DATAMOVE	1FA	3390	9	12960	*NONSFS	Temporary storage for arriving spool files
DIRMSAT	1FA	3390	9	12960	*NONSFS	Temporary storage for arriving spool files

Notes:

1. Cylinder values defined in this table are based on a 4k block size. FB-512 and SFS block values are derived from the 3390 cylinder values in this table.
2. *NONSFS in the SFS 4K block column means that disk cannot be installed to the shared file system and must remain a minidisk.
3. Cylinder values for the 2B1 minidisk are based on the source files in packed format. In order to create updates and assemble the files they will need to be unpacked. Disk sizes unpacked will be approximately double that which is shown in this table.
4. Directory entries for the DATAMOVE 5F0 and 5FF minidisks are required for DASD management processing. These directory entries are used as a place holder and then need to specify 3380 as the DASD. A physical 3380 DASD volume with a label of \$\$\$\$\$\$ is not needed.

Figure 6 (Page 4 of 4). DASD Storage Requirements for (Required) Target Minidisks

Minidisk owner (user ID)	Default Address	Storage in Cylinders		FB-512 Blocks	SFS 4K Blocks	Usage
		DASD	CYLS			Default SFS Directory Name
DATAMOVE	5F0	3380	1	1440	*NONSFS	Place holder for DASD management processing (4*)
DATAMOVE	5FF	3380	1	1440	*NONSFS	Place holder for DASD management processing (4*)

Notes:

1. Cylinder values defined in this table are based on a 4k block size. FB-512 and SFS block values are derived from the 3390 cylinder values in this table.
2. *NONSFS in the SFS 4K block column means that disk cannot be installed to the shared file system and must remain a minidisk.
3. Cylinder values for the 2B1 minidisk are based on the source files in packed format. In order to create updates and assemble the files they will need to be unpacked. Disk sizes unpacked will be approximately double that which is shown in this table.
4. Directory entries for the DATAMOVE 5F0 and 5FF minidisks are required for DASD management processing. These directory entries are used as a place holder and then need to specify 3380 as the DASD. A physical 3380 DASD volume with a label of \$\$\$\$\$\$ is not needed.

5.3.2 Required DASD Storage for DirMaint Based on Source Directory Size

The following table contains the required DASD for the DIRMAINT server whose disk size is based on the source directory size.

<i>Figure 7. DASD Storage Requirements for Required DIRMAINT Disks Based on Source Directory Size</i>			
Minidisk owner (user ID)	Default Address	Calculation for Storage in Cylinders	Usage
DIRMAINT	155	Two Times the Source Directory Size	DIRMAINT server's A-disk
DIRMAINT	1DF	Two times the Source Directory Size	Contains the primary directory files
DIRMAINT	1DB	Three Times the Source Directory Size	Contains the USER BACKUP file
<p>Notes:</p> <ol style="list-style-type: none"> 1. It is not recommended that any disks owned by DirMaint servers reside in a shared file system directory. In the event of shared file system problems, it may be impossible to make any directory changes. And it is possible that one or more directory changes, such as allocating more DASD space, may be necessary to make the shared file system operational again. 2. All the disks defined in this table MUST be CMS formatted. 			

5.3.3 Optional DASD Storage for DirMaint

The following table contains the optional DASD for the 5VMDIR40, MAINT, and DirMaint server user IDs in order to install optional source, install and service Uppercase English help files, copy American English help files to MAINT's 19D minidisk, and for DirMaint backup minidisks.

Figure 8. DASD Storage Requirements for (Optional) Target Minidisks

Minidisk owner (user ID)	Default Address	Storage in Cylinders		FB-512 Blocks	SFS 4K Blocks	Usage
		DASD	CYLS			Default SFS Directory Name
5VMDIR40	502	3390	9	12960	1620	Contains Upper Case English help files for DirMaint VMSYS:5VMDIR40.DIRM.HELPU
MAINT	19D	3390	9	12960	1620	Production disk containing American English help files for DirMaint
MAINT	402	3390	9	12960	1620	Production disk containing Upper Case English help files for DirMaint
DIRMAINT	1DE	3390	20	28800	*NONSFS	Delta object directory work edit disk.
DIRMAINT	2AA	3390	9	12960	*NONSFS	Contains a backup of the CONSOLE and TRANSLOG files.
DATAMOVE	2AA	3390	9	12960	*NONSFS	Contains a backup of the CONSOLE and TRANSLOG files.
DIRMSAT	2AA	3390	9	12960	*NONSFS	Contains a backup of the CONSOLE and TRANSLOG files.

Notes:

1. Cylinder values defined in this table are based on a 4k block size. FB-512 and SFS block values are derived from the 3390 cylinder values in this table.
2. *NONSFS in the SFS 4K block column means that disk cannot be installed to the shared file system and must remain a minidisk.
3. All the disks defined in this table (except the DIRMAINT 1DE disk) MUST be CMS formatted.
4. The DIRMAINT 1DE disk must be allocated in the following manner: For CKD devices: cylinder 0 must be allocated as PERM space and cylinder 1 through END must be allocated as DRCT space. For FBA devices: pages 1 through 3 must be allocated as PERM space and pages 4 through END must be allocated as DRCT space.

5.3.4 Optional DASD Storage for DirMaint Based on Source Directory Size

The following table contains the optional DASD for the DIRMAINT server whose disk size is based on the source directory size.

<i>Figure 9. DASD Storage Requirements for Optional DIRMAINT Disks Based on Source Directory Size</i>			
Minidisk owner (user ID)	Default Address	Calculation for Storage in Cylinders	Usage
DIRMAINT	2DF	Two Times the Source Directory Size	Contains a backup of the secondary directory files
DIRMAINT	2DB	Three Times the Source Directory Size	Contains a backup of the USER BACKUP file
<p>Notes:</p> <ol style="list-style-type: none"> It is not recommended that any disks owned by DirMaint servers reside in a shared file system directory. In the event of shared file system problems, it may be impossible to make any directory changes. And it is possible that one or more directory changes, such as allocating more DASD space, may be necessary to make the shared file system operational again. All the disks defined in this table MUST be CMS formatted. 			

5.3.5 User ID Directory Information

User directory statements supplied in the 5VMDIR40 PRODPART file have user IDs that have privilege classes other than G. These privilege classes are required for the following reasons:

- The 5VMDIR40 install ID must have class E privilege for enabling Directory Maintenance Facility for z/VM, function level 540.
- The DIRMAINT virtual machine must have class B privilege for any of the following:
 - Use of MSGNOH
 - Use of DIAGNOSE X'3C'
 - Use of DIAGNOSE X'84'
 - Use of DIAGNOSE X'A0' if RACF or other ESM (External Security Manager) is installed
 - Use of DIAGNOSE X'D4' for SECLABEL use
- The DIRMAINT virtual machine must have class D privilege to issue the CP QUERY ALLOC command for determining system owned space. The DIRMAINT server will map these as used extents.

Note: There are risks associated with granting any user ID class D authority. You may prefer to create a separate class for the CP QUERY command and grant the DIRMAINT user ID authority to that class. See the *z/VM: CP Planning and Administration* for additional information on moving a command to a new class.

- The DATAMOVE virtual machine must have class B privilege for any of the following:
 - Use of MSGNOH
 - Use of DIAGNOSE X'D4' for SECLABEL use
- The DIRMSAT virtual machine must have class B privilege for any of the following:
 - Use of MSGNOH
 - Use of DIAGNOSE X'3C'
 - Use of DIAGNOSE X'84'
 - Use of DIAGNOSE X'D4' for SECLABEL use

Alternate privilege classes may be required if CP's user Class Restructure support has been used to redefine the system privileges. Some of these classes may not be required if RACF/VM, or an equivalent external security manager, is installed and the appropriate permissions have been granted to the service machines to issue the necessary commands and diagnose instructions.

6.0 Installation Instructions

Have you Licensed DirMaint?

DirMaint is pre-installed on z/VM version 5 release 4, using VMSES/E, in a DISABLED state. **If, and only if**, you have a license for DirMaint FL540 proceed with the instructions to enable and customize it for use.

Deploying Linux™ on z/VM

If you plan to deploy Linux on z/VM go to the *z/VM: Getting Started with Linux on System z™* publication and follow the instructions for enabling, configuring and setting up DirMaint and Linux virtual servers.

This chapter describes the step-by-step procedures to enable and customize DirMaint. The step-by-step procedures are in two-column format. The steps to be performed are in bold, large numbers. Commands for these steps are on the left-hand side of the page in bold print. Additional information for a command may exist to the right of the command.

Each step of the instructions must be followed. Do not skip any step unless otherwise directed to. Throughout these instructions, the use of IBM-supplied default minidisk addresses and user IDs is assumed. If you use different user IDs, minidisk addresses, or SFS directories to support DirMaint, adapt these instructions as needed for your environment.

6.1 DirMaint Enablement and Customization Process Overview

The following is a brief description of the main steps to complete the installation enablement and customization of DirMaint.

- Set DirMaint to the ENABLED state.

This will allow DirMaint to run.

- Tailor DirMaint server machines

Information about file tailoring and initial activation of the program is presented in 6.3, “Tailor the DirMaint Server Machines” on page 23.

- Place DirMaint files into Production

Once the product files have been tailored and the operation of DirMaint is satisfactory, the product files are copied from the test BUILD disk(s) to production BUILD disk(s).

6.2 Enable DirMaint for Use

The following instructions will enable DirMaint for use on your system.

- 1 Log on to the **MAINT** user ID.
- 2 Establish write access to the Software Inventory Disk (MAINT 51D) if it is not already linked in write mode.

Note: If the MAINT 51D minidisk was accessed R/O, you will need to have the user who has it linked R/W link it as R/O. You then can issue the following command to obtain write access to it. **Do not use *mw mode***. Do not continue with these procedures until a R/W link is established to the 51D minidisk.

**link maint 51d 51d mr
access 51d d**

The MAINT 51D disk is where the VMSES/E system level software inventory files reside.

- 3 Set DirMaint to the enabled state.

service dirm enable

This command will perform the following:

- Set DirMaint as ENABLED in VMSES/E and within CP
- Update the CP system configuration file (SYSTEM CONFIG) on the CP primary (default CF1) parm disk.

What's Next?

Continue with 6.3, "Tailor the DirMaint Server Machines" on page 23.

Notes:

1. If, in the future, you are no longer licensed for DirMaint FL540, you **must** follow the instructions in Appendix D, "Disabling DirMaint" on page 60 to disable DirMaint.

6.3 Tailor the DirMaint Server Machines

This section is required. You will initialize the server machines with the DirMaint code. Additionally you will tailor the server machines for your operating environment. After completion of this section, DirMaint will be installed in test mode. This means the RUNMODE= entry in the CONFIG DATADVH file on the 41F minidisk will be set to *testing*. In this mode the DIRMAINT server will not place the source directory online. Any commands you issue to the DIRMAINT server are for test purposes only. When testing using the instructions found in the Appendix titled 'Test the Installation/Service for DirMaint' in the *Directory Maintenance Facility Tailoring and Administration Guide* (or the DirMaint web site), DirMaint will be in test mode only unless you change the RUNMODE= entry.

The following table describes:

- Sample files provided with DirMaint that have been installed to the 2C2 samples disk.
- The tailorable system file name of the sample file which the DirMaint servers will recognize and use.
- The minidisk where the DirMaint servers will look for the system file.
- The purpose of the system file.

For example, the CONFIG SAMPDVH sample file was copied as the CONFIG DATADVH system file on the 41F minidisk and is the DirMaint servers configuration file.

Figure 10 (Page 1 of 2). DirMaint FL540 Supplied Sample Files

Sample File Name	Configuration File Name	disk	File Description
ACCESS SAMPDVH	ACCESS DATADVH	29E	Provides location of user interface disk to the DIRMAINT EXEC.
AUTHDASD SAMPDVH	AUTHDASD DATADVH	1DF	Provides authorization of DASD requests for the DirMaint servers.
CONFIG SAMPDVH	CONFIG DATADVH	41F	Configuration file for the DirMaint servers.
CONFIGRC SAMPDVH	CONFIGRC DATADVH	41F	Configuration file for the DirMaint servers if using RACF. You need to move this file from 2C2 disk to the 41F disk if you are using RACF.
DATAMOVE SAMPDVH	DATAMOVE DATADVH	492	Defines key time events for the DATAMOVE server.
DIRMAINT SAMPDVH	DIRMAINT DATADVH	492	Defines key time events for the DIRMAINT server.
DIRMAIL SAMPDVH	DIRMAIL NEWMAIL	41F	A file containing mail like information on the DirMaint product.
DIRMSAPI EXEC SAMP	DIRMSAPI EXEC	41F	Sample of how to use the DirMaint application programming interface. Copy this to any disk you wish to run it from.
DIRMSAT SAMPDVH	DIRMSAT DATADVH	492	Defines key time events for the DIRMSAT server.
DVHNAMES SAMPDVH	DVHNAMES DATADVH	492	Defines key system administration and support players and how to communicate with them.
DVHPROFD SAMPDVH	DVHPROFA DIRMAINT	492	Defines the disks which the DIRMAINT server will access when initialized.
DVHPROFM SAMPDVH	DVHPROFM DATADVH	492	Defines the disks which the DATAMOVE server will access when initialized.

Figure 10 (Page 2 of 2). DirMaint FL540 Supplied Sample Files

Sample File Name	Configuration File Name	disk	File Description
DVHPROFS SAMPDVH	DVHPROFA DIRMSAT	492	Defines the disks which the DIRMSAT server will access when initialized.
150CMDS SAMPDVH	150CMDS DATADVH	41F	List of commands, command part handler routine, whether or not password authentication is required for processing the command, and the command set class for DIRMAINT 150A compatibility mode.
140CMDS SAMPDVH	140CMDS DATADVH	41F	List of commands, command part handler routine, whether or not password authentication is required for processing the command, and the command set class for DIRMAINT 140A compatibility mode.
EXTENT SAMPDVH	EXTENT CONTROL	1DF	Provides device specific information for the DirMaint servers.
PROFILE EXEC SAMP	PROFILE EXEC	492	Sample PROFILE EXEC for the DirMaint servers.

Warning!

Notes:

1. DIR2PROD EXEC, which runs when placing the DirMaint code into production, will copy the system files located on the 41F and 492 test disks to the 11F and 491 production disks. To avoid possibly back leveling these files, you **should only** make changes to these files on the 41F and 492 test disks.
2. You should **never** change the CONFIG DATADVH file. Changes you desire to make to the configuration files should be accomplished using override files as described in the *Directory Maintenance Facility Tailoring and Administration Guide* manual.

6.3.1 Tailor the DirMaint Installation

Note!

This section will require 5VMDIR40 to have write access to the DIRMAINT 1DF disk. Before continuing, please make sure this disk is linked appropriately.

- 1 Log on to **5VMDIR40** if you are not already logged on to it.
- 2 Access the disk where the DIR2PROD EXEC resides.

access 492 e

- 3 The file DVHPROFA DIRMAINT (located on the 5VMDIR40 492 minidisk) **must** have a filetype matching the user ID running the DIRMAINT server. If your server is not named DIRMAINT, then rename this file to have a filetype

matching the DIRMAINT server user ID. The file DVHPROFA DIRMSAT (only necessary if using a satellite server, located on the 5VMDIR40 492 minidisk) **must** have a filetype matching the user ID running the DIRMSAT server. If your satellite server is not named DIRMSAT, then rename this file to have a filetype matching the DIRMSAT server user ID.

- 4 Access certain DirMaint server and 5VMDIR40 test build minidisks which contain your production tailorable system files using the DIR2PROD exec.

dir2prod access_new 5VMDIR40 {DIRM | DIRMSFS}

DIR2PROD will access the DIRMAINT 1DF disk as filemode J, the 5VMDIR40 492 disk as filemode K, and the 5VMDIR40 41F disk as filemode L.

Use **DIRM** if installing to minidisks or **DIRMSFS** if installing to SFS.

- 5 The DIRMAINT, DATAMOVE, and DIRMSAT user ID's were created with a password of NOLOG on the z/VM version 5 release 4 system deliverable. Update the appropriate directory statements with valid passwords prior to continuing with the test instructions.

- 6 Create the USER INPUT file on the DIRMAINT 1DF disk for DirMaint's use.

Note: The 1DF disk was accessed previously as file mode J. The USER INPUT file must be a RECFM F LRECL 80 file when located on the 1DF disk.

- a. If you are a new user to DirMaint, copy your current monolithic directory (USER DIRECT on MAINT 2CC) to the DIRMAINT 1DF as USER INPUT.

```
link maint 2cc 2cc rr
acc 2cc c
copyfile user direct c user input j (olddate
```

- b. If migrating from DirMaint V1.5.0, FL410, FL510 or FL530 obtain your current user directory in monolithic format from your old system using the DIRMaint USER BACKUP command. This places a USER BACKUP file on the old system DIRMAINT 1DB disk. Combine this USER BACKUP file with the new system USER DIRECT file from the MAINT 2CC disk and copy to the new system DIRMAINT 1DF as USER INPUT.

- 7 If migrating from DirMaint V1.5.0, FL410, FL510 or FL530 copy the following files to your z/VM V5.4 installation:

- Any files listed in Figure 10 on page 23 which you have modified.
- All CONFIG nn DATADVH files you created.
- Files for which no sample is supplied, such as:

AUTHFOR CONTROL
DVHLINK EXCLUDE
PROFILE XEDIT
PWMON CONTROL
RPWLIST DATA

- See the Appendix titled 'DirMaint Tailorable and Non-Tailorable System Files' in the *Directory Maintenance Facility Tailoring and Administration Guide* (or the DirMaint web site) which lists all tailorable system files for DirMaint, what they are used for, and where an administrator can find more information.

8 See the "Data Files" section of the "Tailoring the DIRMAINT Service Machine" chapter in the *Directory Maintenance Facility Tailoring and Administration Guide* for further details on configuring and tailoring DirMaint and setting up the DirMaint server machine environments for your testing purposes. Files that need configuring are those such as listed in Figure 10 on page 23 or if migrating, the files you copied, or any other relevant files listed in the above publication.

Return here when you have completed all tailoring and setup work for the DirMaint servers.

What's Next?

You have now finished tailoring the DirMaint virtual machines. Continue with the instructions found in the Appendix titled 'Test the Installation/Service for DirMaint' in the *Directory Maintenance Facility Tailoring and Administration Guide* (or the DirMaint web site). When complete, return to 6.4, "Place DirMaint Into Production" on page 27 to place the new DirMaint code into production.

6.4 Place DirMaint Into Production

Important note

This procedure should only be done when you have successfully tested your DirMaint installation.

Placing the DirMaint code into production is a two step process:

- First the test code is moved from the test build disks to the server production minidisks.
- Then general user code is placed on the MAINT 19E minidisk, making it available to all users.

6.4.1 Copy the Server Code to the Server Minidisks

This step will be accomplished by using the PUT2PROD EXEC, which will call the DirMaint DIR2PROD EXEC. It will use the PPF name specified on the P2PPPF tag in the VM SYSSUF file. If the *ppfname* being used is different, you **MUST** change VM SYSSUF by using the VMFUPDAT SYSSUF command. To find out more information on the PUT2PROD and VMFUPDAT commands refer to the *z/VM: VMSES/E Introduction and Reference*.

Warning!

The DIR2PROD EXEC, called by PUT2PROD, will copy the system files located on the 41F and 492 test disks to the 11F and 491 production disks. To avoid possibly back leveling these files, you **should only** make changes to these files on the 41F and 492 test disks.

- 1** Log on to **MAINT**, if you are not already logged on to it.
- 2** If any of the DirMaint server machines, DIRMAINT, DATAMOVE, DIRMSTAT or 5VMDIR40 are logged on then you need to log them off. (You can use the Q NAMES command to see what user IDs are logged on. You can use the FORCE command to log off any user ID.)
- 3** Copy code from the test minidisks to the production minidisks.

put2prod dirm

6.4.2 Log On the Server Machines

This step will have you bring up the DirMaint server machines.

- 1** You need to make sure that RUNMODE= is set to *operational* in your override file (CONFIG nn DATADVH) to the CONFIG DATADVH file. If you ran the test instructions in the DirMaint Tailoring and Administration then your

CONFIG nn DATADVH file would reside on DIRMAINT's 155 minidisk; unless you moved it to the 41F minidisk (owned by user ID 5VMDIR40).

If you need to update your override file you can log on to the DIRMAINT user ID. You will need to hit the enter key twice in order to be able to enter the CMS XEDIT command to update your override file. Once you have completed your update you can run DVHBEGIN, then RLDDATA and finally #CP DISC to disconnect from this user ID.

- 2** Issue the following commands to reinitialize each DirMaint server. This must be done from a DirMaint privileged user (such as the MAINT user ID).

In the commands you may need to correct the system IPL to match the name of the CMS saved system, or change it to IPL by device address rather than by system name. It should match the IPL statement you included in the DIRMAINT machine's directory entry, or the IPL statement included in the profile used by the DIRMAINT machine's directory entry.

a For the DIRMAINT server

- 1** If not currently running

xautolog dirmaint

- 2** If running

dirm cp ipl cms parm autocr

b DATAMOVE server and DIRMSAT server (if you use it)

- 1** If not currently running

xautolog datamove
xautolog dirmsat

- 2** If running

dirm datamove cp ipl cms parm autocr
dirm satellite cp ipl cms parm autocr

- 3** You may want to have the DIRMAINT and DIRMSAT server machines automatically started when you IPL z/VM. To do so you would need to add an entry for each of them in the PROFILE EXEC on the AUTOLOG1 user ID

191 minidisk (or AUTOLOG2's PROFILE EXEC if you are using a security manager). The entries for the AUTOLOGx PROFILE EXEC would look like:

```
ADDRESS COMMAND CP XAUTOLOG DIRMAINT  
ADDRESS COMMAND CP XAUTOLOG DIRMSAT
```

Refer to the *z/VM: CP Planning and Administration Guide* for more information on adding entries in to the PROFILE EXEC of an AUTOLOGx user ID.

Note: The DATAMOVE service machine will automatically get autologged by the DIRMAINT server machine.

6.4.3 Obtaining DirMaint HELP

In order to obtain DirMaint American English help, either of the following must be issued:

- DIRM HELP
- HELP DVHAMENG

In order to obtain DirMaint Uppercase English help, either of the following must be issued:

- DIRM HELP
- HELP DVHUCENG

The Directory Maintenance Facility for z/VM, function level 540 product is now installed and built on your system.

7.0 Service Instructions

Note - z/VM Automated Service Procedure

The **preferred** method for installing service to DirMaint is to use the z/VM automated service procedure (use of the **SERVICE** and **PUT2PROD** commands).

If you have chosen to use the automated procedure to apply preventive (RSU) and CORrective service to your z/VM system, you need to follow the service instructions documented in the *z/VM: Guide for Automated Installation and Service* manual, instead of those presented here.

RSU Warning

If applying a DirMaint RSU, go to the instructions in Appendix B, "Applying a Recommended Service Upgrade (RSU) For DirMaint" on page 48. You will return to a step in this chapter as specified in that appendix.

This section of the Program Directory contains the procedure to install **CORrective service** to DirMaint with VMSES/E.

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

Notes:

1. **Each step of the servicing instructions must be followed. Do not skip any step unless otherwise directed to.** All instructions showing accessing of disks or SFS directories assumes the use of default minidisk addresses or SFS directory names. If different minidisk addresses are used, change the instructions appropriately.
2. The 5VMDIR40 user ID should be a privileged DirMaint user in order to issue restricted commands to the DIRMAINT server during these instructions. The AUTHFOR CONTROL file contains a list of privileged user IDs.
3. If the service instructions are not completed at one time, you can link and access the MAINT 51D minidisk in R/W mode, then issue VMFSETUP and continue with the step where you left off.
4. The Appendix titled 'DirMaint Tailorable and Non-Tailorable System Files' in the *Directory Maintenance Facility Tailoring and Administration Guide* (or the DirMaint web site) lists all tailorable system files for DirMaint, what they are used for, and where an administrator can find more information.

7.1 VMSES/E Service Process Overview

The overview will give a brief description of the main steps in servicing Directory Maintenance Facility for z/VM, function level 540 using VMSES/E.

- Merge Service
Use the VMFMRDSK command to clear the alternate apply disk before receiving new service. This allows you to easily remove the new service if a serious problem is found.
- Receive Service
The VMFREC command receives service from the delivery media and places it on the Delta disk.
- Apply Service
The VMFAPPLY command updates the version vector table (VVT), which identifies the service level of all the serviced parts. In addition, AUX files are generated from the VVT for parts that require them.
- Reapply Local Service (if applicable)
All local service must be entered into the software inventory to allow VMSES/E to track the changes and build them into the system. See Chapter 7 in the *z/VM: Service Guide* for this procedure.
- Build a New Level
The build task generates the serviced level of an object and places the new object on a BUILD disk.
- Place the New Service into Production
Once the service is satisfactorily tested it should be put into production by copying the new service to the production disk, re-saving the DCSS (Discontiguous Saved Segments), etc.

7.2 Servicing DirMaint

RSU Warning

If applying a DirMaint RSU, go to the instructions in Appendix B, “Applying a Recommended Service Upgrade (RSU) For DirMaint” on page 48. You will return to a step in this chapter specified in that appendix.

7.2.1 Prepare to Receive Service

Electronic Service (envelope file)

If you have received service electronically or on a CD-ROM, follow the appropriate instructions to retrieve and decompress the envelope files to your A-disk. The decompression is currently done by using the DETERSE module (shipped with VMSES/E).

The documentation envelope and the service (PTF) envelope files must have a file type of SERVLINK. Make note of the file names that you are using as you will need to enter them in place of the variable *envfilename* in the VMFREC commands that follow.

The *ppfname* used throughout these instructions is **5VMDIR40**, which assumes you are using the PPF supplied by IBM for DirMaint. If you have your own PPF override file for DirMaint, you should use your file's *ppfname* instead of **5VMDIR40**. The *ppfname* you use should be used **throughout** the rest of this procedure, unless otherwise stated.

- 1** Log on to the DirMaint service user ID **5VMDIR40**
- 2** Establish write access to the Software Inventory Disk (MAINT 51D) if it is not already linked in write mode.

Note: If the MAINT 51D minidisk was accessed R/O, you will need to have the user who has it linked R/W link it as R/O. You then can issue the following commands to obtain write access to it. **Do not use *mw* mode.**

**link maint 51d 51d mr
access 51d d**

The MAINT 51D disk is where the VMSES/E system level software inventory files reside.

- 3** Have the DirMaint CORrective tape mounted and attached to **5VMDIR40** as 181. If you have a CORrective service envelope (SERVLINK) file make sure that it is available on the A-disk or any minidisk or SFS directory accessed as file mode C.
- 4** Receive the documentation. VMFREC, with the INFO option, loads the documentation and displays a list of all the products on the media.

a If receiving from tape

vmfrec info

This command will load the service memo to the 191 disk.

b If receiving from an envelope file

vmfrec info (**env** *envfilename*)

envfilename is the file name of the documentation envelope (SERVLINK) file.

This command will load the service memo to the 191 disk.

- 5** Check the receive message log (\$VMFREC \$MSGLOG) for warning and error messages.

vmfview receive

Also, make note of which products and components have service. To do this, use the PF5 key to show all status messages which identify the components with service.

- 6** Read the product memo (5VMDIR40 MEMO) before going on.

xedit 5VMDIR40 memo

- 7** Setup the correct minidisk access order

vmfsetup 5VMDIR40 {DIRM | DIRMSFS}

Use **DIRM** for installing on minidisks or **DIRMSFS** for installing on SFS.

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

vmfmrdsd 5VMDIR40 {DIRM | DIRMSFS} apply

Use **DIRM** for installing on minidisks or **DIRMSFS** for installing on SFS.

This command clears the alternate APPLY disk.

- 9** Review the merge message log (\$VMFMRD \$MSGLOG). If necessary, correct any problems before going on. For information about handling specific merge messages, see the applicable *z/VM: Messages and Codes* or use online HELP.

vmfview mrd

7.2.2 Receive the Service

Note: If you are installing multiple service tapes or envelope files, you can receive all of the service for this product before applying and building it.

For **each** service tape or electronic envelope you want to receive, do the following:

1 Receive the Service

a If receiving the service from tape

vmfrec ppf 5VMDIR40 {DIRM | DIRMSFS}

Use **DIRM** for installing on minidisks or **DIRMSFS** for installing on SFS.

This command receives service from your service tape. All new service is loaded to the DELTA disk.

b If receiving the service from an envelope file

vmfrec ppf 5VMDIR40 {DIRM | DIRMSFS} (env *envfilename*)

Use **DIRM** for installing on minidisks or **DIRMSFS** for installing on SFS.

envfilename is the file name of the service (PTF) envelope (SERVLINK) file.

This command receives service from your service envelope. All new service is loaded to the DELTA disk.

- 2** Review the receive message log (\$VMFREC \$MSGLOG). If necessary, correct any problems before going on. For information about handling specific receive messages, see the applicable *z/VM: Messages and Codes* or use online HELP.

vmfview receive

7.2.3 Apply the Service

1 Apply the new service

vmfapply ppf 5VMDIR40 {DIRM | DIRMSFS}

Use **DIRM** for installing on minidisks or **DIRMSFS** for installing on SFS.

This command applies the service that you just received. The version vector table (VVT) is updated with all serviced parts and all necessary AUX files are generated on the alternate apply disk.

Note: If you receive a return code of 4 this may indicate that you have local modifications that need to be reworked so make sure you review the VMFAPPLY message log as documented in the next step.

2 Review the apply message log (\$VMFAPP \$MSGLOG). If necessary, correct any problems before going on. For information about handling specific apply messages, see the applicable *z/VM: Messages and Codes* or use online HELP.

vmfview apply

Note

If you get the message VMFAPP2120W then re-apply any local modifications before building the new DirMaint.

For further information on the local modification process, refer to the "Reworking Local Service and Modifications" chapter of the *z/VM: Service Guide*. Follow the steps that are applicable to your local modification.

The following substitutions need to be made in the *z/VM: Service Guide* when creating a local modification to DirMaint:

- **zvm** should be **5VMDIR40**
- *compname* should be **DIRM** or **DIRMSFS** (minidisk or SFS).
- *fm-local* should be the filemode where the 2C4 is accessed

If you have changed any of the installation parameters through a PPF override, you need to substitute your changed values where applicable.

Keep in mind that when you get to the "Return to the Appropriate Section to Build Remaining Objects" or "Rebuild Remaining Objects" step in the *z/VM: Service Guide*, you should return back to this program directory at 7.2.4, "Update the Build Status Table" on page 36.

7.2.4 Update the Build Status Table

1 Update the Build Status Table with serviced parts.

vmfbld ppf 5VMDIR40 {DIRM | DIRMSFS} (status

Use **DIRM** for installing on minidisks or **DIRMSFS** for installing on SFS.

This command updates the build status table.

Note

If the \$PPF files have been serviced you will get the following prompt:

```
VMFBLD2760I VMFBLD processing started
VMFBLD2185R The following source product parameter files have been serviced:
VMFBLD2185R 5VMDIR40 $PPF
VMFBLD2185R When source product parameter files are serviced, all product
parameter files built from them must be recompiled using VMFPPF
before VMFBLD can be run.
VMFBLD2185R Enter zero (0) to have the latest levels of the source product
parameter files copied to your A-disk and exit VMFBLD so you can
recompile your product parameter files with VMFPPF
Enter one (1) to continue only if you have already recompiled your
product parameter files with VMFPPF
```

0 Enter a 0 and complete the following steps before you continue.

```
VMFBLD2188I Building 5VMDIR40 $PPF on 191 (A) from level $PFnnnn
```

vmfppf 5VMDIR40 {DIRM | DIRMSFS}

Note: If you've created your own PPF override then use your PPF name instead of 5VMDIR40.

You should recompile all overrides to ensure they are at the proper level for future use.

**copy 5VMDIR40 \$ppf a = = d (olddate replace
erase 5VMDIR40 \$ppf a**

Note: Do not use your own PPF name in place of 5VMDIR40 for the COPY and ERASE commands.

**vmfbld ppf 5VMDIR40 {DIRM | DIRMSFS} (status
1**

Re-issue the VMFBLD command to complete updating the build status table. Use your PPF name, if you have an override. When you receive the prompt that was previously displayed, enter a 1 to continue.

- 2 View the build status messages and see what objects need to be built.

vmfview build

7.2.5 Build Service Objects

- 1 Rebuild DirMaint serviced parts.

vmfbld ppf 5VMDIR40 {DIRM | DIRMSFS} (serviced

Use **DIRM** for installing on minidisks or **DIRMSFS** for installing on SFS.

- 2 Review the build message log (\$VMFBLD \$MSGLOG). If necessary, correct any problems before going on. For information about handling specific build messages, see the applicable *z/VM: Messages and Codes* or use online HELP.

vmfview build

7.2.6 Additional Service Steps

- 1 Copy all CONFIG* DATADVH files from production disks back to test disks prior to placing the latest service into production.

dir2prod test_config 5VMDIR40 {DIRM | DIRMSFS} This step ensures any modifications made to the CONFIG* DATADVH configuration files since the last time service was applied exists on the test build disks prior to following the next into production steps.

Use **DIRM** for installing on minidisks or **DIRMSFS** for installing on SFS.

- 2 Update the DirMaint tailorable system files from latest service of the sample tailorable system files. The DIR2PROD exec will only replace files if it can determine the current level matches a serviced level, or is at a base level.

Note

The `update_files` option of DIR2PROD requires write access to the DIRMAINT 1DF minidisk. Therefore the DIRMAINT server must be shutdown in order to complete this step.

dir2prod update_files 5VMDIR40 {DIRM | DIRMSFS}

DIR2PROD will update the tailorable system files on the 5VMDIR40 492, 41F, and 29E minidisks, and the DIRMAINT 1DF minidisk.

Use **DIRM** for installing on minidisks or **DIRMSFS** for installing on SFS.

- 3 Remove obsolete files from the DELTA disk using the DIR2PROD EXEC. The DIR2PROD exec uses a default *ppfname* of **5VMDIR40** and a default *compname* of **DIRM**. If either the *ppfname* or *compname* being used is different, you will have to tell the DIR2PROD exec the names you are using. To find out more information on the DIR2PROD EXEC issue **dir2prod {? | help}**.

dir2prod clean_up pppname compname (count nn age nn action E/T

DIR2PROD will remove PTF part files on the 2D2 DELTA disk which have been obsoleted by more recent service. Parameters with the CLEAN_UP option are as follows:

count nn

nn is in the range of 1 to 10 indicating the number of duplicate files kept; the default is 2.

age nn

nn is in the range of 0 to 60 indicating the number of months to keep duplicate files; the default is 18.

action E/T

E will cause obsolete files to be erased while *T* will create files on the A-disk showing which files would be erased.

7.3 Test the New DirMaint Service

At this point you can test the service that was applied. Continue with instructions found in the the Appendix titled 'Test the Installation/Service for DirMaint' in the *Directory Maintenance Facility Tailoring and Administration Guide* (or the DirMaint web site), for the minimum steps necessary for ensuring that your new code is functional. When your testing is complete, return to 7.4, "Place Serviced DirMaint into Production" to place the service into production.

7.4 Place Serviced DirMaint into Production

Important note

Notes:

1. This procedure should only be done when you have successfully tested the new service. Once you perform this step you can not easily back off to your previous production code. See the "Removing Service Levels" chapter in the *z/VM: Service Guide* for further details regarding backing off service levels.
2. Make sure the RUNMODE= entry of **your override file** to the CONFIG DATADVH file (on the 41F minidisk) has been set to *operational*.

Placing the DirMaint code into production is a two step process:

- First the test code is moved from the test build disks to the server production minidisks.
- Then the general user code is placed onto the MAINT 19E minidisk making the new DirMaint code available to all users.

7.4.1 Copy the Server Code to the Production Minidisks

This step will be accomplished by using the DIR2PROD EXEC. The DIR2PROD exec uses a default *ppfname* of **5VMDIR40** and a default *compname* of **DIRM**. If either the *ppfname* or *compname* being used is different, you will have to tell the DIR2PROD exec the names you are using. To find out more information on the DIR2PROD EXEC issue **dir2prod {? | help}** after accessing the 492 minidisk.

Note: If you have arrived here from testing the DIRMAINT server, then the 5VMDIR40 user ID should have write access to the 491 and 11F minidisks when it is logged on. If this is not the case, then the DIRMAINT server will first have to be logged off.

- 1** Log on to 5VMDIR40, if you are not already logged on to it.
- 2** Access the disk where the DIR2PROD EXEC resides

access 492 e

- 3 Use the DIR2PROD exec to copy code from the 492 and 41F test minidisks to the 491 and 11F production minidisks.

dir2prod prod 5VMDIR40 {DIRM | DIRMSFS} Use **DIRM** for installing on minidisks or **DIRMSFS** for installing on SFS.

logoff

7.4.2 Copy the DirMaint Production Code to MAINT's Minidisks

This step needs to be performed so that the new DirMaint code is available to general users to use.

- 1 Log on as **MAINT**

Note: The following steps should be done from the MAINT user ID so that the appropriate CMS shared segment can be saved.

- 2 Copy the system Y-disk code to MAINT's 19e disk

a If servicing using minidisks

link 5VMDIR40 29e addr rr *addr* is any free disk address on the MAINT user ID
access addr e
access 19e f
vmfcopy * * e = f (prodid 5VMDIR40%DIRM replace olddate

Note: DirMaint users require files to be placed on the 19E disk.

b If servicing using SFS

access VMSYS:5VMDIR40.DIRM.MAINT19E e
access 19e f
vmfcopy * * e = f (prodid 5VMDIR40%DIRM replace olddate

Note: DirMaint users require files placed on the 19E disk.

- c** Re-save the CMS saved system, to return the Y-disk (product code or MAINT's 19E disk) to 'shared' status. See the 'Placing (Serviced) Components into Production' section of the *z/VM: Service Guide* for detailed information about how to save the CMS saved system.

3 Copy American English help files to MAINT's 19D disk

a If servicing using minidisks

link 5VMDIR40 29d *addr2* rr *addr2* is any free disk address on the MAINT user ID
access *addr2* e
access 19d f
vmfcopy * * e = = f (prodid 5VMDIR40%DIRM replace olddate

Note: Users wishing to access DirMaint help files require the 19D disk.

b If servicing using SFS

access VMSYS:5VMDIR40.DIRM.HELP e
access 19d f
vmfcopy * * e = = f (prodid 5VMDIR40%DIRM replace olddate

Note: Users wishing to access DirMaint help files require the 19D disk.

c In order to obtain DirMaint American English help, either of the following must be issued:

- DIRM HELP
- HELP DVHAMENG

d Re-build the CMS HELP logical saved segment, to include DirMaint's help files from the AMENG Help (MAINT's 19D) disk. See the 'Placing (Serviced) Components into Production' section of the *z/VM: Service Guide* for detailed information about how these segments should be saved on your system. (Note that you will need to use **(all** instead of **(serviced** on the VMSES/E VMFBLD command when re-building any segments.)

4 If the Uppercase English help files have been installed, place the files into production from 5VMDIR40's 502 disk to MAINT's 402 disk

a If installing using minidisks

link 5VMDIR40 502 *addr* rr *addr* is any free disk address on the MAINT user ID
access *addr* e
access 402 f
vmfcopy * * e = = f (prodid 5VMDIR40%DIRM replace olddate

b If installing using SFS

```
access VMSYS:5VMDIR40.DIRM.HELPU e
access 402 f
vmfcopy * * e = = f (prodid 5VMDIR40%DIRM replace olddate
```

c In order to obtain DirMaint Uppercase English help, either of the following must be issued:

- DIRM HELP
- HELP DVHUCENG

7.4.3 Reinitialize the Server Machines

The server machines must be reinitialized in order for them to use the new production code.

Issue the following commands to reinitialize each DirMaint server. This must be done from a DirMaint privileged user (such as the MAINT user ID).

In the commands you may need to correct the system IPL to match the name of the CMS saved system, or change it to IPL by device address rather than by system name. It should match the IPL statement you included in the DIRMAINT machine's directory entry, or the IPL statement included in the profile used by the DIRMAINT machine's directory entry.

1 For the DIRMAINT server

a If not currently running

```
xautolog dirmaint
```

b If running

```
dirm cp ipl cms parm autocr
```

2 DATAMOVE server and DIRMSAT server (if you use it)

a If not currently running

```
xautolog datamove
xautolog dirmsat
```

b If running

dirm datamove cp ipl cms parm autocr
dirm satellite cp ipl cms parm autocr

**You have now finished servicing Directory Maintenance Facility for
z/VM, function level 540**

Appendix A. Local Modification Example: \$EXEC File

Note!

Notes:

1. This example provides an example for updating the DVHPXR exec part. You should substitute the file name of the part you are modifying for DVHPXR in the instructions. Since the output of the instructions is to create an EXEC file type with an abbreviation of EXC, you should substitute the abbreviation of the file type you are modifying for EXC. See chapter 7 of the *z/VM: Service Guide* for further information on local modifications.
2. If you use the automated service procedures you can use the LOCALMOD exec to put on a local modification for DirMaint. To do so, use the instructions in the Appendix titled "Apply or Rework a Local Modification" in the *z/VM: Guide for Automated Installation and Service* manual. All you will need to provide is the file name and file type of the part you want to modify.

For further information on the local modification process, refer to the "Installing Local Service" chapter of the *z/VM: Service Guide*. Some of the steps may be in a different order so you can cross reference the example against the *z/VM: Service Guide* to help with the correct order.

1 Log on to the DirMaint service user ID **5VMDIR40**

2 Establish write access to the Software Inventory Disk (MAINT 51D) if it is not already linked in write mode.

Note: If the MAINT 51D minidisk was accessed R/O, you will need to have the user who has it linked R/W link it as R/O. You then can issue the following commands to obtain write access to it. **Do not use *mw* mode.**

**link maint 51d 51d mr
access 51d d**

The MAINT 51D disk is where the VMSES/E system level software inventory files reside.

3 Set up the required access order

vmfsetup 5VMDIR40 {DIRM | DIRMSFS}

compname is **DIRM** if using minidisks or **DIRMSFS** if using SFS

4 Create/Edit the AUXLCL file for the part to update

Note: This step can be skipped when applying a local modification to a full part replacement part.

```
xedit dvhpxr auxlcl fmlocal (noprof fmlocal is the fm of the local modification (2C4)
====> input UPDATE1 LCL LCL0001 * comment minidisk or directory
====> file
```

5 XEDIT Source file to create the update file

Note: You do not need the XEDIT control (ctl) option when editing a full part replacement part.

```
xedit dvhpxr $exec (ctl dvhvm fmlocal is the fm of the local modification (2C4)
====> fm fmlocal minidisk or directory
```

6 Make your desired changes

7 Issue the XEDIT file command when changes are completed

```
====> file
```

8 Use EXECUPDT to generate an interpretive exec with the changes

Notes:

- a. The source parts on the 2B1 minidisk that EXECUPDT will be issued against must first be unpacked.
- b. This step can be skipped when applying a local modification to a full part replacement part.

```
copyfile dvhpxr $exec * = = (unpack oldd
execupdt dvhpxr exec * (ctl dvhvm outmode a hist sid nocomments
```

9 Copy the updated exec to the LOCALMOD disk

```
vmfrepl dvhpxr exec 5VMDIR40 DIRM = exec a ($select ftabbr cex logmod I0001 outmode localmod
erase dvhpxr * a
```

vmfrepl also updates the local service level (VVTLCCL) of the software inventory and the \$SELECT file to create a record of the local modification.

10 Build the DirMaint product by issuing VMFBLD

vmfbld ppf 5VMDIR40 {DIRM | DIRMSFS} (serviced

Use **DIRM** for installing on minidisks or **DIRMSFS** for installing on SFS.

Appendix B. Applying a Recommended Service Upgrade (RSU) For DirMaint

Note - z/VM Automated Service Procedure

The **preferred** method for installing service to DirMaint is to use the z/VM automated service procedure (use of the **SERVICE** and **PUT2PROD** commands).

If you have chosen to use the automated procedure to apply preventive (RSU) and CORrective service to your z/VM system, you need to follow the service instructions documented in the *z/VM: Guide for Automated Installation and Service* manual, instead of those presented here.

Note!

You should first read through the RSU hard copy memo contained with the deliverable before continuing with these instructions.

The RSU is structured to install all PTFs included on the RSU plus the files containing the preapplied service and prebuilt objects. All PTF-related files are loaded to the delta disk. The file containing the preapplied service, i.e. containing the results of VMFAPPLY, is loaded to the alternate apply disk and the contents of the files containing prebuilt objects are loaded to the appropriate build disks.

Points to consider about using the Product Service Upgrade procedure are:

- This process will not alter any of your tailored flat files (files serviced by full part replacement only such as CONFIG DATADVH) in any way. Sample files which may have been updated using update files will need to have those updates reapplied.
- Planning must be done (such as determining any disk size changes, and determining what service, if any, on your existing system is not contained on the RSU) prior to actually loading the service from the RSU. These tasks will be discussed.

The following is an overview of what tasks need to be performed during the PSU procedure:

- Prepare System

In this task, you will receive the documentation contained on the RSU and determine the DASD required to install the RSU.

- Merge Service

Use the VMFMRDSK command to clear the alternate apply disk before receiving the RSU. This allows you to easily remove the new service if a serious problem is found.

- Receive Service

The VMFINS command receives service from the RSU and places it on the Delta disk.

- Apply Additional Service

The VMFAPPLY command updates the version vector table (VVT), which identifies the service level of all the serviced parts. In addition, AUX files are generated from the VVT for parts that require them. These steps are used to reapply service that was not contained on the RSU.

- Reapply Local Service (if applicable)

All local service must be entered into the software inventory to allow VMSES/E to track the changes and build them into the system.

- Build New Levels

The build tasks generates the serviced level of an object and places the new object on a BUILD disk.

- Place the New Service into Production

Once the service is satisfactorily tested it should be put into production by copying the new service to the production disk, re-saving the DCSS (Discontiguous Saved Segments), etc.

B.1 Apply DirMaint RSU

B.1.1 Prepare Your System for Service Refresh

The *ppfname* used throughout these instructions is **5VMDIR40**, which assumes you are using the PPF supplied by IBM for DirMaint. If you have your own PPF override file for DirMaint you should use your file's *ppfname* instead of **5VMDIR40**. The *ppfname* you use should be used **throughout** the rest of this procedure.

Electronic Service (envelope file)

If you have received the RSU electronically or on CD-ROM, follow the appropriate instructions to retrieve and decompress the envelope file to your A-disk. The decompression is currently done by using the DETERSE MODULE (shipped with VMSES/E).

The service (RSU PTF) envelope files must have a file type of SERVLINK. Make note of the file names that you are using as you will need to enter them in place of the variable *envfilename* in the VMFINS commands that follow.

The documentation envelope file will be a readable flat file after DETERSE is run against it. It will not get used in the following RSU application instructions.

- 1** Log on to the Directory Maintenance Facility for z/VM, function level 540 service user ID 5VMDIR40
- 2** Establish write access to the Software Inventory Disk (MAINT 51D) if it is not already linked in write mode.

Note: If the MAINT 51D minidisk was accessed R/O, you will need to have the user who has it linked R/W link it as R/O. You then can issue the following commands to obtain write access to it. **Do not use *mw mode*.**

**link maint 51d 51d mr
access 51d d**

The MAINT 51D disk is where the VMSES/E system level software inventory files reside.

3 Mount the RSU tape on the tape drive as virtual device 181. You must use 181. If you have the RSU in an envelope (SERVLINK) file make sure that it is available on the A-disk or any minidisk or SFS directory accessed as file mode C.

4 Receive the documentation:

Receive the documentation on the RSU. This step will also load the cumulative Apply Status Table (DIRM SRVAPPS) which identifies all preapplied service contained on the RSU. These files are loaded to the 51D disk.

a If receiving the RSU from tape

vmfins install info (nomemo

b If receiving the RSU from an envelope file

vmfins install info (nomemo env *envfilename*

envfilename is the file name of service (RSU PTF) envelope file (SERVLINK) that represents volume 1 of the RSU.

5 Determine DASD sizes for disks to receive service:

In order to receive the service from the RSU, you need to have adequate space available on the alternate APPLY, DELTA, and BUILD disks. The required sizes are identified in the DirMaint documentation (5VMDIR40 MEMO D) received in the previous step.

6 Setup the correct minidisk access order

vmfsetup 5VMDIR40 {DIRM | DIRMSFS}

Use **DIRM** for installing on minidisks or **DIRMSFS** for installing on SFS.

7 Merge the APPLY disks for DirMaint:

Next, you must prepare your system to receive the service from the RSU. To do this, you must first clear the alternate apply disk for receipt of the service from the RSU.

Enter the VMFMRDSK command to merge the alternate apply disk to the apply disk. This will clear the alternate apply disk.

vmfmrdsk 5VMDIR40 {DIRM | DIRMSFS} apply

Use **DIRM** for installing on minidisks or **DIRMSFS** for installing on SFS.

8 Invoke the VMFPSU command to identify any local modifications.

vmfpsu 5VMDIR40 {DIRM | DIRMSFS}

Use **DIRM** for installing on minidisks or **DIRMSFS** for installing on SFS.

This command produces an output file that contains information about the service on the RSU compared against the service and local modifications on your system. The file name is **5VMDIR40 PSUPLAN**. If local modifications touch parts that have been serviced, the DVH\$PSU\$ \$SELECT file will be created or updated to force the rebuild of those parts.

B.1.2 Receive the Preapplied, Prebuilt Service

1 Refresh the DirMaint service disks by loading new service from the RSU:

a If receiving the RSU from tape

vmfins install ppf 5VMDIR40 {DIRM | DIRMSFS} (nomemo nolink

Use **DIRM** for installing on minidisks or **DIRMSFS** for installing on SFS.

b If receiving the RSU from an envelope file

vmfins install ppf 5VMDIR40 {DIRM | DIRMSFS} (nomemo nolink env *envfilename*

Use **DIRM** for installing on minidisks or **DIRMSFS** for installing on SFS.

If you have more than one envelope for the RSU then you need to enter the file name of volume 1 of the RSU. You will be prompted for the others when needed.

```
VMFINS2767I Reading VMFINS DEFAULTS B for additional options
VMFINS2760I VMFINS processing started
VMFINS2601R Do you want to create an override for :PPF 5VMDIR40 DIRM :PRODID
5VMDIR40%DIRM?
Enter 0 (No), 1 (Yes) or 2 (Exit)
0
```

- 2 Check the install message log (\$VMFINS \$MSGLOG) for warning and error messages. If necessary, correct any problems before going on. For information about handling specific install messages, see the applicable *z/VM: Messages and Codes* or use online HELP.

vmfview install

B.1.3 Process Additional Service

- 1 Apply additional service:

The VMFAPPLY command is used to reapply service that was not contained on the RSU just installed for the component.

Applying service with preapplied, prebuilt service will reapply any reach-ahead service that may be on the system **or** indicate that there are no reach-ahead PTFs to be applied.

vmfapply ppf 5VMDIR40 {DIRM | DIRMSFS}

Use **DIRM** for installing on minidisks or **DIRMSFS** for installing on SFS.

Messages VMFAPP2122E and VMFAPP2109R will be displayed only if you have reach-ahead service that needs to be reapplied.

VMFAPP2122E THE SET OF PTFs IN THE APPLY STATUS TABLE (5VMDIR40 SRVAPPS) ON THE 2A2 (G) DISK IS NOT A SUBSET OF THE PTFs IN THE HIGHEST LEVEL APPLY STATUS TABLE ON THE 2A6 (F) DISK. THIS IS AN INCONSISTENT STATE
VMFAPP2109R VMFAPPLY WILL AUTOMATICALLY CORRECT THE PROBLEM IDENTIFIED BY MESSAGE 2122E BY INCLUDING THE MISSING PTFs IN THE CURRENT APPLY LIST. ENTER (1) TO CONTINUE; (0) TO QUIT.

1

If you receive these messages, enter **1** for VMFAPPLY to reapply the reach-ahead service.

- 2 Check the apply message log (\$VMFAPP \$MSGLOG) for warning and error messages. If necessary, correct any problems before going on. For information about handling specific apply messages, see the applicable *z/VM: Messages and Codes* or use online HELP.

vmfview apply

- 3 If necessary, rework local service

The **5VMDIR40 PSUPLAN** (output from running the VMFPSU command in a previous step), can be used to indicate what local service or modifications are affected by the RSU. If a PTF is applied and it contains service to a part for which you have a local modification, you will need to rework the local modification. Refer to the *z/VM Service Guide*.

B.1.3.1 Build the New Service Level

The last task is to rebuild all objects that were affected by reach-ahead service that was reapplied, local modifications, and saved segments. Choose one of the following sections to proceed with based on whether there is any reach ahead service or local modifications to be reapplied.

- If there is reach-ahead service or a local modification that needs to be reapplied, continue with step 7.2.4, “Update the Build Status Table” on page 36.
- If there is no reach ahead service (the VMFAPPLY step indicated no additional PTF's have been applied) or local modifications to be reapplied, then all objects or parts have been built and received to the test build disks during the receive of the RSU. Installation of the RSU is complete. It is not necessary to do the build step since there will not be any objects or parts flagged to be built. Continue with step 7.3, “Test the New DirMaint Service” on page 40.

Appendix C. Moving DirMaint to SFS Directories and Creating a PPF Override

By default, Directory Maintenance Facility for z/VM, function level 540 is installed to minidisks as part of the z/VM V5.4 System deliverable unless you choose to install DirMaint to SFS during the initial z/VM V5.4 installation. If you did not install DirMaint into SFS directories and want to move it now, you can. Refer to Figure 6 on page 13 to see which minidisks can reside in SFS. You can use either the default file pool, VMSYS, or a file pool of your choosing.

A summary of the steps that are needed to place DirMaint into SFS are:

- Allocate space in the user-defined or default file pool
- Provide the installation user ID, 5VMDIR40, access to the file pool
- Create the necessary DirMaint 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 DirMaint into SFS directories **using the defaults defined in the 5VMDIR40 PPF file** you should use the **MOVE2SFS** command, as documented in the *z/VM V5.4: CP Commands and Utilities Reference* manual.
- If you want to place DirMaint into your **own user-defined file pool or SFS directories**, continue with the instructions in C.1, "Setup SFS File Pool and Directories" on page 55.
- If you **only need to create a PPF override**, continue with the instructions in C.3, "Create Product Parameter File (PPF) Override" on page 57.

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 V5.4: CP Commands and Utilities Reference*) you should now return to your original section to continue.

C.1 Setup SFS File Pool and Directories

Notes:

1. The steps that follow help you determine the DirMaint file pool space requirements, file pool enrollment, and SFS directory definitions. If not all of these steps are required - for example, if 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 file pool name, VMSYS, substitute it in any place you see the text 'user-defined file pool' or variable *userfilepool*.
3. For more information about planning for, generating and managing a file pool and server, see *z/VM V5.4: CMS File Pool Planning, Administration and Operation*.

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

If you intend to use all of the default DirMaint SFS directories, the 4K block requirements for each directory are summarized in Figure 6 on page 13.

This information will be used when the 5VMDIR40 user ID is enrolled in the user-defined file pool.

- 2** Enroll user 5VMDIR40 in the user-defined file pool using the ENROLL USER command:

```
ENROLL USER 5VMDIR40 userfilepool: (BLOCKS blocks
```

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** Determine if there are enough blocks available in the file pool to install DirMaint. This information can be obtained from the QUERY FILEPOOL STORGRP command. The output from this command is a list of storage groups and the number of 4K blocks free. If the number of blocks free is smaller than the total 4K blocks needed (refer to Figure 6 on page 13 to obtain total blocks needed) to install DirMaint you need to add space to the file pool. See *z/VM V5.4: CMS File Pool Planning, Administration, and Operation* manual for information on adding space to a file pool.

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

Note: All of the DirMaint subdirectories are shown in the create directory commands. If you are not planning to create all of them, then just enter the commands for the ones you are planning to create.

A complete list of default DirMaint SFS directories is provided in Figure 6 on page 13.

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.

```
set filepool userfilepool:  
create directory userfilepool:5VMDIR40.DIRM  
create directory userfilepool:5VMDIR40.DIRM.object  
create directory userfilepool:5VMDIR40.DIRM.source  
create directory userfilepool:5VMDIR40.DIRM.localsam  
create directory userfilepool:5VMDIR40.DIRM.sample  
create directory userfilepool:5VMDIR40.DIRM.delta  
create directory userfilepool:5VMDIR40.DIRM.applyalt  
create directory userfilepool:5VMDIR40.DIRM.applyprod  
create directory userfilepool:5VMDIR40.DIRM.help  
create directory userfilepool:5VMDIR40.DIRM.helpu  
create directory userfilepool:5VMDIR40.DIRM.maint19e
```

If necessary, see the *z/VM V5.4: CMS Commands and Utilities Reference* manual for more information about the CREATE DIRECTORY command.

- 5 If you intend to use an SFS directory as the work space for the 5VMDIR40 user ID, update the IPL control statement in the 5VMDIR40 CP user directory entry to look like:

```
IPL CMS PARM FILEPOOL userfilepool
```

This will cause CMS to automatically access 5VMDIR40 top directory as file mode A. Refer to the *z/VM:CP Planning and Administration* for information on updating the CP user directory.

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

- 1 Copy the files from the DirMaint minidisks (or from the VMSYS file pool if DirMaint 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 13 for the default minidisk and SFS directory names for DirMaint.

access *vdev* e

access *dirid* f

vmfcopy * * e = = f (prodid 5VMDIR40%DIRM olddate replace

Where

- *vdev* is the minidisk you are copying files from. If you are copying from SFS then substitute the SFS directory name in place of *vdev*.
- *dirid* is the name of the (target) SFS directory that you are copying files to.
- 5VMDIR40%DIRM is the PRODID defined within the 5VMDIR40 PPF file for the minidisk and SFS DirMaint components.

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

C.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 DirMaint 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 5VMDIR40 \$PPF or 5VMDIR40 PPF files to change the VMSYS file pool name or any other installation parameters. If the 5VMDIR40 \$PPF file is serviced, the existing \$PPF file will be replaced, and any changes to that file will be lost. By creating your own \$PPF override, your updates will be preserved.

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

1 Create a new \$PPF override file or edit an existing override file.

xedit *overname* \$PPF *fm2*

overname is the PPF override file name (such as "myDIRM") that you want to use.

fm is an appropriate file mode. If you create this file yourself, specify a file mode of A.

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

2 Create (or modify as required) the Variable Declarations (:DCL.) section for the DIRMSFS override area so that it resembles the :DCL. section as shown below.

Notes:

a. If you service by using the automated service commands, SERVICE, PUT2PROD and LOCALMOD, then you will want to make sure you create an override to the SERVP2P \$PPF for the DIRMSFS .and DIRMSFSP2P components. To do this you will follow the example below with the following changes:

- The OVERLST statement should be:
:OVERLST. DIRMSFS DIRMSFSP2P
- The :DIRMSFS statement should be:
:DIRMSFS. DIRMSFS SERVP2P
- Repeat the DCL update but change the :DIRMSFS to be
:DIRMSFSP2P. DIRMSFSP2P SERVP2P

```
:OVERLST. DIRMSFS
*
* ===== *
* Override Section for Initial Installation (Using SFS Directories) *
* ===== *
:DIRMSFS. DIRMSFS 5VMDIR40
:DCL. UPDATE
&INST191 DIR MYPOOL1:5VMDIR40
&BASEZ DIR MYPOOL1:5VMDIR40.DIRM.OBJECT
&BASIZ DIR MYPOOL1:5VMDIR40.DIRM.SOURCE
&LMODZ DIR MYPOOL1:5VMDIR40.DIRM.LOCALMOD
```



```

&SAMPZ DIR MYPOOL1:5VMDIR40.DIRM.SAMPLE
&DELTZ DIR MYPOOL1:5VMDIR40.DIRM.DELTA
&APPLX DIR MYPOOL1:5VMDIR40.DIRM.APPLYALT
&APPLY DIR MYPOOL1:5VMDIR40.DIRM.APPLYPROD
&BLD0Z DIR MYPOOL1:5VMDIR40.DIRM.MAINT19E
&BLD6Z DIR MYPOOL1:5VMDIR40.DIRM.HELP
&BLD6Z2 DIR MYPOOL1:5VMDIR40.DIRM.HELPU
:EDCL.
:END.

```

This override will replace the **:DCL.** section of the DIRMSFS override area of the 5VMDIR40 \$PPF file.

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

Now that the *overname* PPF file has been created, you should specify *overname* instead of 5VMDIR40 as the PPF name to be used for any VMSES/E commands that require a PPF name.

If you service by using the automated service commands, e.g. SERVICE, PUT2PROD, you need to update the VM SYSSUF Software Inventory table. If you created a PPF override to the SERVP2P \$PPF file then you need to make sure that the override name you created is reflected in the PPF tags for DirMaint in the VM SYSSUF table. You will use the new PPF override name with the DIRMSFS component name twice and the new PPF override name with the DIRMSFSP2P component name once in the change to the VM SYSSUF table. You can use the VMFUPDAT SYSSUF command to view and change the VM SYSSUF table PPF information.

Appendix D. Disabling DirMaint

If you had previously licensed and enabled DirMaint FL540 for use, and no longer are licensed for DirMaint, you need to explicitly disable it. Perform the following steps to disable DirMaint.

- 1** Log on to the **MAINT** user ID.
- 2** Retrieve a copy of your current DirMaint user ID directory along with passwords, using the following DirMaint commands. The file **USER WITHPASS** will be sent to your virtual card reader (you will want to take appropriate security precautions with this file as it contains passwords). You can read in this file using the **CMS RECEIVE** command and name it whatever you want. This should now be used as your CP user directory.

dirm disable
dirm user withpass

- 3** You should log off all of the DirMaint server machines, **DIRMAINT DATAMOVE** and **DIRMSAT**. If you had updated the **AUTOLOG1** or the **AUTOLOG2 PROFILE EXEC** to automatically start **DIRMAINT** or **DIRMSAT** then you need to remove them from there.

- 4** If the Software Inventory disk (51D) was accessed R/O (read only) then establish write access to the Software Inventory disk.

Note: If the MAINT 51D minidisk was accessed R/O, you will need to have the user that has it accessed R/W link it R/O. You then can issue the following commands to obtain R/W access to it.

link MAINT 51d 51d mr
access 51d d

The 51D minidisk is where the VMSES/E Software Inventory files and other product dependent files reside.

- 5** Set DirMaint to the disabled state.

service dirm disable

This command will perform the following:

- Set DirMaint as **DISABLED** in **VMSES/E** and within **CP**.
- Update the CP system configuration file (**SYSTEM CONFIG**) on the CP primary (default **CF1**) parm disk.

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