



**Program Directory for
DFSMS/VM® function level 221**

Program Number 5741-A05

for Use with
z/VM™ version 5

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GI11-4804-01

Note

Before using this information and the product it supports, be sure to read the general information under "Notices" on page 84.

This program directory, dated December 2005, applies to DFSMS/VM, function level 221 (DFSMS/VM), Program Number 5741-A05.

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1 Summary of Changes

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

- 1 • Lines flagged with revision indicator of '1' indicate changes made between March 1998 and April 1998.
1 The major change with this revision was to correct the RMSONLY component name within the
1 VMSES/E command invocation instructions. It was previously incorrectly shown as RSMONLY.
- 2 • Lines flagged with revision indicator of '2' indicate changes made between April 1998 and June 1999.
- 3 • Lines flagged with revision indicator of '3' indicate changes made between July 1999 and February
3 2001.
- 4 • Lines flagged with revision indicator of '4' indicate changes made between February 2001 and July
4 2001.
- 5 • Lines flagged with revision indicator of '5' indicate changes made between July 2001 and May 2002.
- 6 • Lines flagged with revision indicator of '6' indicate changes made between May 2002 and September
6 2004.
- 7 • Lines flagged with revision indicator of '7' indicate changes made between September 2004 and
7 December 2005.

2 DFSMS/VM Web Information

2 The DFSMS/VM home page can be visited at URL: www.ibm.com/eservers/zseries/zvm/related/dfsms
2 where you will find:

- 2 • Additional useful information, hints, and tips.
 - 2 • A postscript version of the DFSMS/VM 221 program directory available for downloading.
 - 2 • Appendix A, "Year 2000 Enhancements for DFSMS/VM" on page 73 available for viewing online.
- 2 Plan on visiting this URL often.

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 DFSMS/VM. The *DFSMS/VM Customization* manual will be used for install verification and optional customization procedures after the install and post install procedures for DFSMS/VM are complete. You should read all of this program directory before installing the program and then keep it for future reference.

A certain amount of preparation must be completed to facilitate the installation of DFSMS/VM. This preparation includes:

- Understanding the information in the *DFSMS/VM Planning Guide*, if you are installing space management or minidisk management
- Understanding the information in the *DFSMS/VM Removable Media Services User's Guide and Reference*, if you are installing RMS
- Ensuring that corequisite software is installed and available
- Deciding on which functions you want installed (minidisk management, space management, removable media services)
- Determining the names of virtual machines if you do not want to use the defaults
- Deciding on the number of servers for your installation
- Defining and preparing the required storage space for the product code
- Establishing the required SFS file spaces and subdirectories for the DFSMS/VM system files and work space
- Understanding the VMSES/E process for installing a product.
- Utilizing the preinstallation and postinstallation checklists found in Appendix C, "Installation Planning Checklists" on page 81.

Note

3 The IBM Data Facility Distributed Storage Manager (DFDSM™) product, announced on 7/25/2000, has
3 been renamed to: Tivoli® Storage Manager, S/390 Edition. Therefore, any reference to DFDSM
3 within the DFSMS/VM Function Level 221 publications pertains to Tivoli Storage Manager, S/390
3 Edition.

The program directory contains the following sections:

- 2.0, “Program Materials” on page 4 identifies the basic and optional program materials and documentation for DFSMS/VM.
- 3.0, “Program Support” on page 8 describes the IBM support available for DFSMS/VM.
- 4.0, “Program and Service Level Information” on page 9 lists the APARs (program level) and PTFs (service level) incorporated into DFSMS/VM.
- 5.0, “Installation Requirements and Considerations” on page 12 identifies the resources and considerations for installing and using DFSMS/VM.
- 6.0, “Installation Instructions” on page 23 provides detailed installation instructions for DFSMS/VM.
- 7.0, “Service Instructions” on page 57 provides detailed servicing instructions for DFSMS/VM.
- Appendix A, “Year 2000 Enhancements for DFSMS/VM” on page 73 provides detailed information on year 2000 support for DFSMS/VM.
- Appendix B, “Local Modification Example: ISMF EXEC File” on page 79 provides a local modification example for DFSMS/VM.
- Appendix C, “Installation Planning Checklists” on page 81 contains preinstallation and postinstallation checklists for DFSMS/VM.

Before installing DFSMS/VM, read 3.1, “Preventive Service Planning” on page 8. This section tells you how to find any updates to the information and procedures in this program directory.

1.1 Program Description

DFSMS/VM is a feature of z/VM designed to:

1. manage files in Shared File System (SFS) file pools,
2. help you move CMS minidisks between like and unlike direct access storage devices (DASD) quickly and efficiently, and
3. provide command and Callable Services Library (CSL) interface to removable media library support.

There are four major functional components of DFSMS/VM:

1. User interface consists of:
 - Interactive Storage Management Facility (ISMF), which offers a set of menus, data entry panels, and list panels that run on the user’s virtual machine. Through ISMF, you can select applications to:
 - Perform storage management functions against the file and minidisk lists
 - Create file, minidisk, and management class lists based on your criteria
 - Define management classes
 - Edit and test automatic class selection (ACS) routines

- Define the installation's space management policies in DFSMS configurations
 - Activate DFSMS/VM configurations.
 - DFSMS module, which provides a command interface to most minidisk and storage management functions
 - DFSMSRM module, which provides a command interface to removable media services functions
 - A set of CSL-routine programming interfaces to removable media services functions.
2. Minidisk management provides:
- A high-performance data mover for copying CMS-formatted minidisks between like and unlike DASD
 - The capability to do an integrity-evaluation of CMS minidisks
 - The capability to perform the move and integrity-evaluation operations against a list of minidisks.
3. Space management provides:
- Automatic assignment of management classes to SFS files and directories
 - Automatic migration (with compaction) or erasure of selected SFS files based on management class policies
 - Migration to ML1 and ML2 (lower cost tape and/or dasd)
 - Automatic recall of migrated files upon reference
 - Command-initiated migration and recall of files.
4. Removable media services (RMS) provides:
- Support of the IBM 3495 Tape Library Dataserver to extend automated mount support and other library capabilities to VM users and tape management applications.

2.0 Program Materials

An IBM program is identified by a program number. The program number for DFSMS/VM, function level 221 is 5741-A05.

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

The following sections identify:

- basic and optional program materials available with this program
- publications useful during installation.

2.1 Basic Machine-Readable Material

6 DFSMS/VM, function level 221, previously provided automatically with the z/VM deliverable, will no longer
6 be shipped automatically. It is orderable as a no-charge feature of the z/VM version 5 SDO.

6 Refer to the appropriate z/VM V5 software announcement for information on ordering DFSMS/VM.

7 The distribution medium for this program is 3480 tape cartridge or 3590 tape cartridge. You can also
7 receive this program electronically by ordering it through the z/VM SDO using IBM ShopzSeries. For more
7 information about IBM ShopzSeries go to www.ibm.com/software/ShopzSeries. The tape cartridge or
7 electronic envelope file contains all the programs and data needed for installation.

See section 6.0, "Installation Instructions" on page 23 for more information about how to install the program. Figure 1 on page 5 describes the file content of the program tape or cartridge.

Figure 1. Program Tape: File Content

Tape File	Content
1	Tape Header
2	Tape Header
3	Product Header
4	Product Memo
5	Samples
6	Reserved for Delta disk
7	Reserved for Apply disk
8	Product Help files
9	Executable product code
10	All product base parts

2.2 Optional Machine-Readable Material - Japanese National Language Translation

6 DFSMS/VM, function level 221, Japanese feature, previously provided automatically with the z/VM
6 deliverable, will no longer be shipped automatically. It is orderable as a no-charge feature of the z/VM
6 version 5 SDO.

6 Refer to the appropriate z/VM V5 software announcement for information on ordering DFSMS/VM.

6 The distribution medium for optional machine-readable material is 3480 tape cartridge or 3590 tape
6 cartridge.

Note: The program machine-readable materials contain “Restricted Materials of IBM.”

2.3 Program Publications

The following sections identify the basic and optional publications for DFSMS/VM.

2.3.1 Softcopy Publications

7 DFSMS/VM publications are offered in displayable softcopy form. These files are shipped on the *IBM*
7 *Online Library: z/VM Collection*. One copy of the z/VM Collection CD-ROM is shipped automatically with
7 the z/VM product at no additional charge. For z/VM V5.2 one copy of the z/VM Collection on DVD is also
7 included. The publications are available on the z/VM Collection in Adobe Portable Document Format
6 (PDF) and IBM BookManager® format.

6 You can view a PDF file using the Adobe Acrobat Reader, which is available free from the Adobe Web
6 site at www.adobe.com. The BookManager format can be used with the IBM BookManager READ/VM
6 licensed program in any of the supported environments.

2.3.2 Program Publications

6 Figure 2 identifies the unlicensed program publications available for DFSMS/VM with z/VM version 5.

For additional copies, contact your IBM representative. Or, publications can be ordered separately for a fee using the specific publication number through the IBM Publication Center at:

6 www.ibm.com/shop/publications/order

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

6 *Figure 2. Billable Material: Unlicensed Publications z/VM version 5*

6 Publication Title	Form Number
6 <i>z/VM: DFSMS/VM Planning Guide</i>	SC24-6089
6 <i>z/VM: DFSMS/VM Customization</i>	SC24-6086
6 <i>z/VM: DFSMS/VM Storage Administration</i>	SC24-6091
6 <i>z/VM: DFSMS/VM Messages and Codes</i>	GC24-6088
6 <i>z/VM: DFSMS/VM Removable Media Services</i>	SC24-6090
6 <i>z/VM: DFSMS/VM Diagnosis Guide</i>	GC24-6087

2.4 Microfiche Support

There is no microfiche for DFSMS/VM.

2.5 Publications Useful During Installation

6 The publications listed in Figure 3 may be useful during the installation of DFSMS/VM.

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

6 Publication Title	Form Number
6 <i>z/VM: VMSES/E Introduction and Reference</i>	GC24-6130
6 <i>z/VM: Service Guide</i>	GC24-6117
6 <i>z/VM: CMS File Pool Planning, Administration, and Operation</i>	SC24-6074
6 <i>z/VM: CP Planning and Administration</i>	SC24-6083

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

6	Publication Title	Form Number
6	<i>z/VM: Saved Segments Planning and Administration</i>	SC24-6116
6	<i>z/VM: System Messages and Codes - AVS, Dump Viewing Facility, GCS, TSAF, and VMSES/E (V5.1)</i>	GC24-6120
7	<i>z/VM: Other Components Messages and Codes (V5.2)</i>	GC24-6120
7	<i>z/VM: System Messages and Codes - CMS and REXX/VM (V5.1)</i>	GC24-6118
7	<i>z/VM: CMS and REXX/VM Messages and Codes (V5.2)</i>	GC24-6118
7	<i>z/VM: System Messages and Codes - CP (V5.1)</i>	GC24-6119
7	<i>z/VM: CP Messages and Codes (V5.2)</i>	GC24-6119
6	<i>z/VM: DFSMS/VM Customization</i>	SC24-6086
6	<i>z/VM: DFSMS/VM Storage Administration</i>	SC24-6091
6	<i>z/VM: DFSMS/VM Messages and Codes</i>	GC24-6088

7 **Note:** The names of the messages and codes publications have been changed on z/VM V5.2 but the
 7 publication numbers are the same.

3.0 Program Support

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

3.1 Preventive Service Planning

Before installing DFSMS/VM, check with your IBM Support Center or use IBMLink™ 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
570611601	221	DFSMSVM221	SMS221
570611601	22H	DFSMSVM221	SMS221J

3.2 Statement of Support Procedures

4 **Note:** When you order DFSMS/VM, function level 221, you are entitled to support under the basic
4 warranty for z/VM version 5. To receive zSeries service that you are accustomed to, IBM highly
6 recommends ordering the z/VM Software Subscription and Support, 5741-SNS. Refer to the applicable
6 z/VM version 5 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 tell you where to send any needed documentation.

Figure 5 identifies the component ID (COMPID), Retain Release and Field Engineering Service Number (FESN) for DFSMS/VM.

Figure 5. Component IDs

Retain			
COMPID	Release	Component Name	FESN
570611601	221	DFSMS/VM 221	0401098
570611601	22H	DFSMS/VM 221 Kanjii	0401098

4.0 Program and Service Level Information

This section identifies the program and any relevant service levels of DFSMS/VM. 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 the cumulative service tape is also provided.

4.1 Service Level Information

- 6 The install tape supplied for DFSMS/VM, function level 221, when z/VM version 5 is ordered, will be at the current SDO service level.

Check the DFSMSVM221 PSP bucket for any additional PTFs that should be installed or any additional install information.

4.2 Cumulative Service Tape

- Cumulative service for DFSMS/VM is available through a monthly corrective service tape, Expanded Service Option, ESO. When ordering an ESO tape, you will need to specify the PRODID for the product. For DFSMS the PRODID is VSM221B. If you have installed the Japanese (Kanji) feature you will also need to order ESO for PRODID VSM221H.

4.3 Available DFSMS/VM, function level 221 New Function APARs

The following new function (development) APARs are available for DFSMS/VM:

- APAR VM54789

Provides a programming interface for VM BACKUP products that need to protect SFS, Shared File System, files which have been migrated.

- APAR VM55830

Provides the the following RMS function which were not enabled in the GA level of DFSMS/VM

- Foreign Host Server support
- Default Scratch Category support
- Device Selection Installation Exit (FSMRMDEV) support
- DETAILS option on QUERY LIBRARY OPSTATE, QUERY LIBRARY VOLUME and QUERY LIBRARY DEVICE commands
- QUERY LIBRARY INVENTORY command
- SET VOLCAT BULK command

- Automatic Bulk Insert processing
- Support for new hardware completion code introduced in microcode level 41B.
- The logical write protection for MOUNT CATEGORY support will default to READWRITE for categories SCRATCH0-SCRATCHF and the default scratch category (SCRATCH).

- APAR VM56597

Enables ML2 support and provides required maintenance for the Space Management component of DFSMS/VM FL221 which was not available in the GA level of DFSMS/VM. This PTF is also **required** maintenance for those DFSMS/VM installations running Space Management to ML1 only.

- APAR VM58436

Provides library control support for VSE guests through the DFSMS/VM RMS functions.

- APAR VM58787

Provides expanded VGS support for full VSE/ESA™ API provided for automated library support through the VSE LBSERV macro.

- APAR VM59338

Improves performance when DFSMS COPY is used to send multiple concurrent copies to the 9391 device.

- APAR VM59346

Provides VSE guest support compatibility with 3494 devices. The changes are for interfaces provided in VSE/ESA 2.1.

- APAR VM59473

Enhances the RMS device selection to access devices that were not available during RMS server initialization.

- APAR VM60753

DFSMS/VM part handler FSMBDMLD EXEC requires file \$VMFMLB\$ XEDIT which is no longer supplied with VMSES/E.

- APAR VM60816

Provides RMS Support for 3590 devices as well as using Diagnose x'254' Support.

- APAR VM61214

Provides year 2000 support. For additional information see Appendix A, "Year 2000 Enhancements for DFSMS/VM" on page 73.

- 3 • APAR VM62683

3 RMS tolerates Peer to Peer ATL error codes and support 3590 model E1A and E11 tape drives.

- 6 • APAR VM63004

6 Support for 3390 DASD with 32760 cylinders.

- 6 • APAR VM63097
 - 6 RMS support for 3590 model H tape drives.
- 6 • APAR VM63353
 - 6 RMS and VGS support for 3592 tape drives and 300 GB standard length TotalStorage Enterprise tape cartridges; identified by RMS as 300G
- 6 • APAR VM63460
 - 6 RMS and VGS support for 3592 Write Once Read Many (WORM) cartridges, including::
 - 6 300 GB standard length TotalStorage Enterprise WORM tape cartridges; identified by RMS as 300W
 - 6 60 GB standard length TotalStorage Enterprise WORM tape cartridges; identified by RMS as 60W
 - 6 60 GB standard length TotalStorage Enterprise WORM tape cartridges; identified by RMS as 60WGB
- 7 • APAR VM63664
 - 7 Support for 10-digit disk sizes, 1TB CP disk and 381GB CMS minidisk sizes
- 7 • APAR VM63746
 - 7 Support for attaching tape drives as multiuser
- 7 • APAR VM63811
 - 7 Support for 3592 Model E05 tape drives
 - 7 Support for VSE categories SCRATCH16-SCRATCH31

5.0 Installation Requirements and Considerations

The following sections identify the system requirements for installing and activating DFSMS/VM.

5.1 Hardware Requirements

6 DFSMS/VM operates on any hardware configuration supported by z/VM version 5.

Removable media services provides support for the IBM 3494 and 3495 Tape Library Dataserver.

5.2 Program Considerations

The following sections list the programming considerations for installing DFSMS/VM and activating its functions.

5.2.1 Operating System Requirements

DFSMS/VM supports the following VM operating systems:

- 6 • z/VM version 5

5.2.2 Other Program Product Requirements

You need the following functional corequisite software to run DFSMS/VM, function level 221:

- Interactive Storage Productivity Facility (ISPF) version 3 release 2 (Program Number 5684-043), to use ISMF functions for space management and minidisk management.

Notes:

- 2 1. ISPF APARs, VM60943 and VM61922, provide year 2000 support.
2. ISPF must **not** be installed into SFS but rather must be installed on minidisk as the ISMF EXEC can not be tailored to handle ISPF in SFS. It will only work if ISPF is installed on minidisk.
- Shared File System (SFS) under z/VM version 5 or subsequent release (to use DFSMS/VM functions). The VMSYS file pool is required.
- SVM must be installed, available from the SMSMASTR, RMSMASTR, the minidisk servers, the space management servers, and any user machine who executes command line and/or ISMF DFSMS/VM commands.
- 6 • VM/Directory Maintenance (DIRMAINT) FL510 or a directory maintenance product with equivalent
6 function (for minidisk management).

Notes:

- 5 1. DFSMS/VM APARS VM60499, VM62140, and VM62522 must be applied in order to pick up
4 changes to the DGTQDIRM EXEC for supporting DirMaint FL510.
 - 6 2. Ensure DFSMS/VM APAR VM55851 is installed to allow the DirMaint FL510 CONFIG DATADVH
6 ONLINE statement to equal a value other than IMMED. This change is to improve performance
when there are more than 500 user directory entries.
- TCP/IP Level supplied with z/VM version 5 if you plan to access the IBM 3495 Tape Library Dataserver from processors capable of 3490/3490E tape operations but incapable of controlling the 3495 tape library (foreign host support).
 - The following is required if the space management function or RMS foreign host support is used:
 - 5 – The C runtime library of LE as supplied with z/VM version 5 can be used.

The following are optional functional corequisite software to run DFSMS/VM Function Level 221:

- 6 • Program Development Facility (PDF) version 3 release 2 (Program Number 5684-123) or CMS Utilities Feature (CUF) which is part of the CMS component of z/VM version 5.

Notes:

1. If neither PDF or CUF is installed, then some ISMF functions (such as browse and edit) will be unavailable.
 - 2 2. PDF APARs, VM60513 and VM62060, provide year 2000 support. APAR VM60513 requires ISPF APAR VM60943.
- ADSTAR Distributed Storage Manager (ADSM) for VM, version 2 release 1 (Program Number 5648-020), or Tivoli ADSTAR Distributed Storage Manager for VM, version 3 release 1.2 (Program Number 5796-VM3), for use of ML2 capability.

Notes:

1. Ensure that the amount of catalog (storage group 1) space on your ML1 file pool is sufficient for your installation's data reference patterns and the management classes established. See *z/VM: CMS File Pool Planning, Administration, and Operation* for more details.
 2. If the ADSM product code is installed in a file pool, ensure that none of the ADSM product code files are ever migrated.
 3. When configuring your ML2 ADSM Server, it is imperative that when registering DFSMS/VM, you ensure that both ARCHDELETE and BACKDELETE are set to YES. Failure to do so prevents the cleanup of migration level 2. And, subsequent migrates will fail.
 4. The ADSM server commands EXPORT and IMPORT cannot be used to backup and restore a ADSM server which contains DFSMS/VM ML2 data. Using EXPORT and IMPORT will cause ML2 data to be lost. The *DFSMS/VM Customization* contains procedures for backing up and restoring ADSM server data.
- Resource Access Control Facility (RACF®) version 1 release 10 (Program Number 5740-XXH) or subsequent release (to control authorizations).

Notes:

1. In a VM/MVS shared environment, the RACF PERMIT of STGADMIN.* does not protect all STGADMIN profiles. In addition, if RACF is shared with MVS, RACF enhancements are installed, or another product using the RACROUTE interface is being used, the SMSRACF EXEC may not work.

With Enhanced Generic Naming (EGN) active, the profile name of STGADMIN.** is required. Refer to the manuals for the product installed and the charts contained in the "Authorizing DFSMS/VM Users" chapter of *DFSMS/VM Customization* manual to determine how to protect DFSMS/VM functions.

2. Using the command "*RAC SETROPS GRPLIST GENERIC(FACILITY) GENCMD(FACILITY)*" as suggested in the "Setting up RACF/VM" section of "Authorizing DFSMS/VM Users" chapter of *DFSMS/VM Customization* manual may produce problems when using a shared DB2® database with an MVS guest. The GRPLIST parameter forces the DB2-Signon-Exit to perform a security-check in RACF, but RACF/MVS is not aware of the required user-profiles. If in this situation, you may change the above command to "*RAC SETROPS GENERIC(FACILITY) GENCMD(FACILITY)*". Before doing this, please refer to the *RACF/VM Security Administrator's Guide* to ensure this is appropriate for your environment.

- 5 • Remote Spooling Communications Subsystem (RSCS) version 3 release 2 (Program Number 5684-096) or higher, for remote operations.
- 5 • IBM Compiler for REXX/370 (Program Number 5695-013) and IBM Library for REXX/370 (Program Number 5695-014), if compiled REXX installation-wide exit or a compiled ACS REXX exit is desired.

Figure 6 lists software requirements for DFSMS/VM by component.

Figure 6. Software Requirements for DFSMS/VM

Software	Space Management	Minidisk Management	Removable Media Services
Required Software:			
ISPF	ISMF	ISMF	
SFS	X	X	X
DirMaint (or equivalent)		X	
TCP/IP			foreign host support
Language Environment/370	X		foreign host support
Optional Software:			
ADSM	X		
IBM Compiler for REXX/370	X		
IBM Library for REXX/370	X		
RACF	X	X	X
RSCS	X	X	X

5.2.3 Program Installation and Service Considerations

This section describes items that should be considered before you install or service DFSMS/VM.

- 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 *VMSES/E Introduction and Reference* manual, section 'Changing the Software Inventory to an SFS Directory', for information on how to make this change.
- Customers will no longer install and service DFSMS/VM strictly using the DGTOWNER user ID, but will use a new user ID--DFSMS. This is the IBM suggested user ID name. You are free to change this to any user ID name you wish; however, a PPF override must be created.

Note: It may be easier to make the above change during the installation procedure 6.2, "Plan Your Installation For DFSMS/VM" step 6 on page 26, rather than after you have installed this product.

5.2.4 Migrating from Previous Releases of DFSMS/VM to Function Level 221

When migrating to DFSMS/VM, function level 221, you must give special consideration to backing up all Function Level 210 and 220 exits and DFSMS/VM control and authorization files that have been customized by the installation. DFSMS/VM, function level 221 replaces DFSMS/VM Function Level 210 and 220. This means that you must save all modifications or customizations you have made to Function Level 210 and 220 and apply them after Function Level 221 has been installed.

If an exit has changed from a previous release, applying Function Level 210 and 220 modifications or customizations may involve more than simply replacing them. You should register these changes to VMSES/E as local modifications. There is a local modification example in Appendix B, "Local Modification Example: ISMF EXEC File" on page 79.

When migrating to DFSMS/VM, function level 221, you will need to specifically address the following items as part of your installation procedure:

5.2.4.1 Save Local Customization

If you have modified any files or execs, you should save the items, prior to installing DFSMS/VM, that you have customized:

- DGTQAUTO EXEC
- DGTQDIRM EXEC
- DGTQLINK EXEC
- DGTQSTEP EXEC
- PRNTMINI EXEC
- DGTQAUTH EXEC
- DGTVAUTH DATA
- DGTVCNTL DATA
- FSMVAUTH CSL
- FSMMECHK CSL
- ISMF EXEC
- ISMFEXEC EXEC
- Panel changes
- User extension programs.

Note: Due to the merging of the minidisk master and DFSMS/VM master, some installation-wide exits have been removed and are no longer available. Refer to "Using DFSMS/VM Installation-Wide Exits" chapter of *DFSMS/VM Customization* manual for details.

If you have made panel changes, you will need to reapply those changes to the new DFSMS/VM 221 panels. You should identify what panels you have changed and be prepared to recustomize them after you have installed DFSMS/VM 221.

5.2.4.2 Erase Minidisks

The 195 minidisks on previous SMSSRVnn and DGTSRVnn are no longer needed. You can erase them.

5.2.4.3 Update Directory Entries

You will need to modify your existing directory entries for the minidisk servers (DGTSRVnn), DFSMS servers (SMSSRVnn), and DFSMS master (SMSMASTR) rather than create new ones. Additional statements have been added to these directory entries, and the servers' 195 minidisk requirement has been dropped. Ensure that your directory entries match the samples in "DFSMS/VM Sample CP Directory Entries" Appendix of *DFSMS/VM Customization* manual.

The minidisk master (DGTMASTR) has been dropped. This directory entry can be deleted.

5.2.4.4 Erase Modules and EXECs Placed on Public Disks

If you moved any modules or EXECs to public disks, you should erase or disable these files from all disks before continuing with the installation:

DFSMS	MODULE
DGTLLIB	LKEDIT
DGTLLIB	LOADLIB
DGTMLIB	MACLIB
DGTPLIB	MACLIB
DGTSLIB	MACLIB
DGTTABL	MACLIB
DGTTLIB	MACLIB
DGTUME	TEXT
DGTUMEB	TEXT
DGTUPA	TEXT
DGTUPAB	TEXT
DGTUSY	TEXT
DGTUSYB	TEXT
DMSSVM5	MODULE
FSMASCSS	MODULE
FSMINT	CSLLIB
FSMUME	TEXT
FSMUMEB	TEXT
FSMUPA	TEXT
FSMUPAB	TEXT
FSMUSY	TEXT
FSMUSYB	TEXT
IGDUME	TEXT
IGDUMEB	TEXT
ISMF	EXEC
ISMFEEXEC	EXEC

Figure 7. Files Contained on a Publicly Accessible Disk

If the Japanese language feature is installed, also erase the following files:

DGTUMEA	TEXT
FSMUMEA	TEXT
IGDUMEA	TEXT

Figure 8. Japanese Language Feature Text Files

5.2.4.5 Update Management Classes and Configurations

If you were utilizing the space management function of a previous release, you will want to review your management classes and update them as necessary if you wish to take advantage of the migration to tape capability. In addition to this, source configurations that were created on Function Level 220 will not run on Function Level 221. A conversion utility has been provided to convert your configurations. See "DFSMS/VM Configuration Conversion Utility" Appendix of *DFSMS/VM Customization* manual for details.

5.2.4.6 Backout Overview

Also, after you have installed DFSMS/VM, you can remove it. The process of removing DFSMS/VM is called *backout*. Removing DFSMS/VM requires the following:

- Recalling **all** migrated files (if you used the space management function of DFSMS/VM)
- Identifying primary file pools managed by DFSMS/VM (if you used the space management function of DFSMS/VM)
- Performing miscellaneous cleanup.

Refer to "Removing DFSMS/VM" chapter of *DFSMS/VM Customization* for details on removing DFSMS/VM.

5 5.2.4.7 Other Migration Considerations

5 DFSMS/VM Function Level 210 cannot coexist with DFSMS/VM Function Level 221. Functions introduced
5 in DFSMS/VM Function Level 220 coexist with DFSMS/VM Function Level 221, in that systems within a
5 transparent services access facility (TSAF) collection may be at either level and continue to perform space
5 management functions. Systems on different levels, however, cannot share configurations.

5 Within a single VM system, DFSMS/VM 220 cannot coexist with DFSMS/VM 221. Once data has been
5 migrated to ML2 with DFSMS/VM 221, the ML2 data cannot be recalled by a previous release of
5 DFSMS/VM. Also, any ML2 data backed up by SFS FILEPOOL BACKUP cannot be restored or recalled
5 by a previous release of DFSMS/VM.

5 Consider the following factors when migrating from DFSMS/VM FL 220 to DFSMS/VM FL 221:

- 5 • The DFSMS control file must be modified to account for new, changed, or deleted parameters.
- 5 • Source configurations must be converted. A utility provided with DFSMS/VM 221 converts existing
5 source configurations and management classes to run under 221.
- 5 • The minidisk master machine will no longer be used, so it can be deleted.
- 5 • CP directory entries must be modified.
- 5 • If you plan to use ML2 storage, you must set up a TSM server.

- 5 • If you plan to use the space management function or a foreign server support, you must utilize the
- 5 Language Environment® support that is included with z/VM.
- 5 • Storage resources must be evaluated to determine when you want files migrated to ML2.

5.3 DASD Storage and User ID Requirements

Section 5.3.1, “Required DASD Storage for DFSMS/VM” lists the user IDs and minidisks which are required to install and service DFSMS/VM. 5.3.2, “Optional DASD Storage for DFSMS/VM” on page 20 lists the minidisks which are optional, depending on what features and functions used, for DFSMS/VM.

Important Installation Notes:

- User ID(s) and minidisks will be defined in 6.2, “Plan Your Installation For DFSMS/VM” on page 24 and are listed here so that you can get an idea of the resources that you will need prior to allocating them.
- DFSMS 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. This can be done in 6.2, “Plan Your Installation For DFSMS/VM” step 6 on page 26.
- If you choose to install DFSMS/VM on a common user ID the default minidisk addresses for DFSMS/VM may already be defined. If any of the default minidisks required by DFSMS/VM are already in use you will have to create an override to change the default minidisks for DFSMS/VM so they are unique.

5.3.1 Required DASD Storage for DFSMS/VM

The following table contains the required DASD for the DFSMS and MAINT user IDs in order to install and service DFSMS/VM 221.

Figure 9 (Page 1 of 2). DASD Storage Requirements for Target Minidisks

Minidisk owner (user ID)	Default Address	Storage in Cylinders		FB-512 Blocks	SFS 4K Blocks	Usage
		DASD	CYLS			
DFSMS	1B1	3390 3380 9345	69 83 83	99360	12420	Contains all the base code shipped with DFSMS/VM.

Notes:

1. Cylinder values defined in this table are based on a 4K block size. FB-512 block and SFS values are derived from the 3380 cylinder values in this table. The FBA blocks are listed as 1/2K but should be CMS formatted at 1K size.
2. The help minidisks should be formatted using a 1K block size.
3. Sizes for MAINT minidisks are additional storage needed for existing MAINT minidisks.

Figure 9 (Page 2 of 2). DASD Storage Requirements for Target Minidisks

Minidisk owner (user ID)	Default Address	Storage in Cylinders		FB-512 Blocks	SFS 4K Blocks	Usage
		DASD	CYLS			
DFSMS	1C4	3390 3380 9345	2 2 2	2400	300	Used for local modifications.
DFSMS	1C2	3390 3380 9345	2 2 2	2400	300	Contains sample files.
DFSMS	1D6	3390 3380 9345	40 48 48	57600	7200	Contains serviced files.
DFSMS	1A6	3390 3380 9345	2 2 2	2400	300	Contains AUX files and software inventory tables that represent the test service level of DFSMS/VM.
DFSMS	1A4	3390 3380 9345	2 2 2	2400	300	Contains AUX files and software inventory tables that represent the Intermediate service level of DFSMS/VM.
DFSMS	1A2	3390 3380 9345	2 2 2	2400	300	Contains AUX files and software inventory tables that represent the service level of DFSMS/VM that is currently in production.
DFSMS	1B5	3390 3380 9345	69 83 83	99360	12420	Production build disk.
DFSMS	191	3390 3380 9345	30 36 36	5400	43200	DFSMS user ID's 191 minidisk.
MAINT	19D	3390 3380 9345	9 10 10	1620	12960	Contains American English and Uppercase English help files for DFSMS/VM.

Notes:

1. Cylinder values defined in this table are based on a 4K block size. FB-512 block and SFS values are derived from the 3380 cylinder values in this table. The FBA blocks are listed as 1/2K but should be CMS formatted at 1K size.
2. The help minidisks should be formatted using a 1K block size.
3. Sizes for MAINT minidisks are additional storage needed for existing MAINT minidisks.

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5.3.2 Optional DASD Storage for DFSMS/VM

6 The following tables contain the DASD requirements in order to install the Japanese language feature, use
6 the RMS feature or use the space or minidisk management functions, of DFSMS/VM.

5.3.2.1 Optional DASD Storage for Japanese Language Feature

The following tables contain the DASD requirements for the DFSMS and MAINT user ID's in order to install the Japanese language feature of DFSMS/VM.

Figure 10. DASD Storage Requirements for Japanese Language Feature

Minidisk owner (user ID)	Default Address	Storage in Cylinders		FB-512 Blocks	SFS 4K Blocks	Usage
		DASD	CYLS			
DFSMS	1B2	3390 3380 9345	30 36 36	43200	5400	Contains the base code shipped with DFSMS/VM Japanese language feature.
MAINT	401	3390 3380 9345	9 10 10	1620	12960	Production disk containing Japanese language feature help files for DFSMS/VM.

Notes:

1. Cylinder values defined in this table are based on a 4K block size. FB-512 block and SFS values are derived from the 3380 cylinder values in this table. The FBA blocks are listed as 1/2K but should be CMS formatted at 1K size.
2. The help minidisks should be formatted using a 1K block size.
3. Sizes for MAINT minidisks are additional storage needed for existing MAINT minidisks.

6 5.3.2.2 Optional DASD Storage for Space and Minidisk Management Functions

6 The following tables contain the DASD requirements for the space and minidisk management functions of 6 DFSMS/VM.

Figure 11. DASD Storage Requirements for Space/Minidisk Management

Minidisk owner (user ID)	Default Address	Storage in Cylinders		FB-512 Blocks	SFS 4K Blocks	Usage
		DASD	CYLS			
SMSMASTR	191	3390 3380 9345	1 1 1	1440	NOSFS	191 minidisk for space and minidisk management master virtual machine.

Notes:

1. Cylinder values defined in this table are based on a 4K block size. FB-512 block values are derived from the 3380 cylinder values in this table and are listed as 1/2K but should be CMS formatted at 1K size.

6 5.3.2.3 Optional DASD Storage for RMS Function

6 The following tables contain the DASD requirements for the RMS function of DFSMS/VM.

6 *Figure 12. DASD Storage Requirements for RMS function*

6 6 6 6 6 6 6 6	Minidisk owner (user ID)	Default Address	Storage in Cylinders		FB-512 Blocks	SFS 4K Blocks	Usage
			DASD	CYLS			
6	RMSMASTR	191	3390	1	1440	NOSFS	191 minidisk for RMS master virtual machine.
6			3380	1			
6			9345	1			
6	Notes:						
6	1. Cylinder values defined in this table are based on a 4K block size. FB-512 block values are derived from the 3380 cylinder values in this table and are listed as 1/2K but should be CMS formatted at 1K size.						

6.0 Installation Instructions

This chapter describes the installation methods and the step-by-step procedures to install and activate DFSMS/VM.

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. For more information about the two column format see 'Understanding Dialogs with the System' in the *z/VM: Guide for Automated Installation and Service*.

Each step of the installation instructions must be followed. Do not skip any step unless directed to do so.

Throughout these instructions, the use of IBM-supplied default minidisk addresses and user IDs is assumed. If you use different user IDs, or minidisk addresses to install DFSMS/VM, adapt these instructions as needed for your environment.

The sample console output presented throughout these instructions was produced on a VM/ESA 1.2.1 system. If you're installing DFSMS/VM on a z/VM system, the results obtained for some commands may differ from those depicted here.

One of the following component names should be chosen and used throughout the install instructions:

- **DFSMSVM** - Used to install the entire DFSMS/VM product.
- **RMSONLY** - Used to install the RMS component of DFSMS/VM only.
- **DFSMSVMNOSM** - Used to install DFSMS/VM without the space management component, includes minidisk management and RMS components only.

5 Select the appropriate component based on what you plan to use and what software you have. If you
5 select anything other than DFSMSVM and later decide to begin using other components, you will have to
5 do a reinstall in order to activate the other components.

5 You can install DFSMSVM, if you have all of the functional corequisite software available, and still just
5 implement selected components. For example, you can install DFSMSVM but only implement RMS, and
5 at a later date implement space management or minidisk management.

5 Remember that in order to install all components (the DFSMSVM option), you need both ISPF and the
5 Language Environment support that is included with z/VM.

Migration Information

Be sure you have saved copies of any data files, authorization files, installation-wide exits, or other product parts that you may have customized while running a previous level of DFSMS/VM. While not all product parts are compatible with files from a prior release, you will at least have a reference point when customizing your new DFSMS/VM level. See 5.2.4, "Migrating from Previous Releases of DFSMS/VM to Function Level 221" on page 16 for further migration details.

6.1 VMSES/E Installation Process Overview

The following is a brief description of the main steps in installing DFSMS/VM using VMSES/E.

- Plan Your Installation

Use the VMFINS command to load several VMSES/E files from the product tape and to obtain DFSMS/VM resource requirements.

- Allocate Resources

The information obtained from the previous step is used to allocate the appropriate minidisks and user IDs needed to install and use DFSMS/VM.

- Install the DFSMS/VM Product

Use the VMFINS command to load the DFSMS/VM product files from tape to the test BUILD and BASE minidisks/directories. VMFINS is then used to update the VM SYSBLDS file used by VMSES/E for software inventory management.

- Perform Post-installation Tasks

Information about file tailoring and initial activation of the program is presented in 6.6, "Post Install" on page 38.

For a complete description of all VMSES/E installation options refer to *VMSES/E Introduction and Reference*.

6.2 Plan Your Installation For DFSMS/VM

The VMFINS command will be used to plan the installation. This section has 2 main steps that will:

- load the first tape file, containing installation files
- generate a 'PLANINFO' file listing
 - all user ID and mdisks directory requirements
 - required products

To obtain planning information for your environment:

1 Log on as DFSMS/VM installation planner.

This user ID can be any ID that has read access to MAINT's 5E5 minidisk and write access to the MAINT 51D minidisk.

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2 Mount the DFSMS/VM installation tape and attach it to the user ID at virtual address 181. The VMFINS EXEC requires the tape drive to be at virtual address 181. If you have a product envelope SERVLINK file make sure it is available on the A-disk or any work disk accessed as C.

3 Establish read access to the VMSES/E code.

**link MAINT 5e5 5e5 rr
access 5e5 b**

The 5E5 disk contains the VMSES/E code.

4 Establish write access to the Software Inventory disk.

**link MAINT 51d 51d mr
access 51d d**

The MAINT 51D disk is where the VMSES/E system-level Software Inventory and other dependent files reside.

Note: If another user already has the MAINT 51D minidisk linked in write mode (R/W), you will only obtain read access (R/O) to this minidisk. If this occurs, you will need to have that user re-link the 51D in read-only mode (RR), and then re-issue the above LINK and ACCESS commands. Do not continue with these procedures until a R/W link is established to the 51D minidisk.

5 Load the DFSMS/VM product control files to the 51D minidisk.

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This command will perform the following:

- load Memo-to-Users
- load various product control files, including the Product Parameter File (PPF) and the PRODPART files
- create VMFINS PRODLIST on your A-disk. The VMFINS PRODLIST contains a list of products on the installation tape.

a If installing from **tape**

7 **vmfins install info (nomemo)**
7
7
7

The NOMEMO option will load the memos from the tape but will not issue a prompt to send them to the system printer. Specify the MEMO option if you want to be prompted for printing the memo.

7 **b** If installing from a product **envelope** file

7 **vmfins install info (nomemo env *envfilename*** **envfilename** is the file name of the product
7 envelope file. The file type must be SERVLINK.

7 The NOMEMO option will load the memos from the
7 tape but will not issue a prompt to send them to
7 the system printer. Specify the MEMO option if
7 you want to be prompted for printing the memo.
7

```
VMFINS2767I Reading VMFINS DEFAULTS B for additional options
VMFINS2760I VMFINS processing started
VMFINS1909I VMFINS PRODLIST created on your A-disk
VMFINS2760I VMFINS processing completed successfully
Ready;
```

6 Obtain resource planning information for DFSMS/VM.

- 7
- The product will **not** be loaded by the VMFINS command at this time.
 - The PLAN option indicates that VMFINS will perform requisite checking, plan system resources, and provide an opportunity to override the defaults in the product parameter file. See the notes following the command, before you issue the command, for more information about overrides and DFSMS/VM.

You can override any of the following:

- the name of the product parameter file
- the default user IDs
- minidisk/directory definitions
- change the address for the ISPVM 192 minidisk
- remove the PRODUSER A5 minidisk as it is not required on z/VM
- change the address and owner of the minidisk where the DFSMS/VM help files will be installed

7 **a** If installing from **tape**

7 **vmfins install ppf VSM221B {DFSMSVM | RMONLY | DFSMSVMNOSM} (plan nomemo**

7 Use **DFSMSVM** for installing the entire DFSMS/VM
7 product, **RMSONLY** for installing the RMS
7 component only, or **DFSMSVMNOSM** for installing
7 DFSMS/VM without the space management
7 component.

7 **b** If installing from a product **envelope** file

7 **vmfins install ppf VSM221B {DFSMSVM | RMSONLY | DFSMSVMNOSM} (plan nomemo env envfilename**

7 **envfilename** is the file name of the product
7 envelope file. The file type must be SERVLINK.

7 Use **DFSMSVM** for installing the entire DFSMS/VM
7 product, **RMSONLY** for installing the RMS
7 component only, or **DFSMSVMNOSM** for installing
7 DFSMS/VM without the space management
7 component.

Notes:

- a. If you change the PPF name, a default user ID, or other parameters via a PPF override, you will need to use your changed values instead of those indicated (when appropriate), throughout the rest of the installation instructions, as well as the instructions for servicing DFSMS/VM. For example, you will need to specify your PPF override file name instead of VSM221B for certain VMSES/E commands.
- b. If you're not familiar with creating PPF overrides using VMFINS, you should review the 'Using the Make Override Panel' section in Chapter 3 of the *VMSES/E Introduction and Reference* before you continue.
- c. If you do not have ISPF installed on your system, or if your ISPF code is installed on a minidisk other than the ISPVM 192 minidisk, you must create a PPF override to remove or change the BASE2 disk from the DFSMSVM or DFSMSVMNOSM component overrides in the VSM221B file. This override is not necessary when using the RMSONLY component.

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Note: ISPF is required in order to use the ISMF component of DFSMS/VM.

An example of a PPF override to remove the ISPVM 192 minidisk:

```

:OVERLST. DFSMSVM
:DFSMSVM. DFSMSVM VSM221B
:DCL. UPDATE
./DELETE &BASE2
:EDCL.
:MDA. UPDATE
./DELETE BASE2
:EMDA.
:END.

```

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- d. There is no need for a link to the PRODUSER A5 minidisk, since the C runtime library is preinstalled with z/VM on the MAINT 19E minidisk. Therefore, you must create a PPF override to remove the BASE5 disk from the DFSMSVM component override in the VSM221B file. This override is not necessary when using the RMSONLY or DFSMSVMNOSM component.

Note: The C runtime library is required if using the space management or RMS foreign host support of DFSMS/VM.

An example of a PPF override to remove the PRODUSER A5 minidisk:

```

:OVERLST. DFSMSVM
:DFSMSVM. DFSMSVM VSM221B
:DCL. UPDATE
./DELETE &BASE5
:EDCL.
:MDA. UPDATE
./DELETE BASE5
:EMDA.
:END.

```

- 6
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- e. PPF overrides are compiled using the VMFPPF command; The resulting PPF file must reside on the 51D minidisk.
- f. If you do not wish to have help files installed directly to the MAINT 19D minidisk you must create a PPF override to change the BUILD4 disk from the DFSMSVM, RMSONLY, or DFSMSVMNOSM component overrides in the VSM221B file.

```

VMFINS2767I Reading VMFINS DEFAULTS B for additional options
VMFINS2760I VMFINS processing started
VMFINS2601R Do you want to create an override for :PPF VSM221B DFSMSVM
:PRODID. VSM221B%DFSMSVM?
Enter 0 (No), 1 (Yes) or 2 (Exit)
0
VMFINS2603I Processing product :PPF VSM221B DFSMSVM :PRODID
VSM221B%DFSMSVM
VMFREQ1909I VSM221B PLANINFO created on your A-disk
VMFREQ2805I Product :PPF VSM221B DFSMSVM :PRODID VSM221B%DFSMSVM
has passed requisite checking
VMFINT2603I Planning for the installation of product :PPF VSM221B DFSMSVM
:PRODID VSM221B%DFSMSVM
VMFRMT2760I VMFRMT processing started
VMFRMT2760I VMFRMT processing completed successfully
VMFINS2760I VMFINS processing completed successfully

```

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

vmfview install

6.3 Allocate Resources for Installing DFSMS/VM

Use the planning information in the VSM221B PLANINFO file, created in the **PLAN** step, to create the DFSMS, and DFSMS/VM master and server user directories.

6.3.1 Installing DFSMS/VM on Minidisk

- 1** Obtain the DFSMS user directory from the VSM221B PLANINFO file.

Notes:

- a. The DFSMS user directory entry is located in the resource section of the PLANINFO file, at the bottom; these entries will contain all of the links and privilege classes necessary for the DFSMS user ID. Use the directory entry found in PLANINFO as a model as input to your system directory.
- b. Ensure the DFSMS directory is corrected with the statement 'LINK MAINT 19D 19D MR' which was shown incorrect in the PLANINFO file.

- c. Ensure the DFSMS directory is updated to include the following link statements to the VMSES/E disks:
 - LINK MAINT 5E5 5E5 RR
 - LINK MAINT 51D 51D MR
- d. The DFSMS user ID must have class E privilege for building the DFSMSSEG shared segment.
- e. The DFSMS user ID must have the NAMESAVE DFSMSSEG statement in its directory entry for building the DFSMSSEG shared segment.

2 Create DFSMS/VM Master and Server CP Directory Entries.

The information needed to create the directory entries for the DFSMS/VM virtual machines is in the VSM221B PLANINFO file.

It is recommended that the DFSMS/VM master virtual machine (SMSMASTR) be given Class B privilege in order to autolog server virtual machines. It is recommended that the RMS master virtual machine (RMSMASTR) be given Class B privilege in order to autolog server virtual machines and for device attachment.

You should also format the 191 disk for each master virtual machine you install (SMSMASTR, RMSMASTR). Also, there are CP directory entries that you should modify based on your installation size and customization. In particular, update the MAXCONN value for the SMSMASTR and servers based on your installation. A description of this field and others is provided in the "DFSMS/VM Sample CP Directory Entries" appendix of *DFSMS/VM Customization* manual.

3 Add the MDISK statements to the directory entry for DFSMS. If appropriate, also place passwords on the MDISK statements. Use Figure 9 on page 19 to obtain the minidisk requirements.

Note:

6 You should obtain minidisk requirements at this time for all optional
 6 installation features and functions of DFSMS/VM you intend to use. These
 6 requirements can be obtained from the tables in section 5.3.2, "Optional
 6 DASD Storage for DFSMS/VM" on page 20.

4 Add the DFSMS directory entry to the system directory. Change the password for DFSMS from xxxxx to a valid password, in accordance with your security guidelines.

5 Place the new directories on-line using VM/Directory Maintenance (DirMaint) or an equivalent CP directory maintenance method.

6
6

Note

All minidisks for the DFSMS user ID must be formatted before installing DFSMS/VM. The 1B5 minidisk should be formatted using label DFS1B5 as required when using the ISMF EXEC.

- 6 If migrating from a previous release of DFSMS/VM, make sure you have reviewed the information in 5.2.4, "Migrating from Previous Releases of DFSMS/VM to Function Level 221" on page 16.

6.4 Install DFSMS/VM

The *ppfname* used throughout these installation instructions is **VSM221B**, which assumes you are using the PPF supplied by IBM for DFSMS/VM. If you have your own PPF override file for DFSMS/VM, you should use your file's *ppfname* instead of **VSM221B**. The *ppfname* you use should be used **throughout** the rest of this procedure.

Note: The DFSMS/VM, function level 221 product tape ships file VMSES PARTCAT for installing on the MAINT 19D minidisk. DFSMS/VM does not use this file for any reason after product installation. Because this file is loaded during installation, any existing VMSES PARTCAT on MAINT's 19D minidisk will be replaced with the DFSMS/VM, function level 221 version. If you wish to preserve the HELP disk PARTCAT file, rename this file on the 19D disk BEFORE loading the DFSMS/VM product. After installation the contents of the file can be appended and the file can be renamed back to VMSES PARTCAT.

- 1 Logon to the installation user ID **DFSMS**.
- 2 Create a PROFILE EXEC that will contain the ACCESS commands for MAINT 5E5 and 51D minidisks.

```
xedit profile exec a
====> input /**/
====> input 'access 5e5 b'
====> input 'access 51d d'
====> file
```

If either 5E5 or 51D is in a shared file system (SFS) then substitute your SFS directory name in the access command.

- 3 Run the profile to access MAINT's minidisks.

profile

- 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 who has it linked R/W link it as R/O. You then can issue the following commands to obtain R/W access to it.

link MAINT 51d 51d mr
access 51d d

7
7

5 Have the DFSMS/VM installation tape mounted and attached to DFSMS at virtual address 181. The VMFINS EXEC requires the tape drive to be at virtual address 181. If you have a product envelope SERVLINK file make sure it is available on the A-disk or any work disk accessed as C.

6 Install DFSMS/VM.

Note:

- If you've already created a PPF override file, you should specify your override file name, in place of the default PPF name (VSM221B), after the **PPF** keyword for the following VMFINS command.
- You will need to link the MAINT 19D minidisk **R/W** in order to complete the install of DFSMS/VM.
- You may be prompted for additional information during VMFINS INSTALL processing depending on your installation environment. If you're unsure how to respond to a prompt, refer to the "Installing Products with VMFINS" and "Install Scenarios" chapters in the *VMSES/E Introduction and Reference* to decide how to proceed.

7

a If installing from **tape**

7 **vmfins install ppf VSM221B {DFSMSVM | RMSONLY | DFSMSVMNOSM} (nomemo nolink**

7 Use **DFSMSVM** for installing the entire DFSMS/VM
7 product, **RMSONLY** for installing the RMS
7 component only, or **DFSMSVMNOSM** for installing
7 DFSMS/VM without the space management
7 component.

7 The NOLINK option indicates that you don't want
7 VMFINS to link to the appropriate minidisks, only
7 access them if not accessed.

7

b If installing from a product **envelope**

7 **vmfins install ppf VSM221B {DFSMSVM | RMSONLY | DFSMSVMNOSM} (nomemo nolink env *envfilename***

7
7
7
7
7
7
7
7
7
7

envfilename is the file name of the product envelope file. The file type must be SERVLINK.

Use **DFSMSVM** for installing the entire DFSMS/VM product, **RMONLY** for installing the RMS component only, or **DFSMSVMNOSM** for installing DFSMS/VM without the space management component.

The NOLINK option indicates that you don't want VMFINS to link to the appropriate minidisks, only access them if not accessed.

```

VMFINS2767I Reading VMFINS DEFAULTS B for additional options
VMFINS2760I VMFINS processing started
VMFINS2601R Do you want to create an override for :PPF VSM221B DFSMSVM
:PRODID. VSM221B%DFSMSVM?
Enter 0 (No), 1 (Yes) or 2 (Exit)
0
VMFINS2603I Processing product :PPF VSM221B DFSMSVM :PRODID
VSM221B%DFSMSVM
VMFREQ2805I Product :PPF VSM221B DFSMSVM :PRODID VSM221B%DFSMSVM
has passed requisite checking
VMFINT2603I Installing product :PPF VSM221B DFSMSVM :PRODID
VSM221B%DFSMSVM
VMFSET2760I VMFSETUP processing started
VMFUTL2205I Minidisk|Directory Assignments:
String Mode Stat Vdev Label/Directory
VMFUTL2205I LOCAL E R/W 1C4 DFS1C4
VMFUTL2205I LOCALSMP F R/W 1C2 DFS1C2
VMFUTL2205I APPLY G R/W 1A6 DFS1A6
VMFUTL2205I H R/W 1A4 DFS1A4
VMFUTL2205I I R/W 1A2 DFS1A2
VMFUTL2205I DELTA J R/W 1D6 DFS1D6
VMFUTL2205I BUILD4 K R/W 19D CMS19D
VMFUTL2205I BUILD L R/W 1B5 DFS1B5
VMFUTL2205I BASE M R/W 1B1 DFS1B1
VMFUTL2205I BASE2 N R/W 192 ISP192
VMFUTL2205I BASE3 O R/O 190 CMS230
VMFUTL2205I BASE3 S R/O 190 CMS230
VMFUTL2205I BASE4 P R/O 19E YDISK
VMFUTL2205I BASE4 Y/S R/O 19E YDISK
VMFUTL2205I BASE5 P R/O 19E YDISK
VMFUTL2205I BASE5 Y/S R/O 19E YDISK
VMFUTL2205I ----- A R/W 191 SES191
VMFUTL2205I ----- B R/O 5E5 MNT5E5
VMFUTL2205I ----- D R/W 51D SES51D
VMFUTL2205I ----- S R/O 190 MNT190
VMFUTL2205I ----- Y/S R/O 19E MNT19E
VMFSET2760I VMFSETUP processing completed successfully
VMFREC2760I VMFREC processing started
VMFREC1852I Volume 1 of 1 of INS TAPE 9709
VMFREC1851I (1 of 6) VMFRCALL processing LOCALSMP
VMFRCA2159I Loading part(s) to LOCALSMP 1C2 (F)
VMFRCA2159I Loaded 13 part(s) to LOCALSMP 1C2 (F)
VMFREC1851I (2 of 6) VMFRCALL processing DELTA
VMFRCA2159I Loading part(s) to DELTA 1D6 (J)
VMFRCA2159I Loaded 557 part(s) to DELTA 1D6 (J)
VMFREC1851I (3 of 6) VMFRCALL processing APPLY
VMFRCA2159I Loading part(s) to APPLY 1A6 (G)
VMFRCA2159I Loaded 5 part(s) to APPLY 1A6 (G)
VMFREC1851I (4 of 6) VMFRCALL processing BUILD4
VMFRCA2159I Loading part(s) to BUILD4 19D (K)
VMFRCA2159I Loaded 810 part(s) to BUILD4 19D (K)
VMFREC1851I (5 of 6) VMFRCALL processing BUILD
VMFRCA2159I Loading part(s) to BUILD 1B5 (L)
VMFRCA2159I Loaded 134 part(s) to BUILD 1B5 (L)
VMFREC1851I (6 of 6) VMFRCALL processing BASE
VMFRCA2159I Loading part(s) to BASE 1B1 (M)
VMFRCA2159I Loaded 3490 part(s) to BASE 1B1 (M)
VMFREC2760I VMFREC processing completed successfully
VMFINT2603I Product installed
VMFINS2760I VMFINS processing completed successfully

```


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

vmfview install

6.4.1 Update Build Status Table for DFSMS/VM

- 1 Update the VM SYSBLDS software inventory file for DFSMS/VM.

vmfins build ppf VSM221B {DFSMSVM | RMSONLY | DFSMSVMNOSM} (serviced nolink

Use **DFSMSVM** for installing the entire DFSMS/VM product, **RMSONLY** for installing the RMS component only, or **DFSMSVMNOSM** for installing DFSMS/VM without the space management component.

The SERVICED option will build any parts that were not built on the installation tape (if any) and update the Software Inventory build status table showing that the product VSM221B has been built.

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

vmfview install

6.5 Optional Installation Steps

This section describes optional install steps that include the Japanese language feature, and local modifications.

If you plan on doing any of the following:

- 6.5.1, "Install Japanese Language Feature" on page 36
- 6.5.2, "Local Modifications to DFSMS/VM" on page 37

Then continue with all applicable steps. Otherwise continue with 6.6, "Post Install" on page 38.

6.5.1 Install Japanese Language Feature

The DFSMS/VM Japanese language feature will be installed through VMSES/E support using the same user ID, DFSMS, as the base. DFSMS/VM provides American English and Uppercase English with the base product tape.

1 Make sure you are logged on to DFSMS and have write access to the 51D disk.

Note: You should have already obtained the necessary resources in the plan section. If not, resource requirements are obtained from Figure 10 on page 21.

2 Have the feature installation tape mounted and attached to **DFSMS** at virtual address 181. If you have a product envelope SERVLINK file make sure it is available on the A-disk or any work disk accessed as C.

3 Load DFSMS/VM specific files to the 51D disk.

This command will perform the following:

- load Memo-to-Users
- load various product control files, including the Product Parameter File (PPF) and the PRODPART files
- create VMFINS PRODLIST on your A-disk. The VMFINS PRODLIST contains a list of products on the installation tape.

a If installing from **tape**

7 **vmfins install info (nomemo**

7
7 The NOMEMO option will load the memos but will
7 not issue a prompt to send them to the system
7 printer. Use MEMO if you wish to be prompted for
7 printing the memo.

b If installing from a product **envelope** file

7 **vmfins install info (nomemo env *envfilename***

7
7 **envfilename** is the file name of the product
7 envelope file. The file type must be SERVLINK.
7 The NOMEMO option will load the memos from the
7 tape but will not issue a prompt to send them to
7 the system printer. Specify the MEMO option if
7 you want to be prompted for printing the memo.

```
VMFINS2767I Reading VMFINS DEFAULTS B for additional options
VMFINS2760I VMFINS processing started
VMFINS1909I VMFINS PRODLIST created on your A-disk
VMFINS2760I VMFINS processing completed successfully
Ready;
```

4 Install NLS Feature

a If installing from **tape**

vmfins install ppf VSM221H DFSMSVM (nomemo nolink

When prompted for creating an override either enter a **0** if you do not want to create an override, or enter a **1** to create one.

The NOLINK option indicates that you don't need VMFINS to link to the appropriate minidisks, only access them if not accessed.

b If installing from a product **envelope** file

vmfins install ppf VSM221H DFSMSVM (nomemo nolink env *envfilename*

envfilename is the file name of the product envelope file. The file type must be SERVLINK.

When prompted for creating an override either enter a **0** if you do not want to create an override, or enter a **1** to create one.

The NOLINK option indicates that you don't need VMFINS to link to the appropriate minidisks, only access them if not accessed.

6.5.2 Local Modifications to DFSMS/VM

If any local modifications to DFSMS/VM are needed at this time, refer to "Installing Local Service" 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 service guide when creating a local modification to DFSMS/VM:

- **zvm** should be **VSM221B**, or **VSM221H**
- **compname** should be **DFSMSVM**, **RMSONLY**, or **DFSMSVMNOSM**

- *appid* should be **VSM221B**, or **VSM221H**
- *fm-local* should be the fm of 1C4
- *fm-applyalt* should be the fm of 1A6
- **outmode localmod** should be **outmode local**

Note: VSM221B, DFSMSVM, RMSONLY, and DFSMSVMNOSM are used for install and service of the base product. VSM221H, and DFSMSVM are used for install and service of the Japanese language feature.

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 6.6, "Post Install."

There is a local modification example in Appendix B, "Local Modification Example: ISMF EXEC File" on page 79.

6.6 Post Install

Note

This section is required. You will create and tailor the server machines for your operating environment, define the DFSMS/VM saved segment, and customize the ISMF exec if applicable.

6.6.1 Customization Overview

DFSMS/VM includes three powerful customization capabilities.

DFSMS/VM Control File

This file contains keywords with values you can modify to control:

- DFSMS/VM virtual machine names
- Minidisk management operations
- Space management operations
- Message selection and disposition
- RMS resource names and operational options.

Installation-Wide Exits

You may want to perform various processes associated with DFSMS/VM functions or operations.

You can customize a variety of DFSMS/VM functions with installation-wide exits, or you can use the default exits as shipped with the product.

Automatic Class Selection Processing

ACS processing automatically assigns management classes to SFS files and directories. You can customize this processing to meet installation storage management goals. ACS processing can be customized by writing an ACS routine or by writing an installation exit in either one of the two exits (REXX or assembler language) associated with ACS. Refer to *DFSMS/VM Storage Administration Guide and Reference* for more details on ACS processing and customization.

6.6.2 DFSMS/VM Tailoring

3 If you have only installed the RMS function of DFSMS/VM, then the following tailoring steps can be
3 **skipped**:

- 3 • Step 5 on page 41.
- 3 • Step 12 on page 51.
- 3 • Step 13 on page 53.
- 3 • Step 15 on page 55.

3 If you have only installed the space management function OR installed both the space and minidisk
3 management functions of DFSMS/VM, then the following tailoring steps can be **skipped**:

- 3 • Step 3 on page 40.
- 3 • Step 14 on page 55.

3 If you have only installed the minidisk management function of DFSMS/VM, then the following tailoring
3 steps can be **skipped**:

- 3 • Step 3 on page 40.
- 3 • Step 12 on page 51.
- 3 • Step 14 on page 55.

3 If you have installed RMS and minidisk management, then Step 12 on page 51 can be skipped.

3 If you have installed RMS and space management (with or without minidisk management), then all the
3 steps must be followed.

1 Log on to the DFSMS user ID if you are not already logged on to it.

2 Decide Which Virtual Machines to Define

The examples given assume you are installing DFSMS/VM with the recommended defaults. For example, it assumes that the DFSMS/VM master's name is SMSMASTR, and that you will define three server machines. You are free to change the DFSMS/VM defaults if you so desire. Throughout this section, the default names of the DFSMS/VM virtual machines will be used. Substitute the names you have selected where appropriate. When fewer virtual machines have been defined, adjust all statements accordingly.

The DFSMS/VM master (SMSMASTR) virtual machine provides space management services as well as minidisk management services.

The space management server virtual machines (SMSSRVnn) provide space management services. These services include migration, recall, and expiration of SFS files. The default space management server virtual machines are:

```
SMSSRV01
SMSSRV02
SMSSRV03
```

The minidisk server virtual machines (DGTSRVnn) provide minidisk management services. These services include functions that help move CMS minidisks between like and unlike DASD quickly and easily. The default minidisk management virtual machines are:

```
DGTSRV01
DGTSRV02
DGTSRV03
```

3
3
3
3
3
3

Critical information!

The 500 and 5FF minidisk for each minidisk management virtual machine **must be** defined on 3380 dasd. The CP directory MDISK statements should look like:

```
MDISK 0500 3380 001 001 $$$$ MR
MDISK 05FF 3380 002 001 $$$$ MR
```

The DFSMSRM master (RMSMASTR) provides support for RMS library interface and functions. RMS functions support use of the IBM 3495 Tape Library dataserwer.

3 Determine Library Sequence Number

If you are planning to install RMS, determine the library sequence number which is required for preliminary customization. Each specified library requires a unique library sequence number.

4 Establish a Logon/Logoff Process

DFSMS/VM uses various virtual machines to accomplish its work and these machines need to be logged on for DFSMS/VM to do its job. You will need to define your logon process before you define the DFSMS/VM virtual machines to the CP directory in order to correctly assign privilege classes.

It is recommended that the DFSMS/VM and RMS masters (SMSMASTR, RMSMASTR) be automatically logged on at IPL of the VM system. This is usually done by placing XAUTOLOG commands in the PROFILE EXEC of the AUTOLOG1 virtual machine or its equivalent (for example, AUTOLOG2 if RACF is installed).

Ensure that the SMSMASTR and RMSMASTR virtual machines are autologged after the following are running:

- Coordinated resource recovery (CRR) server.
- ML2 server (if space management is enabled).
- File pools that are required by DFSMS/VM (VMSYS, the file pool used for the DFSMS/VM work directory and for logging).

The master virtual machines will wait up to 30 minutes for the work directory to become available. If the work directory is not available after that time, they will terminate.

- File pool used for ML1 (if space management is enabled).

Note: Transparent services access facility (TSAF), which runs in a virtual machine, writes a file to its A-disk during initialization and while it is operational. This A-disk can be a minidisk or an SFS file space. If the SFS file space is defined in an SFS file pool that is DFSMS/VM-managed, a deadlock between DFSMS/VM and TSAF may occur during initialization of TSAF. To avoid this problem, we recommend that the TSAF virtual machine be autologged after the SMSMASTR virtual machine is started and initialized.

Soon after the DFSMS/VM master (SMSMASTR) is logged on and the DFSMS/VM application starts in the virtual machine, the DFSMS/VM master automatically logs on its servers (SMSSRV01 through SMSSRVnn) by invoking DGTQAUTO EXEC for each server. The minidisk servers (DGTSRV01 through DGTSRVnn) will only be autologged when there is work to be done and no minidisk servers are available. Once a minidisk server is autologged, it is not logged off until DFSMS is shut down.

While RMS master has no servers to autolog, it may, as a result of optionally specified control file parameters, autolog a foreign-host server. See *DFSMS/VM Removable Media Services User's Guide and Reference* manual for more details.

The Space and Minidisk Management Master and RMS Master user ID's require class B privilege for the purpose of supporting the default autolog process and for device attachment. The sample virtual machine directory definitions provided for SMSMASTR and RMSMASTR include privilege class BG, and the sample DGTQAUTO EXEC specifies the CP command XAUTOLOG. You can customize the directory definition and the DGTQAUTO EXEC to fit your installation's needs.

5 Define DirMaint FL 510 Requirements

Notes:

- a. If you have only installed the RMS function of DFSMS/VM, then proceed with step 6 on page 44.
- b. If you are installing space management only, go to step 5d on page 43.
- c. For more details on using the DIRM commands as shown in the examples that follow, see *z/VM: Directory Maintenance Facility Commands Reference*, SC24-6133.
- d. For more details on configuration entries contained within the DirMaint CONFIG DATADVH file, as shown in the examples that follow, see *z/VM: Directory Maintenance Facility Tailoring and Administration Guide*, SC24-6135.
- e. If you are using an equivalent directory maintenance program, you will need to modify the DGTQDIRM EXEC as required.

When using DirMaint as the CP directory maintenance manager, you should consider the following requirements and suggestions.

a CMDSet classes

The DIRMAINT AUTHFOR command defines the command set a user is authorized to use. For each minidisk server machine, issue the following commands:

```
DIRM AUTHFor userid CMDSet cmdset CMDLevel 150A  
DIRM AUTHFor userid CMDSet cmdset CMDLevel 140A
```

When appropriate, the minidisk server virtual machine requests DirMaint to perform certain operations that DirMaint considers privileged. Thus, the DirMaint command set must be defined appropriately for each minidisk server virtual machine.

The DirMaint administrator would need to issue both **AUTHFor** commands for each minidisk server.

b NEEDPass

The **DIRM NEEDPass** command defines whether or not the CP logon password for transaction verification is required. Normally, DirMaint must have the current logon password for verification and authorization when you request a service from DirMaint. To reduce complexities, the supplied DGTQDIRM EXEC expects the minidisk server virtual machine to not prompt for a logon password. Therefore, each minidisk server virtual machine will need to issue the **DIRM NEEDPass NO** command.

Note: The DIRM NEEDPASS command must be issued from the DIRMAINT server console as the minidisk servers have a read only 191 minidisk.

C DirMaint CONFIG DATADVH File Options

The following configuration entries should be made within the CONFIG DATADVH file:

UPDATE_IN_PLACE=YES

This parameter specifies whether the DIRMAINT server will attempt to use Diagnose X "84" to put directory changes online. This parameter must be set to YES.

EXTENT_CHECK=ON

This parameter specifies whether verification of manually allocated minidisk extents should occur. It is highly recommended that it be set to ON.

ONLINE=IMMED

This parameter specifies when the updated source directory is to be placed online. This parameter should be set to IMMED, which specifies that the updated source directory is to be placed online as soon as possible.

Note: If the size of your directory impacts the performance of the CP DIRECT command, do not set the ONLINE option in the CONFIG DATADVH file to ONLINE=IMMED. Directories with entries greater than 500 users experience slower performance when ONLINE=IMMED.

RUNMODE=OPERATIONAL

This parameter specifies whether DirMaint is running in a test environment or is fully operational. When running in a test environment, source changes to the directory are not allowed. This parameter must be set to OPERATIONAL.

3
3
3
3
3
3
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3
3
3

d EXTENT Control File Verify the DirMaint EXTENT CONTROL file contains the following:

1) The AUTOBLOCK section contains:

```
3380 800 540 1 CKD
3380 512 690 1 CKD
3380 1024 465 1 CKD
3380 2048 270 1 CKD
3380 4096 150 1 CKD
```

2) The DEFAULTS section contains:

```
3380 885
```

- 3 or any number larger than 2 plus the number of minidisk
 3 management server virtual machines.
- 3 3) Make sure the REGIONS section does **not** contain an entry for
 3 **volume \$\$\$\$\$**, or if present, the device type is 3380.
- 3 4) A section of the EXTENT control file contains a list of minidisks
 excluded when extent checking is enabled. Each minidisk
 management server virtual machine's 0500 and 05FF minidisks
 should be listed in this exclusion list, because the intent of these
 minidisks is to overlap source and target minidisks. The server
 virtual machine's 0567 minidisk **must not** be included in the
 EXTENT control file exclude section. The following is an example
 of the statements you can specify in the EXTENT control file to
 exclude minidisks.

```

6       :EXCLUDE
6       DGTSRV01 0500
        DGTSRV01 05FF
        .
        .
        .
        :END
  
```

Important

Groups and full volume minidisks must be defined in the EXTENT control file if any minidisks are to be moved into a location where these full volumes reside.

- e** Ensure that DirMaint is fully operational and that the DIRMaint ENABLE command has been issued.

6 Define SFS Requirements for DFSMS/VM

DFSMS/VM needs proper authority to access certain SFS file pools. Some SFS parameters need to be modified by an SFS administrator to allow for DFSMS/VM connections and operations.

The installer user ID (DFSMS) is not a required administrator for the file pools discussed in this step. You may, however, find it helpful to make that user ID an administrator in order to facilitate the install and verification procedure.

a Modify the VMSYS File Pool

DFSMS/VM uses a file space, DFSMS, on the VMSYS file pool to store the control file, authorization file, and other information. Refer to *z/VM CMS File Pool Planning, Administration, and Operation* for more information on the VMSYS file pool.

Grant VMSYS file pool administrator authority to all DFSMS/VM virtual machines by modifying the DMSPARMS file on the VMSYS file pool server's 191 disk to include all of the DFSMS/VM virtual machines as administrators. To modify the DMSPARMS file, stop the file pool server, make the modifications to the DMSPARMS file, and then restart the file pool server.

The following is an example of the statements you may add to the VMSYS file pool DMSPARMS file, if you are using the space management, minidisk, and RMS functions of DFSMS/VM. To modify the DMSPARMS file, you will have to stop the file pool server, make the modifications to the DMSPARMS file, and then restart the file pool server.

```
ADMIN DFSMS
ADMIN SMSMASTR
ADMIN RMSMASTR
ADMIN SMSSRV01
ADMIN SMSSRV02
ADMIN SMSSRV03
ADMIN DGTSRV01
ADMIN DGTSRV02
ADMIN DGTSRV03
```

Note: Remove undefined virtual machines as necessary and include additional virtual machines in the DMSPARMS file. If in the future the list of virtual machines changes, update this list accordingly.

Because DFSMS/VM requires space on the VMSYS file pool, you must enroll DFSMS as a user of VMSYS. Refer to the following example:

```
ENROLL USER DFSMS VMSYS: (BLOCKS 500
```

You must also create the VMSYS:DFSMS.CONTROL directory on which the DFSMS/VM control file (DGTVCNTL DATA) resides. To create this directory, refer to the following example:

```
CREATE DIR VMSYS:DFSMS.CONTROL
```

b Specify a Work Area for DFSMS/VM

DFSMS/VM needs an SFS directory to use as work space. The SFS directory value given in the sample control file is:

```
VMSYSU:DFSMS.WORK
```

The first five characters of the file space (DFSMS in the example above) that you choose must be DFSMS. The three remaining characters (positions 6–8) may be anything you choose or may be left blank. Enroll this user in VMSYSU, or some other file pool that you

designate. If you are installing minidisk management, space management, and RMS, the file space needs at least 4000 blocks of storage. If you are installing only RMS, or only minidisk management and space management, the file space needs at least 2000 blocks of storage or possibly a greater number of blocks, depending on your workload.

If the work directory is placed in a storage group with other users, DFSMS/VM cannot be running when you issue the SFS FILEPOOL BACKUP command against that storage group because DFSMS/VM has open files in the work directory. You may want to consider putting the work directory in its own storage group so that your SFS FILEPOOL BACKUP command will be unaffected whether DFSMS/VM is running or not.

You may want to place both the work directory and log files in the same storage group.

The following is an example of the ENROLL command you might use here:

```
ENROLL USER DFSMS          VMSYSU: (BLOCKS 4000 STOrgroup nnnnn
```

where *nnnnn* is a storage group set aside for the work directory.

If you name the file pool something other than VMSYSU or specify a user other than DFSMS, you must also update the entry in the control file (DGTVCNTL DATA in VMSYS:DFSMS.CONTROL) during customization.

Grant administrator authority to all DFSMS/VM virtual machines for the work directory's file pool by modifying the DMSPARMS file on the work directory's file pool server 191 disk to include all of the DFSMS/VM virtual machines as administrators. To modify the DMSPARMS file, stop the file pool server, make the modifications to the DMSPARMS file, and then restart the file pool server.

The following is an example of the statements to add to the VMSYSU file pool DMSPARMS file, if you will be using the space management, minidisk, and RMS functions of DFSMS/VM.

```
ADMIN DFSMS
ADMIN SMSMASTR
ADMIN RMSMASTR
ADMIN SMSSRV01
ADMIN SMSSRV02
ADMIN SMSSRV03
ADMIN DGTSRV01
ADMIN DGTSRV02
ADMIN DGTSRV03
```

Notes:

- 1) Remove undefined virtual machines as necessary and include additional virtual machines in the DMSPARMS file. If in the future the list of virtual machines changes, update this list accordingly.
- 2) The work directory is for exclusive use by DFSMS/VM only. Files other than those created by DFSMS/VM should not be placed in this directory. Removal or modification of any DFSMS/VM-created file is strongly discouraged unless instructed to do so by IBM Service. Failure to follow these guidelines may result in undesired results such as an abend.

7 Autolog a Coordinated Resource Recovery Server

The coordinated resource recovery (CRR) server should be autologged at system IPL time. You will need to define a CRR virtual machine if there is more than one file pool being DFSMS/VM-managed, or if the file pool being managed is separate from the work directory file pools. See *z/VM CMS File Pool Planning, Administration, and Operation*.

8 Copy and Update Sample DFSMS/VM Files

a Access VMSYS:DFSMS.CONTROL

access VMSYS:DFSMS.CONTROL u (FORCERW

b Access the DFSMS/VM samples

access 1c2 t

The sample files were loaded to the 1C2 minidisk.

- c** Copy the sample control file (DGTVCNTL SAMPDATA), the sample authorization file (DGTVAUTH SAMPDATA), and the sample RMS configuration file (RMCONFIG SAMPCNFG) to VMSYS:DFSMS.CONTROL directory, renaming them to DGTVCNTL DATA, DGTVAUTH DATA, and RMCONFIG DATA, respectively.

copyfile dgtvcntl sampdata t = data u (olddate
copyfile dgtvauth sampdata t = data u (olddate
copyfile rmconfig sampcnfg t = data u (olddate

Note: If you have installed with the DFSMSVMNOSM component, then you may receive errors upon SMSMASTR initialization. To resolve these errors, you will need to edit the DGTVCNTL DATA file and comment out the references to the DFSMS_SERVER_VM server statements (these are the SMSSRVXX server entry definitions).

9 Perform preliminary customization work.

Preliminary customization allows you to change the DFSMS/VM control file (DGTVCNTL DATA). Edit the files you just copied to VMSYS:DFSMS.CONTROL to make any changes. Update the RMCONFIG DATA file to include all device addresses that are in the 3495 library. See *DFSMS/VM Removable Media Services User's Guide and Reference* manual for more details.

Minidisk Management Server Virtual Machine Names

Make any necessary changes to the minidisk management virtual machine names (DGTSRVnn, and installer ID) in the DFSMS/VM control file. The control file keywords are MINIDISK_SERVER_VM and DFSMS_OWNER_VM. This step is not required if you set up a default configuration with default master, server, and owner virtual machine names, or if you do not choose to use the minidisk management functions of DFSMS/VM. However, if you are using other names for any of these machines, you must modify the DFSMS/VM control file keywords. If you are not using the minidisk management function of DFSMS/VM or use fewer than the three default machines, remove the statements not needed or place an asterisk at the beginning of each statement to create a comment statement. See the "Minidisk Management Control File Keywords" section within the "Customizing the DFSMS/VM Control File" chapter of the *DFSMS/VM Customization* manual.

Space Management Server Virtual Machine Names

Make any necessary changes to the space management virtual machine names (SMSSRVnn) in the DFSMS/VM control file. The control file keyword is DFSMS_SERVER_VM. This step is not required if the default configuration is used. However, if you are using alternate names for any of these machines or if you are not using space management, you must modify the DFSMS/VM control file keywords. If you are not using the space management function of DFSMS/VM, function level 221 or use fewer than the three default machines, remove the statements not needed or place an asterisk at the beginning of each statement to create a comment statement. There must be at least one space management server if the space management function is used. See the "Space Management Control File Keywords" section within the "Customizing the DFSMS/VM Control File" chapter of the *DFSMS/VM Customization* manual.

Removable Media Services Virtual Machine Name

Make any necessary changes to the RMS virtual machine name (RMSMASTR) in the DFSMS/VM control file. The control file keyword is DFSMSRM_MASTER_VM. This step is not required if you set up a default configuration or if you do not choose to use the RMS functions of DFSMS/VM. However, if you are using a different name for this machine, you must modify the DFSMS/VM control file keyword. See the "Removable Media Services (RMS) Control File Keywords" section within the "Customizing the DFSMS/VM Control File" chapter of the *DFSMS/VM Customization* manual.

Removable Media Services Library Sequence Number

Update the RM_AUTO_LIB keyword with the sequence number of each library specified in the RMS configuration file (RMCONFIG DATA).

Space and Minidisk Management Master Virtual Machine Name

Make any necessary changes to the name of the master virtual machine (SMSMASTR) used for space management and minidisk management functions in the DFSMS/VM control file. The

control file keyword is DFSMS_MASTER_VM. This step is not required if the default configuration is used. However, if you are using an alternate name for this virtual machine or if you are not using the space management or minidisk management functions of DFSMS/VM, you must modify the DFSMS/VM control file keyword. See the "Space and Minidisk Management Control File Keywords" section within the "Customizing the DFSMS/VM Control File" chapter of the *DFSMS/VM Customization* manual.

DFSMS Logging

The control file is shipped with DFSMS_LOG_TO_FILE message level set to 0 and DFSMS_LOG_TO_CONSOLE message level set to 3. During preliminary verification, it may be helpful to have all messages (level 4) issued somewhere, and logging to file may be useful if you wish to peruse the messages after you have done verification. Update the two logging parameters according to your installation's needs.

If using the removable media services function, the control file is shipped with RM_LOG_TO_FILE message level set to 0 and RM_LOG_TO_CONSOLE message level set to 3. During preliminary verification, it may be helpful to have all messages (level 4) issued somewhere, and logging to file may be useful if you wish to peruse the messages after you have done verification. Update the two logging parameters according to your installation's needs.

If you choose to use logging to a file, make sure the file pool and file space you select exist, and the file pool and file space are specified on the appropriate LOG_TO_FILE parameter. Also, ensure the file space is enrolled with space. See the "Customizing the DFSMS/VM Control File" chapter of the *DFSMS/VM Customization* manual for information regarding these parameters.

Work Area

If you defined a work area in a file pool and file space other than VMSYSU:DFSMS., update the DFSMS/VM control file with the file pool and file space you chose. The control file keyword is WORK_DIRECTORY.

Directory Maintenance

If the directory maintenance virtual machine has a name other than DIRMAINT, modify the values associated with the DIRECTORY_VM keywords described in the "Minidisk Management Control File Keywords" section within the "Customizing the DFSMS/VM Control File" chapter of the *DFSMS/VM Customization* manual.

If you are using a directory maintenance product other than DirMaint, customize the DGTQDIRM EXEC installation-wide exit appropriately, as well as other modifications necessary to make the directory maintenance product act like DirMaint.

Authorization

If the user ID DFSMS is not used as the installer ID, update the authorization file (DGTVAUTH DATA) with the user ID you have selected.

If you are implementing space management, authorize SFS file pool servers to DFSMS/VM by adding the file pool server machine user IDs to the DFSMS authorization file. For example, if VMSYSU will be a DFSMS/VM-managed file pool, add its virtual machine name to the authorization file.

Then, if you have not done so already, enroll the installer ID (that is, DFSMS or the user ID you choose to do the verification from) into this managed file pool for verification testing. Use the following as an example:

```
ENROLL USER DFSMS VMSYSU: (BLOCKS 4000
```

If RACF/VM is installed on your system, do the following:

- a** Identify all new user IDs and minidisks to RACF/VM according to your installation's policies.
- b** Ensure all minidisks shared between different virtual machines are granted the appropriate authority.
- c** Ensure the installing virtual machine has READ access to the DFSMS RACF/VM entities. Refer to the "Authorizing DFSMS/VM Users" chapter of *DFSMS/VM Customization* manual.

For further details on these control file statements, see the "Customizing the DFSMS/VM Control File" chapter and the "Authorizing DFSMS/VM Users" chapter of *DFSMS/VM Customization* manual.

10 Prepare the PROFILE EXEC

- a** Link and Access the SMSMASTR and RMSMASTR 191 disks

The DFSMS/VM supplied PROFILE EXEC must be copied to the SMSMASTR and RMSMASTR 191 minidisks. The distributed EXECs are named FSMPROF EXEC and RMSPROF EXEC, respectively. They can be found in the LOCALSMP, 1C2, minidisk.

```
link smsmastr 191 991 w
access 991 u
link rmsmastr 191 992 w
access 992 v
```

- b** Copy the FSMPROF EXEC from the LOCALSMP disk to the SMSMASTR 191 disk.

```
copyfile fsmprof exec t profile = u (olddate
```

- c** Copy the RMSPROF EXEC from the LOCALSAMP disk to the RMSMASTR 191 disk.

copyfile rmsprof exec t profile = v (olddate

3
3

Note: Change the 'ACCESS 291 D' instruction within the PROFILE EXEC V for the RMSMASTR server to 'ACCESS 192 D'. A newer copy of this may exist on the 1B5 with this already corrected.

d Update the Profile Exec

If space management is being implemented, add the appropriate link and access statements to the SMSMASTR's PROFILE EXEC for the C runtime library. If you plan on implementing ACS processing using a compiled REXX EXEC for your ACS routines, add the appropriate LINK and ACCESS statements to the SMSMASTR's PROFILE EXEC to gain access to the IBM Library for REXX/370 for run time support.

You may also want to consider spooling the console of the SMSMASTR and RMSMASTR virtual machines. If DFSMS/VM is unable to write to the log files for any reason (for example, being out of space or file pool being down) messages are written to the console. Other non-DFSMS/VM messages are written to the console only. These may be useful in debugging problems. If you spool the console, ensure that you have some method of periodically closing and deleting these consoles so that you do not run out of spool space.

11 Ensure Public Access to DFSMS/VM

For proper access to DFSMS/VM ensure the DFSMS 1B5 minidisk is publicly accessible or copy the files listed in Figure 7 on page 17 to a publicly accessible disk.

12 Define the DFSMS/VM Saved Segment for Space Management

Note: If you installed RMS only, then proceed to step 13 on page 53.

If you are using the space management functions of DFSMS/VM, define a saved segment. If you have installed DFSMS/VM Function Level 220, the saved segment does not have to be reinstalled.

If after loading DFSMS/VM from the tape, you want to use the space management functions of DFSMS/VM you **must** define and save the DFSMS/VM saved segment using the FSMSEGDF EXEC on the 1B5 disk.

Defined as a restricted (RSTD) read/write saved segment, this segment is used by DFSMS/VM virtual machines. Because of this, the DFSMS/VM master and space management server virtual machines are given segment access with a NAMESAVE statement in their CP directory entry. In addition, each SFS file pool server managed by DFSMS/VM needs to have the NAMESAVE statement included in its directory entry. Refer to the VSM221B PLANINFO file for an example of using the NAMESAVE statement.

Notes:

- 5 a. The size of the installing virtual machine must be greater than or equal to the starting location of the segment plus 3MB.
- b. If the SFS virtual machine size includes the segment location, you should ensure that the segment is always accessible by the SFS virtual machine by adding SEGMENT RESERVE DFSMSSEG to the PROFILE EXEC of SFS virtual machines for file pools that are DFSMS/VM-managed.
- 5 c. See *z/VM: Saved Segments Planning and Administration* manual for details on creating and managing saved segments and defining the segment size.

a Determine the Address Location of the Segment

Before running the FSMSEGDF EXEC, you may choose to modify the address where the segment will be located. The EXEC shipped with DFSMS/VM creates the segment (of size 1MB) in segment pages 1400–14FF (20M decimal).

- 5 **b** Establish the correct minidisk access order.

5 **vmfsetup VSM221B DFSMSVM**

c Invoke the EXEC to Save the Segment

fsmsegdf

When the FSMSEGDF EXEC is running, messages are issued. During segment creation, you may see messages that you think are errors; however, if the return code from the EXEC is 0, the segment has been successfully created. The following is an example of the messages and return codes you may see when FSMSEGDF completes successfully. Note that message DMSDCS344E is issued, but the EXEC still completes successfully.

```
fsmsegrdf
NO FILES PURGED
DMSDCS344E Segment space DFSMSSEG has not been reserved
HCPNSD440I Saved segment DFSMSSEG was successfully defined in fileid 1631.
HCPNSS440I Saved segment DFSMSSEG was successfully saved in fileid 1631.
HCPNSD440I Saved segment DFSMSSEG was successfully defined in fileid 1632.
HCPNSS440I Saved segment DFSMSSEG was successfully saved in fileid 1632.
Ready; T=0.04/0.14 09:24:44
```

If errors occur that prevent the segment from being correctly defined, you will see a nonzero return code. The following is an example of what you will see if the user ID running the EXEC does not have the NAMESAVE DFSMSSEG statement in the directory entry for that user ID.

```
fsmsegrdf
0001 FILE PURGED
DMSDCS344E Segment space DFSMSSEG has not been reserved
HCPNSD440I Saved segment DFSMSSEG was successfully defined in fileid 1633.
HCPNSS440I Saved segment DFSMSSEG was successfully saved in fileid 1633.
HCPNSD440I Saved segment DFSMSSEG was successfully defined in fileid 1634.
FSMACS8008S No access to shared segment DFSMSSEG
***** Initialization of segment failed *****
Ready(00020); T=0.03/0.09 09:12:50
```

Note: If you receive a “0001 FILE PENDING PURGE” message, the segment has been previously defined and is in use. This error message must be resolved before continuing.

13 Update the ISMF EXEC

Note: If you have only installed the RMS function of DFSMS/VM, then proceed with step 14 on page 55.

In order for users to use the ISMF EXEC, it must be on a publicly accessible disk. The users will also require access to the ISPF product code, and, if all ISMF functions are to be available, they will also require access to either the ISPF/PDF product code or the CMS Utilities or both.

The ISMF EXEC contains within it a number of variables that indicate what disks the different code is on, what the labels are, and what functions are available. These must be tailored in order for users to have the access you desire. The default values are listed in Figure 13.

Figure 13. Default Corequisite Product Information

Product	Available?	Label	Owner	CUU
DFSMS	Yes	DFS1B5	DFSMS	1B5
ISPF	Yes	ISP192	ISPVM	192
PDF	Yes	ISP193	ISPVM	193
CUF	Yes	MNT19E	MAINT	19E

If any of the assumptions referred to in Figure 13 on page 53 is invalid, that is, if you have not installed a product listed in the table or have installed it in a different way, then you must customize the ISMF EXEC so that user machines can access these disks correctly.

Considerations when modifying statements in the ISMF EXEC:

- a. The USER_INIT subroutine contains variables and logic which an installation might want to customize.
- b. If you are going to use a shared file system for the publicly accessible files, you need to insert the following line within the USER_INIT subroutine.

```
PROD_SFS = 'VMSYSU:DFSMS.USERCODE'
```
- c. If you have changed the name of your install machine from DFSMS, you need to modify the PROD_OWNER statement.
- d. If the CMS Utilities disk is on a disk label other than the supplied label of MNT19E, you need to modify the CUF_LABEL statement.

Some considerations to keep in mind when setting up user access to ISMF:

- Users performing storage administrator functions must be enrolled in the VMSYS file pool and given READ access to the VMSYS:DFSMS.CONTROL directory.
- If you plan to make use of ISMF in split-screen mode, the IUCV MAXCONN value specified (or defaulted) must support the number of concurrent sessions on that machine, plus any additional connections required by other applications.
- Minimum storage requirements are 5MB. Define a larger virtual machine size if you plan to build large minidisk lists or run in split-screen mode.
- ISMF users need access to the ISPF product code and the ISPF/PDF code or the CMS Utilities Feature code, or both. If you do not have access, some of the edit and browse functions will not be available.
- If you wish to ACCESS a disk containing MACLIBs required by DFSMS/VM as a Read Only Extension (i.e. ACCESS vaddr D/A), then

the ISMF EXEC will need to be updated to recognize this. Locate the following line (approximately line 190):

```
PULL qmode . . qcuu qlabel .
```

Then add the following line after the above PULL instruction.

```
qmode = substr(qmode,1,1) /* get filemode for later ESTATE use */
```

There is an example of applying a local modification to the ISMF exec in Appendix B, "Local Modification Example: ISMF EXEC File" on page 79.

14 Update the RMSSERV EXEC

Note: If you are using the C runtime library from LE/370 or VM/ESA Version 2, then proceed with step 15.

When initializing RMSMASTR you may receive message *'DMSOPN002E SCEERUN LOADLIB NOT FOUND'* if you are not using the C runtime library. The C runtime library is required if using the space management or RMS foreign host support of DFSMS/VM. If neither of these apply, then you can comment out the GLOBAL LOADLIB SCEERUN within the RMSSERV EXEC.

15 Corequisite Software Service Considerations

There may be a need to customize execs for ISMF to handle service to the following software:

ISPF	Functional corequisite for ISMF
PDF	Optional functional corequisite for ISMF.

In the ISMF EXEC, the libraries associated with ISPF and PDF are assumed to be in maclibs. If either of these products has service in the form of CMS files, then changes will have to be made to the ISMF EXEC.

Appropriate FILEDEF statements should be included in the USER_INIT section of the file ISMF EXEC using the following examples as a guide:

- To apply service for the ISPF panel ISPPFT04 that exists as ISPPFT04 COPY in your system's Y disk, include in the USER_INIT section

```
'FILEDEF ISPLIB DISK ISPPFT04 COPY Y (CONCAT'
```
- To apply service for the ISPF message member ISP11 that exists as ISPA11 COPY in your system's Y disk, include in the USER_INIT section

```
'FILEDEF ISPLIB DISK ISPA11 COPY Y (CONCAT'
```
- To apply service for the ISPF table member ISPCMDS that exists as ISPCMDS COPY in your system's Y disk, include in the USER_INIT section

```
'FILEDEF ISPTLIB DISK ISPCMDS COPY Y (CONCAT'
```

- To apply service for the PDF skeleton ISREMAS1 that exists as ISREMAS1 COPY in your system's S disk, include in the USER_INIT section

```
'FILEDEF ISRSLIB DISK ISREMAS1 COPY S (CONCAT'
```

Finally, you have to identify the appropriate DDNAME for that product and language and include the FILEDEF statement in the USER_INIT section of the ISMF EXEC.

- 16** Re-build the CMS HELP logical saved segment, to include DFSMS/VM'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.)

- 17** To receive uppercase English versions of the CMS parser tables, issue the following command:

```
vmfbld ppf VSM221B DFSMSVM fsmblcmd (all
```

What's next?

You have now finished tailoring DFSMS/VM. Continue with the "Verifying the Installation Process", "Postinstall and Optional Customization" and "Authorizing DFSMS/VM Users" chapters of the *DFSMS/VM Customization* manual. You will not need to return to this program directory for any further install instructions.

Notes:

1. The following minidisk server messages are normal during initialization and processing of a minidisk request:

```
DMSDCS344E Segment space DFSMSSEG has not been reserved
HCPDTV040E Device 0500 does not exist
FSMDCM4020E Error from CP command DETACH, return code = 40
FSMDCM4032I DETACH 0500
HCPDTV040E Device 05FF does not exist
FSMDCM4020E Error from CP command DETACH, return code = 40
FSMDCM4032I DETACH 05FF
DVHDMH042E User DGTSRV01 Minidisk address 0567 not found.
```

DFSMS/VM is now installed and built on your system.

7.0 Service Instructions

This section of the Program Directory contains the procedure to install CORrective service to DFSMS/VM. VMSES/E is used to install service for DFSMS/VM.

To become more familiar with service using VMSES/E, you should read the introductory chapters in the *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 directed to do so. All instructions showing accessing of disks assume the use of default minidisk addresses. If different minidisk addresses are used, or if using a shared file system, change the instructions appropriately.
2. If the service instructions are not completed at one time, you can issue VMFSETUP and continue with the step you left off at.
3. The component name used to install DFSMS/VM should also be used during the service instructions. The three choices are:
 - **DFSMSVM** - Used to install the entire DFSMS/VM product.
 - **RMSONLY** - Used to install the RMS component of DFSMS/VM only.
 - **DFSMSVMNOSM** - Used to install DFSMS/VM without the space management component, includes minidisk management and RMS components only.

7.1 VMSES/E Service Process Overview

The following is a brief description of the main steps in servicing DFSMS/VM using VMSES/E.

- Setup Environment

Access the software inventory disk. Use VMFSETUP command to establish the correct minidisk access order.
- 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 (mods) must be entered into the software inventory to allow VMSES/E to track the changes and build them into the system. Refer to Chapter 7 in the *z/VM: Service Guide* for this procedure.

- Build New Levels

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

- Place the New Service into Production

DFSMS/VM will be placed into production by copying the new service to any public disk if applicable, re-saving the NSS (Named Saved System) or DCSS (Discontiguous Saved Segments), etc.

Choose one of the following sections to proceed with based on the service being applied:

- 7.2, "Servicing DFSMS/VM" if applying service to the base product.
- 7.3, "Servicing the Japanese Language Feature" on page 65 if applying service to the Japanese language feature.

7.2 Servicing DFSMS/VM

7.2.1 Prepare to Receive Service

2 — Electronic Service

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

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

The *ppfname* used throughout these servicing instructions is **VSM221B**, which assumes you are using the PPF supplied by IBM for DFSMS/VM. If you have your own PPF override file for DFSMS/VM, you should use your file's *ppfname* instead of **VSM221B**. The *ppfname* you use should be used **throughout** the rest of this procedure, unless otherwise stated differently.

1 Logon to DFSMS/VM service user ID **DFSMS**

2 As a precaution, create a backup copy of the current DFSMS 1B5 disk. Save this copy until you have completed installing the service and you are confident that the service runs correctly.

- 3 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.

7
7

- 4 Have the DFSMS/VM CORrective service tape mounted and attached to **DFSMS**. If you have a service envelope SERVLINK file make sure it is available on the A-disk or any work disk accessed as C.

- 5 Establish the correct minidisk access order.

vmfsetup VSM221B {DFSMSVM | RMSONLY | DFSMSVMNOSM}

VSM221B is the PPF that was shipped with the product. If you have your own PPF override you should substitute your PPF name for VSM221B.

Use **DFSMSVM** when servicing the entire DFSMS/VM product, **RMSONLY** when servicing the RMS component only, or **DFSMSVMNOSM** when servicing DFSMS/VM without the space management component.

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

2

- a If receiving the service from tape

2 **vmfrec info**
2

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

2

- b If receiving the service from an envelope file

2 **vmfrec info (env *envfilename***
2

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

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

vmfview receive

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

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

1 vmfmrdsk VSM221B {DFSMSVM | RMONLY | DFSMSVMNOSM} apply (levels 2

Use **DFSMSVM** when servicing the entire DFSMS/VM product, **RMONLY** when servicing the RMS component only, or **DFSMSVMNOSM** when servicing DFSMS/VM without the space management component.

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 error messages, see the appropriate *z/VM: System Messages and Codes*, or use on-line HELP.

vmfview mrd

7.2.2 Receive the Service

- 1 Receive the service.

2 a If receiving the service from tape

2 vmfrec ppf VSM221B {DFSMSVM | RMONLY | DFSMSVMNOSM}

2 Use **DFSMSVM** when servicing the entire
2 DFSMS/VM product, **RMONLY** when servicing
2 the RMS component only, or **DFSMSVMNOSM**
2 when servicing DFSMS/VM without the space
2 management component.

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

2 b If receiving the service from an envelope file

7 **vmfrec ppf VSM221B {DFSMSVM | RMONLY | DFSMSVMNOSM} (env envfilename**

2 Use **DFSMSVM** when servicing the entire
2 DFSMS/VM product, **RMONLY** when servicing
2 the RMS component only, or **DFSMSVMNOSM**
2 when servicing DFSMS/VM without the space
2 management component.

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

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

vmfview receive

7.2.3 Apply the Service

- 1 Apply the new service.

vmfapply ppf VSM221B {DFSMSVM | RMONLY | DFSMSVMNOSM}

Use **DFSMSVM** when servicing the entire DFSMS/VM product, **RMONLY** when servicing the RMS component only, or **DFSMSVMNOSM** when servicing DFSMS/VM without the space management component.

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.

You must review the VMFAPPLY message log if you receive a return code (RC) of a 4, as this may indicate that you have local modifications that need to be reworked.

- 2 Review the apply message log (\$VMFAPP \$MSGLOG). If necessary, correct any problems before going on. For information about handling specific error

messages, see the appropriate *z/VM: System Messages and Codes*, or use on-line HELP.

vmfview apply

Note

If you get the message VMFAPP2120W then re-apply any local modifications before building the new DFSMS/VM. Refer to chapter 7 in the *z/VM: Service Guide*. Follow the steps that are applicable to your local modification.

The following substitutions need to be made:

- **zvm** should be **VSM221B**
- *compname* should be **DFSMSVM**, **RMSONLY**, or **DFSMSVMNOSM**
- *appid* should be **VSM221B**
- *fm-local* should be the fm of 1C4
- *fm-applyalt* should be the fm of 1A6
- **outmode localmod** should be **outmode local**

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."

There is a local modification example in Appendix B, "Local Modification Example: ISMF EXEC File" on page 79.

7.2.4 Update the Build Status Table

- 1 Update the Build Status Table with serviced parts.

vmfbld ppf VSM221B {DFSMSVM | RMSONLY DFSMSVMNOSM} (status

Use **DFSMSVM** when servicing the entire DFSMS/VM product, **RMSONLY** when servicing the RMS component only, or **DFSMSVMNOSM** when servicing DFSMS/VM without the space management component.

This command updates the Build Status Table.

Note

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

```
VMFBLD2185R The following source product parameter files have been
serviced:
VMFBLD2185R VSM221B $PPF
VMFBLD2185R When source product parameter files are serviced, all
product parameter files built from them must be recompiled
using VMFPPF before VMFBLD can be run.
VMFBLD2185R Enter zero (0) to have the serviced source product
parameter files built to your A-disk and exit VMFBLD so
you can recompile your product parameter files with VMFPPF.
VMFBLD2185R Enter one (1) to continue only if you have already
recompiled your product parameter files with VMFPPF.
```

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

```
VMFBLD2188I Building VSM221B $PPF
on 191 (A) from level $PFnnnnn
```

vmfppf VSM221B {DFSMSVM | RMSONLY | DFSMSVMNOSM}

Note: If you've created your own PPF override then use your PPF name instead of VSM221B.

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

**copyfile VSM221B \$PPF a = = d (olddate replace
erase VSM221B \$PPF a**

Note: Do not use your own PPF name in place of VSM221B for the COPYFILE and ERASE commands.

vmfblld ppf VSM221B {DFSMSVM | RMSONLY | DFSMSVMNOSM} (status

Re-issue VMFBLD to complete updating the build status table.

1 When you receive the prompt that was previously displayed, enter a 1 to continue.

- 2 Use VMFVIEW to review the build status messages, and see what objects need to be built.

vmfview build

7.2.5 Build Serviced Objects

- 1 Rebuild DFSMS/VM serviced parts.

vmfbld ppf VSM221B {DFSMSVM | RMSONLY | DFSMSVMNOSM} (serviced

Use **DFSMSVM** when servicing the entire DFSMS/VM product, **RMSONLY** when servicing the RMS component only, or **DFSMSVMNOSM** when servicing DFSMS/VM without the space management component.

Notes:

- a. If your software inventory disk (51D) is not owned by the MAINT user ID then make sure the VMSESE PROFILE reflects the correct owning user ID.
- b. The following messages are normal when applying service using the RMSONLY and DFSMSVMNOSM components and can be ignored:

```
DMSLI0201W The following names are undefined:
           TIME SRAND CEESG003 MALLOC FREE LOCALTIM
           RAND @@TRT SPRINTF PRINTF SSCANF
```

```
VMFBDM1966W The command, LOAD , completed with return code
           4 while processing object FSMDFSMS.MODULE . It
           was operating upon file FSMDFSMS TTT00000
```

```
VMFBDM1966W The command, INCLUDE , completed with return
           code 4 while processing object FSMDFSMS.MODULE.
           It was operating upon file SVMSHARE TEXT
```

```
VMFBDM1966W The command, LOAD , completed with return code
           4 while processing object FSMDFSMS.MODULE . It
           was operating upon file FSMLAST TTT00000"
```

Message VMFBLD1851I, 'VMFBDMOD completed with return code 4', will occur when the FSMDFSMS MODULE is rebuilt during service installation. This return code is not an error and service was successfully installed.

- c. The following message is normal when applying service using the RMSONLY component and can be ignored:

```
VMFBLD1851I (x of y) Cannot process FSMBLaaa EXEC because it is flagged to
           be bypassed
```

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

vmfview build

What's next?

Servicing of the DFSMS/VM base product is complete.

If you have service for the Japanese language feature, than continue with 7.3, "Servicing the Japanese Language Feature."

Otherwise, continue with 7.4, "Place the New DFSMS/VM Service Into Production" on page 71.

7.3 Servicing the Japanese Language Feature

This section describes the service steps required for the Japanese language feature.

7.3.1 Prepare to Receive Service

2 Electronic Service

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

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

The *ppfname* used throughout these servicing instructions is **VSM221H**, which assumes you are using the PPF supplied by IBM for the DFSMS/VM Japanese language feature. If you have your own PPF override file for the DFSMS/VM Japanese language feature, you should use your file's *ppfname* instead of **VSM221H**. The *ppfname* you use should be used **throughout** the rest of this procedure, unless otherwise stated differently.

- 1 Logon to DFSMS/VM service user ID **DFSMS**

2 As a precaution, create a backup copy of the current DFSMS 1B5 disk. Save this copy until you have completed installing the service and you are confident that the service runs correctly.

3 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.

7
7

4 Have the DFSMS/VM CORrective service tape mounted and attached to **DFSMS**. If you have a service envelope SERVLINK file make sure it is available on the A-disk or any work disk accessed as C.

5 Establish the correct minidisk access order.

vmfsetup VSM221H DFSMSVM

VSM221H is the PPF that was shipped with the Japanese language feature. If you have your own PPF override you should substitute your PPF name for VSM221H.

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

2

a If receiving the service from tape

2 **vmfrec info**
2

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

2

b If receiving the service from an envelope file

7 **vmfrec info (env *envfilename*)**
7

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

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

vmfview receive

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

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

1 `vmfmrdsd VSM221H DFSMSVM apply (levels 2` 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 error messages, see the appropriate *z/VM: System Messages and Codes*, or use on-line HELP.

vmfview mrd

7.3.2 Receive the Service

1 Receive the service.

2 **a** If receiving the service from tape

2 `vmfrec ppf VSM221H DFSMSVM` This command receives service from your service tape. All new service is loaded to the DELTA disk.
2

2 **b** If receiving the service from an envelope file

Z `vmfrec ppf VSM221H DFSMSVM (env envfilename` This command receives service from your service tape. All new service is loaded to the DELTA disk.
2

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

vmfview receive

7.3.3 Apply the Service

- 1 Apply the new service.

vmfapply ppf VSM221H DFSMSVM

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.

You must review the VMFAPPLY message log if you receive a return code (RC) of a 4, as this may indicate that you have local modifications that need to be reworked.

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

vmfview apply

Note

If you get the message VMFAPP2120W then re-apply any local modifications before building the new DFSMS/VM. Refer to chapter 7 in the *z/VM: Service Guide*. Follow the steps that are applicable to your local modification.

The following substitutions need to be made:

- **zvm** should be **VSM221H**
- *compname* should be **DFSMSVM**
- *appid* should be **VSM221H**
- *fm-local* should be the fm of 1C4
- *fm-applyalt* should be the fm of 1A6
- **outmode localmod** should be **outmode local**

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 7.3.4, "Update the Build Status Table" on page 69.

There is a local modification example in Appendix B, "Local Modification Example: ISMF EXEC File" on page 79.

7.3.4 Update the Build Status Table

- 1 Update the Build Status Table with serviced parts.

vmfbld ppf VSM221H DFSMSVM (status

This command updates the Build Status Table.

Note

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

```
VMFBLD2185R The following source product parameter files have been
serviced:
VMFBLD2185R VSM221H $PPF
VMFBLD2185R When source product parameter files are serviced, all
product parameter files built from them must be recompiled
using VMFPPF before VMFBLD can be run.
VMFBLD2185R Enter zero (0) to have the serviced source product
parameter files built to your A-disk and exit VMFBLD so
you can recompile your product parameter files with VMFPPF.
VMFBLD2185R Enter one (1) to continue only if you have already
recompiled your product parameter files with VMFPPF.
```

0

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

```
VMFBLD2188I Building VSM221H $PPF
on 191 (A) from level $PFnnnnn
```

vmfppf VSM221H DFSMSVM

Note: If you've created your own PPF override then use your PPF name instead of VSM221H.

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

**copyfile VSM221H \$PPF a = = d (olddate replace
erase VSM221H \$PPF a**

Note: Do not use your own PPF name in place of VSM221H for the COPYFILE and ERASE commands.

vmfbld ppf VSM221H DFSMSVM (status

Re-issue VMFBLD to complete updating the build status table.

1

When you receive the prompt that was previously displayed, enter a 1 to continue.

2 Use VMFVIEW to review the build status messages, and see what objects need to be built.

vmfview build

7.3.5 Build Serviced Objects

1 Rebuild DFSMS/VM serviced parts.

vmfbld ppf VSM221H DFSMSVM (serviced

Note: If your software inventory disk (51D) is not owned by the MAINT user ID then make sure the VMSESE PROFILE reflects the correct owning user ID.

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

vmfview build

7.4 Place the New DFSMS/VM Service Into Production

Placing the DFSMS/VM code into production is a three step process:

- The DFSMSSEG segment is resaved.
- Then the contents of the DFSMS 1B5 minidisk should be copied to any applicable public disk.
- Then the CMS HELP logical saved segment should be re-built.

7.4.1 Rebuild the DFSMSSEG Saved Segment

1 Access the 1B5 build minidisk

access 1b5 e

2 Re-save the DFSMSSEG segment.

fsmsegdf

7.4.2 Copy the New DFSMS/VM Serviced Files Into Production

If you have copied any DFSMS/VM product code to a public disk and this code has changed as a result of the applied service, you need to recopy that code to the public disk.

7.4.3 Re-build the HELP Segment if Any Help Files Were Serviced

Re-build the CMS HELP logical saved segment, to include DFSMS/VM'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.)

You have finished servicing DFSMS/VM.

Appendix A. Year 2000 Enhancements for DFSMS/VM

APAR VM61214 provides year 2000 support and enhancements for DFSMS/VM in the following areas:

- Fixed window usage has been standardized to 1950-2049.
- 1 • The List Date column on the Saved ISMF Lists Panel has been extended to 10-characters.
- DFSMS COPY and MOVE commands will set the century bit in the minidisk label accordingly.
- Several ISMF help messages have been extended for 4-digit years.
- Several reports have been enhanced to include 4-digit years.
- 1 • Corrected problems occurring around the roll over to 2000/01/01.
- Removed the ISMF restriction on the first character of a directory name must be alphabetic.

A.1 Fixed Window Date Usage

DFSMS/VM, function level 221 uses dates quite extensively. It uses diagnose x'0C' to obtain the current system date then converts it to 10-character through a 1950-2049 fixed window. This means that all 2-digit years that are between 50 and 99 inclusive will be interpreted as 1950-1999. All 2-digit years that are between 00 and 49 inclusive will be interpreted as 2000-2049. This is applied when:

- displaying a date to a panel
- migrating or recalling files
- determining file expiration
- sorting based on date in panels
- filtering
- 10-character dates contained within reports.

Warning!

If running the space management portion of DFSMS/VM, the SFS filepool servers must be at least VM/ESA Version 2 Release 2.0 (or higher). The DFSMS/VM master and space management servers can be on an older release of VM/ESA. The problem is that a pre-year 2000 level of SFS does not update the last reference date past 12/31/99.

A.2 Saved ISMF Lists

The DFSMS/VM ISMF application 'Saved ISMF Lists Panel' (panel ID DGTLLLA1) was displaying 8-character dates in the 'List Date' field. User written extensions can obtain the value of this field through the CLU4DATE ISPF variable.

The List Date field has been extended to display 10-character dates in the form *yyyy/mm/dd*. This date is contained within a new ISPF variable called CLU4DATE. The CLU4DATE variable is still available as 8-characters.

Figure 14 within the "ISMF Variables" appendix of the *DFSMS/VM Storage Administration Guide and Reference* manual has been enhanced to include the CLU4DATE variable. Figure 14 lists available column variables for use in any user extensions written for operations against Saved ISMF Lists panel entries.

Figure 14. Column Variables for the Saved ISMF Lists Panel

Column	Variable Name	Attribute	Length
Display flag	CDISPFLG	character	1
Filter flag	CFILTFLG	character	1
Hide flag	CHIDEFLG	character	1
Line operator	CLINEOP	character	10
List name	COBJ	character	8
List type	CLLTYPE	character	8
List date	CLU4DATE	character	10
List time	CLUTIME	character	8
List user	CLLUSER	character	8
List row count	CLLRCNT	character	8
List update	CLLUPD	character	8
Short message	CSMSG	character	35
Long message	CLMSG	character	79
(Not Displayed)	CLU4DATE	character	8

The Saved Lists Filter Entry Panel (panel ID DGTDLF11), which is reached by issuing the filter command without any operands on the Saved ISMF List Panel, has been enhanced to accept 10-character dates in the List Date Value fields. The filter panel will still accept 8-character dates as input, converting them to 10-character dates using the 1950-2049 fixed window.

The following additional changes have been made for the Saved ISMF List panel:

- Help files for the Saved Lists Filter Entry Panel have been updated to show that a 10-character value can be entered for the List Date fields.

- Message DGTUV008, displayed when a date provided with the filter command on the Saved ISMF Lists Panel or File List Panel is not 8- or 10-characters long or when the date specified is not within the 1950-2049 fixed window, has been enhanced as follows:

Short Message: INVALID DATE

Long Message: Date must be of the form YY/MM/DD or YYYY/MM/DD

Explanation: The date you specified is not in the correct format. The date must be in the form YY/MM/DD or YYYY/MM/DD, where YY is the 2-digit year or YYYY is the 4-digit year, MM is the numeric month of the year, and DD is the numeric day of the month. The date cannot be before the year 1950 or after the year 2049.

- The sample PRNTMINI exec, used on the Saved ISMF Lists Panel to obtain information regarding a saved minidisk list, has been enhanced to use the CLU4DATE in the generated ISMFLIST file. In addition, the **PRINTED** field contained in the header portion of the ISMFLIST file is now 10-characters in the form *yyyy/mm/dd*. Figure 15 shows an example of the extended date fields.

```

-----
--                ISMF MINIDISK LIST: GEERDISK                -
--                -                                           -
-- PRINTED: 2000/01/05 AT: 04:59 HRS.                          -
-- BY: GEER                                                    -
--                -                                           -
-- UPDATED: 1998/01/16 AT: 13.02.34 HRS.                      -
-- BY: GEER                                                    -
-----
LINE   MDISK   MDISK MDISK   MDISK   MDISK   MDISK   DEVICE DEVICE  DUPLEX  DASD FW  RD CACHE CACHE FW
OPERATOR OWNERID ADDR  START  END    SIZE   GAP    VOLSER  TYPE    STATUS  STATUS  STATUS  STATUS
---(1)--- --(2)--- -(3)- --(4)-- --(5)-- --(6)-- --(7)-- --(8)- --(9)- --(10)-- --(11)-- --(12)-- --(13)--
          GEER    191    158    162      5 "----- SYS001 3380  "----- "----- "----- "-----
-----
--                END OF LIST                -
-- MINIDISKS LISTED-1                          -
--                -                                           -
-----

```

Figure 15. Sample PRMTNINI EXEC Output

- The explanation portion of messages DGTUV011, DGTUV095, and DGTUV096 have been enhanced to indicate the date field can be entered in the form YY/MM/DD or YYYY/MM/DD.

A.3 DFSMS COPY and MOVE commands

When using the DFSMS MOVE command to move data from one minidisk to another, there is an option to keep the original create date for the minidisk. These commands have been enhanced to properly set the century bit field within the CMS minidisk label control block. The century bit is used by VM/ESA Version 2 Release 2.0 (or higher), and ignored on older releases.

A.4 DFSMS/VM Generated Reports

Date in some reports, but not all, were updated from 8-character to 10-character.

A.4.1 DFSMS CHECK Command Report

The date created and last changed fields of the report generated by the DFSMS CHECK command have been extended to 10-character dates in the form *yyyy/mm/dd*. Figure 16 shows an example of the extended date fields.

```
Userid: DGTSRV01 Date: 01/05/00 Time: 05:21:15
CHECK 0500 ( FILE TYPE FOR GEER AS 191
Address: 0500 Device Type: 3380 Date Created: 1997/09/23 10:41:06
Volid: GEE019 Block size: 4096 Last Changed: 2000/01/05 05:21:00
Cyls: 5 Usable Cyls: 5

Total number of CMS blocks: 750
Number of CMS blocks used: 239 ( 32%)
CMS blocks counted: 239
Blocks in allocation map: 239

Lost CMS blocks: 0
Invalid CMS blocks: 0
Overlapping CMS blocks: 0

Disk origin pointer: 5
Files reported in directory: 19 (Including DIRECTOR and ALLOCMAP)
Number of files found: 19

Command CHECK gave return code = 0
```

Figure 16. Sample DFSMS CHECK report

Examples of the DFSMS CHECK command report can be found in "Sample Check Output" figure within the "Moving and Checking CMS minidisks" chapter and "Example of the DFSMS Command Output" figure within the "DFSMS/VM Commands" chapter of *DFSMS/VM Storage Administration Guide and Reference* manual, and in "Step 1: Verify Code in the User's Machine" section within the "Verifying the Installation Process" chapter of *DFSMS/VM Customization* manual.

A.4.2 DFSMS REPORT Command Report

The date migrated and date last referenced fields of the report generated by the DFSMS REPORT command have been extended to 10-character dates in the form *mm/dd/yyyy*. Figure 17 on page 77 shows an example of the extended date fields.

```

DFSMS Function Level 221                                01/05/00  05:35:09
DFSMS REPORT SPACEMANAGEMENT FILESPACE, request identifier 114

DFSMS REPORT SPACEMANAGEMENT FILESPACE processing started for file pool DFSMS1 and userid TEST

Files migrated for this file space:                    123
  Migration Level 1:                                  102
  Migration Level 2:                                  21
Logical 4K blocks currently in use by this file space: 143
Physical 4K blocks in use by this file space:          141
Physical 4K blocks in use by primary storage for this file space: 20
Physical 4K blocks in use by secondary storage for this file space: 121
  Migration Level 1:                                  100
  Migration Level 2:                                  21
Physical 4K blocks saved for this file space due to compaction: 2

The following files are migrated:

      Primary Management Date Last Date Migration
Filename Filetype 4K Blocks Class Referenced Migrated Level
Directory DFSMS1:TEST.
TEST    TEST          1 MEDIUM 01/02/2000 01/05/2000 2
TEST2   TEST          1 MEDIUM 01/03/2000 01/05/2000 2
:

The following files are migrated but DFSMS has migrated data in both ML1 and ML2:

      Primary Management Date Last Date Migration Token for
Filename Filetype 4K Blocks Class Referenced Migrated Level Delete Command
Directory DFSMS1:TEST.
TEST3   TEST          1 LONG    01/03/2000 01/05/2000 1&2 00030000000001DD
TEST4   TEST          1 LONG    01/03/2000 01/05/2000 1&2 00030000000001D9

The following files are migrated but no migrated data exists for them:

      Primary Management Date Last
Filename Filetype 4K Blocks Class Referenced
Directory DFSMS1:TEST.
TEST    EXEC          1 LONG    01/02/2000
TEST    FILE          1 LONG    01/02/2000

DFSMS REPORT SPACEMANAGEMENT FILESPACE completed with no errors

```

Figure 17. Sample DFSMS REPORT report

Examples of the DFSMS REPORT command reports can be found in "Example of Reporting on a File Space" section and "Example of Reporting on a Storage Group" section within the "Managing Storage

Using DFSMS/VM" chapter, and the "DFSMS Report" section within the "DFSMS/VM Commands" chapter of *DFSMS/VM Storage Administration Guide and Reference* manual.

A.5 Removal of ISMF Alphabetic Restriction on Directory Names

The ISMF component restricted the first character of a directory name to be alphabetic only, it could not be numeric. This restriction has been removed. The following ISMF help messages have been enhanced:

- Message DGTVM037 issued when any character of a directory name is detected as not valid input on the ACS Test Case Define Panel or the ACS Test Case Alter Panel:

Short Message: INVALID DIRECTORY

Long Message: Must be 1 to 16 alphanumeric characters

Explanation: You entered an invalid directory. The directory id can be from 1 to 16 characters. Each character can be alphabetic or numeric.

- The explanation portion of messages DGTVM016, DGTVM017, DGTVM024, DGTVM036, DGTVM042, DGTVM043, and DGTVM045 have been enhanced to indicate a directory qualifier can be from 1 to 16 characters and each qualifier character can be alphabetic or numeric.

Appendix B. Local Modification Example: ISMF EXEC File

The following local modification example is for a VM/ESA 1.2.1 system.

If you are running a lower or higher level VM system you can still use this example. Some of the steps may be in a different order so you can cross reference the example against the *z/VM: Service Guide*, Chapter 7, to help with the correct order.

Note!

This example is for updating the ISMF EXEC full part replacement part. You should substitute the file name of the part you are modifying for ISMF 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.

1 Set up the required access order

vmfsetup VSM221B {DFSMSVM | RMSONLY | DFSMSVMNOSM}

Use **DFSMSVM** when the entire DFSMS/VM product has been installed, **RMSONLY** when only the RMS component has been installed, or **DFSMSVMNOSM** when the DFSMS/VM without the space management component has been installed.

2 Update the local service level (VVTLCCL) of the software inventory to create a record of the local modification

vmfsim logmod VSM221B vvtlcl *fmlocal* tdata :part ismf exc :mod lcl0001

fmlocal is the fm of the LOCAL (1C4) minidisk

3 XEDIT Source file to create the update file

xedit ismf exec
====> ft excl0001
====> fm *fmlocal*

fmlocal is the fm of the LOCAL (1C4) minidisk or directory

4 Make your desired changes

5 Issue the XEDIT file command when changes are completed

====> file

6 Build the DFSMS/VM product by issuing VMFBLD

vmfbld ppf VSM221B {DFSMSVM | RMSONLY | DFSMSVMNOSM} fsmblexc ismf (all

Use **DFSMSVM** when the entire DFSMS/VM product has been installed, **RMSONLY** when only the RMS component has been installed, or **DFSMSVMNOSM** when the DFSMS/VM without the space management component has been installed.

Note: Message VMFBLD2180I will be issued listing the number of build requirements remaining upon completion of the VMFBLD command. These build requirements can be ignored, they will be satisfied the next time DFSMS/VM is serviced.

Appendix C. Installation Planning Checklists

C.1 DFSMS/VM Preinstallation Checklist

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Task	Status
Is prerequisite software installed? <input type="checkbox"/> ISPF/PDF 3.2, or later <input type="checkbox"/> DirMaint FL510, or a directory maintenance product with equivalent function <input type="checkbox"/> TCP/IP for z/VM, level 5 or higher <input type="checkbox"/> Appropriate C runtime library <input type="checkbox"/> Other	
Are disk locations for VMSES/E (installation of product) established?	
Save copies of customization, if migrating from a previous release.	
Decide which DFSMS/VM components to implement.	
Is machine configuration designed? DFSMS/VM owner user ID is _____ Space management master machine user ID is _____ Removable media master machine user ID is _____ Minidisk management server machines user IDs are: _____ _____ _____ Space management server machines user IDs are: _____ _____ _____	
Library sequence number(s) (if RMS is installed). _____	
Is authorization technique established?	
Is installer CP directory entry created? <input type="checkbox"/> DFSMS/VM owner virtual machine	

Task	Status
Is master/server logon process selected? <input type="checkbox"/> Appropriate AUTOLOG capability in place	
Do minidisk management servers have proper directory maintenance authority? <input type="checkbox"/> AUTHFor command issued <input type="checkbox"/> NEEDPASS NO command issued	
Have the SFS file spaces and subdirectories been defined? <input type="checkbox"/> VMSYS file pool <input type="checkbox"/> Work area for DFSMS/VM	

C.2 DFSMS/VM Postinstallation Checklist

Task	Status
Is Control File updated to support verification? <input type="checkbox"/> Master names <input type="checkbox"/> Server names <input type="checkbox"/> Owner name <input type="checkbox"/> Directory machine and interface	
Are ISMF user machines ready? <input type="checkbox"/> Can access disk (ISMF EXEC)	
Ensure appropriate DFSMS/VM-managed file pools. <input type="checkbox"/> DMSPARMS file <input type="checkbox"/> File pool directory entry <input type="checkbox"/> File pool PROFILE EXEC	
Is a user authorized for performing verification?	
Is installation process verified? <input type="checkbox"/> ISMF scenario <input type="checkbox"/> Space management command <input type="checkbox"/> Verifying Code in the user' machine <input type="checkbox"/> DFSMS/VM <input type="checkbox"/> Minidisk management <input type="checkbox"/> Configuration verification for space management <input type="checkbox"/> Removable Media Services (RMS)	

Task	Status
<p>Have additional customization options been considered?</p> <ul style="list-style-type: none"> <input type="checkbox"/> DFSMS/VM control file <input type="checkbox"/> Installation-wide exits <input type="checkbox"/> ISMF interface <input type="checkbox"/> Enabling the accounting function <input type="checkbox"/> Defining a file space for ML1 <input type="checkbox"/> Defining a file space for ML2 <input type="checkbox"/> Specifying file pools to be managed by DFSMS/VM <input type="checkbox"/> Verification of optional customization <input type="checkbox"/> Adding functions to DFSMS/VM 	
<p>Is Authorization File or alternate technique in place?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Appropriate user machines authorized 	

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Reader's Comments

DFSMS/VM, function level 221

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For each of the topics below please indicate your satisfaction level by circling your choice from the rating scale. If a statement does not apply, please circle N.

RATING SCALE						
very satisfied	←—————→				very dissatisfied	not applicable
1	2	3	4	5	N	

	Satisfaction					
	1	2	3	4	5	N
Ease of product installation						
Time required to install the product						
Contents of program directory						
Readability and organization of program directory tasks						
Necessity of all installation tasks						
Accuracy of the definition of the installation tasks						
Technical level of the installation tasks						
Installation verification procedure						
Ease of customizing the product						
Ease of migrating the product from a previous release						
Ease of putting the system into production after installation						
Ease of installing service						

- Did you order this product as an independent product or as part of a package?

- Independent
- Package

What type of package was ordered?

- CustomPac
- System Delivery Offering (SDO)
- Other - Please specify type: _____

- Is this the first time your organization has installed this product?
 - Yes
 - No
- Were the people who did the installation experienced with the installation of VM products using VMSES/E?
 - Yes
 - How many years of experience do they have? _____
 - No
- How long did it take to install this product? _____
- If you have any comments to make about your ratings above, or any other aspect of the product installation, please list them below:

Please provide the following contact information:

Name and Job Title

Organization

Address

Telephone

Thank you for your participation.

Please send the completed form to the following address, or give to your IBM representative who will forward it to the DFSMS/VM, function level 221 Development group:

IBM Corporation
Dept GZPG
1701 North Street
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