Program Directory for
Tivoli Storage Manager
Enterprise Edition
for VM
Version 3 Release 1.2
Program Number 5698-ISE

for Use with
VM/ESA Version 2 Release 4.0
z/VM Version 3 Release 1.0
z/VM Version 4 Release 1.0
z/VM Version 4 Release 2.0

Document Date: April 2002
Note

Before using this information and the product it supports, be sure to read the general information under Appendix E, “Notices” on page 53.

This program directory, dated April 2002, applies to Tivoli Storage Manager for VM Version 3 Release 1.2 (Tivoli Storage Manager for VM), Program Number 5698-ISE.

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1.0 Introduction

This program directory is intended for the system programmer responsible for program installation and maintenance. It contains information concerning the material and procedures associated with the installation and service of Tivoli Storage Manager for VM. You should read all of this program directory before installing the program and then keep it for future reference.

The program directory contains the following sections:

- 2.0, “Program Materials” on page 3 identifies the basic and optional program materials and documentation for Tivoli Storage Manager for VM.
- 3.0, “Program Support” on page 7 describes the IBM support available for Tivoli Storage Manager for VM.
- 4.0, “Program and Service Level Information” on page 8 lists the APARs (program level) and PTFs (service level) incorporated into Tivoli Storage Manager for VM.
- 5.0, “Installation Requirements and Considerations” on page 9 identifies the resources and considerations for installing and using Tivoli Storage Manager for VM.
- 6.0, “Installation Instructions” on page 13 provides detailed installation instructions for Tivoli Storage Manager for VM.
- 7.0, “Service Instructions” on page 27 provides detailed servicing instructions for Tivoli Storage Manager for VM.
- Appendix A, “Applying an RSU Tape for Tivoli Storage Manager for VM” on page 36 provides detailed Recommended Service Upgrade instructions for Tivoli Storage Manager for VM.
- Appendix B, “Disabling Tivoli Storage Manager for VM” on page 43 describes how to disable Tivoli Storage Manager for VM 3.1.2, if on VM/ESA 2.4.0, z/VM 3.1.0 or higher.
- Appendix C, “Moving Tivoli Storage Manager for VM to SFS Directories and Creating PPF Override” on page 45 describes how to move Tivoli Storage Manager for VM into SFS, if originally installed using minidisks, and how to create a Product Parameter File (PPF) override.
- Appendix D, “Tivoli Storage Manager for VM Installation Tape Contents” on page 50 lists the names of the files contained in the installation tape.

Before installing Tivoli Storage Manager for VM, read 3.1, “Preventive Service Planning” on page 7. This section tells you how to find any updates to the information and procedures in this program directory.
1.1 Program Description

Tivoli Storage Manager for VM (Tivoli Storage Manager for VM) is a client/server program that provides storage management to customers in a multivendor computer environment.

Tivoli Storage Manager for VM provides an administrator-controlled, highly automated, centrally scheduled, network-based backup and archive functions for a wide variety of workstations and LAN file servers.

1.2 Important VM/ESA® and z/VM Information

Beginning with VM/ESA 2.4.0, Tivoli Storage Manager for VM 3.1.2 is a pre-installed, optionally installable product on the VM/ESA and z/VM System DDR in a disabled state. Most of the install steps have already been completed. This includes installing the product base tape and RSU tape. You will still need to complete some new planning steps and the place into production steps; as documented in chapter 6.0, “Installation Instructions” on page 13.
### 2.0 Program Materials

An IBM program is identified by a program number. The program number for Tivoli Storage Manager for VM Version 3 is 5698-ISE.

The program announcement material describes the features supported by Tivoli Storage Manager for 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.

#### Ordering Tivoli Storage Manager 3.1.2 on VM/ESA 2.4.0, z/VM 3.1.0 or higher

If you plan on licensing Tivoli Storage Manager for VM 3.1.2 on VM/ESA 2.4.0, z/VM 3.1.0 or higher the following describes how to order the product, and obtain a set of manuals, depending on your current Tivoli Storage Manager for VM 3.1.2 license:

- Installations who have not previously ordered Tivoli Storage Manager for VM 3.1.2:
  
  Order one of the feature codes listed in Figure 1, below, and indicate that you want to suppress media shipment. This will license you for Tivoli Storage Manager for VM 3.1.2 and provide you with a set of manuals. Media shipment is not necessary since the product has already been pre-installed on the VM/ESA and z/VM System DDRs for you.

- Installations currently using Tivoli Storage Manager for VM 3.1.2:
  
  There is nothing additional you need to order.

### 2.1 Basic Machine-Readable Material

The distribution medium for this program is 3480 or 4mm tape cartridge. The cartridge contains all the programs and data needed for installation. See section 6.0, “Installation Instructions” on page 13 for more information about how to install the program. Figure 1 describes the cartridge. Figure 2 on page 4 describes the file content of the program cartridge.

#### Figure 1 (Page 1 of 2). Basic Material: Program Tape

<table>
<thead>
<tr>
<th>Feature Number</th>
<th>Medium</th>
<th>Physical Volume</th>
<th>Tape Content</th>
<th>External Tape Label</th>
</tr>
</thead>
<tbody>
<tr>
<td>5522</td>
<td>3480 cart.</td>
<td>1</td>
<td>Tivoli Storage Manager for VM 3.1.2</td>
<td>TSM VM Server</td>
</tr>
</tbody>
</table>

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2.2 Optional Machine-Readable Material

There are no optional machine-readable materials for Tivoli Storage Manager for VM.

2.3 Program Publications

The following sections identify the basic and optional publications for Tivoli Storage Manager for VM.

2.3.1 Basic Program Publications

One copy of the following publications are included when you order the basic materials for Tivoli Storage Manager for VM. For additional copies, contact your IBM representative.

Figure 3 (Page 1 of 2). Basic Material: Unlicensed Publications

<table>
<thead>
<tr>
<th>Publication Title</th>
<th>Form Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tivoli ADSTAR Distributed Storage Manager for VM: Licensed Programming Specifications</td>
<td>GC35-0350</td>
</tr>
<tr>
<td>Tivoli ADSTAR Distributed Storage Manager for VM: Quick Start</td>
<td>GC35-0351</td>
</tr>
</tbody>
</table>
One copy of the VM/ESA and z/VM Softcopy displayable CD-ROM collection kit, *IBM Online Library Omnibus Edition: VM Collection* number SK2T-2067, will be included in your order. It contains all of the Tivoli Storage Manager for VM publications. This includes the Administrator's Guide, Administrator's Reference and Messages. Until the VM/ESA and z/VM softcopy CD is available these Tivoli Storage Manager for VM manuals will be shipped with your order. For additional copies, contact your IBM representative.

Additionally, English language versions of all of the Tivoli Storage Manager for VM publications are offered in BookManager®, PDF and HTML softcopy displayable format off of the Tivoli Web site at url:

http://www.tivoli.com/support/storage_mgr

### 2.4 Microfiche Support

There is no microfiche for Tivoli Storage Manager for VM.

### 2.5 Publications Useful During Installation

The publications listed in Figure 4 or Figure 5, depending on your VM/ESA or z/VM release, may be useful during the installation of Tivoli Storage Manager for VM. To order copies, contact your IBM representative.

#### Figure 4. Publications Useful During Installation / Service on VM/ESA Version 2.4.0

<table>
<thead>
<tr>
<th>Publication Title</th>
<th>Form Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tivoli ADSTAR Distributed Storage Manager for VM: Quick Start</td>
<td>GC35-0351</td>
</tr>
<tr>
<td>VM/ESA: VMSES/E Introduction and Reference</td>
<td>GC24-5837</td>
</tr>
<tr>
<td>VM/ESA: Service Guide</td>
<td>GC24-5838</td>
</tr>
<tr>
<td>VM/ESA: Planning and Administration</td>
<td>SC24-5750</td>
</tr>
<tr>
<td>VM/ESA: CMS Command Reference</td>
<td>SC24-5776</td>
</tr>
<tr>
<td>VM/ESA: CMS File Pool Planning, Administration, and Operation</td>
<td>SC24-5751</td>
</tr>
<tr>
<td>VM/ESA: System Messages and Codes</td>
<td>GC24-5841</td>
</tr>
</tbody>
</table>
## Figure 5. Publications Useful During Installation / Service on z/VM Version 3.1.0 and higher

<table>
<thead>
<tr>
<th>Publication Title</th>
<th>Form Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>z/VM: VMSES/E Introduction and Reference</td>
<td>GC24-5947</td>
</tr>
<tr>
<td>z/VM: Service Guide</td>
<td>GC24-5946</td>
</tr>
<tr>
<td>z/VM: Planning and Administration</td>
<td>SC24-5948</td>
</tr>
<tr>
<td>z/VM: CMS Command Reference</td>
<td>SC24-5969</td>
</tr>
<tr>
<td>z/VM: CMS File Pool Planning, Administration, and Operation</td>
<td>SC24-5949</td>
</tr>
<tr>
<td>z/VM: System Messages and Codes</td>
<td>GC24-5974</td>
</tr>
</tbody>
</table>
3.0 Program Support

This section describes the IBM support available for Tivoli Storage Manager for VM.

3.1 Preventive Service Planning

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

*Figure 6. PSP Upgrade and Subset ID*

<table>
<thead>
<tr>
<th>Retain</th>
<th>Upgrade</th>
<th>Subset</th>
</tr>
</thead>
<tbody>
<tr>
<td>565511901</td>
<td>A31</td>
<td>ADSM312</td>
</tr>
<tr>
<td>565511901</td>
<td>A31</td>
<td>yynnRSU</td>
</tr>
<tr>
<td>565511901</td>
<td>A31</td>
<td>RSU-BY-LVL</td>
</tr>
<tr>
<td>565511901</td>
<td>A31</td>
<td>RSU-BY-APAR</td>
</tr>
<tr>
<td>565511901</td>
<td>A31</td>
<td>RSU-BY-PTF</td>
</tr>
</tbody>
</table>

3.2 Statement of Support Procedures

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

*Figure 7 identifies the component ID (COMPID), Retain Release and Field Engineering Service Number (FESN) for Tivoli Storage Manager for VM.*

*Figure 7. Component IDs*

<table>
<thead>
<tr>
<th>Retain</th>
<th>Component Name</th>
<th>FESN</th>
</tr>
</thead>
<tbody>
<tr>
<td>565511901</td>
<td>Tivoli Storage Manager for VM 3.1.2</td>
<td>0402385</td>
</tr>
</tbody>
</table>
4.0 Program and Service Level Information

This section identifies the program and any relevant service levels of Tivoli Storage Manager for 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 Program Level Information

All ADSM Version 2 APARs closed before April 1, 1999 were incorporated into this version.

4.2 Service Level Information

Check the ADSM312 PSP bucket for any additional PTFs that should be installed or any additional install information.

4.3 Cumulative Service Tape

Cumulative service for Tivoli Storage Manager for VM 3.1.2 is available through a periodic Recommended Service Upgrade (RSU) tape. See PSP bucket upgrade ADSM312, subset yynnRSU (where yynn is the RSU service level) for the latest RSU tape available. For the list of PTFs included on the RSU tape, see the service memo from the tape or the PSP subsets sorted by PTF, APAR or RSU level (LVL).

The RSU can be ordered using the PTF number UQ99312 (APAR PQ25527).
5.0 Installation Requirements and Considerations

The following sections identify the system requirements for installing the Tivoli Storage Manager for VM program product.

5.1 Migration Requirements

If you are a current user of ADSM Version 2 and will be migrating Tivoli Storage Manager for VM 3.1.2, then you must preserve the ADSM Version 2 program product because you will need it to back-up your existing database. And, if necessary, the ADSM Version 2 program product will be needed for recovery purposes. The manual *Tivoli ADSTAR Distributed Storage Manager for VM: Quick Start* has more information on the back-up requirement.

5.2 Hardware Requirements

There are no special hardware requirements for Tivoli Storage Manager for VM.

5.3 Program Considerations

The following sections list the programming considerations for installing Tivoli Storage Manager for VM and activating its functions.

5.3.1 Operating System Requirements

Tivoli Storage Manager for VM supports the following VM operating systems:

- z/VM Version 4 Release 2.0
- z/VM Version 4 Release 1.0
- z/VM Version 3 Release 1.0
- VM/ESA Version 2 Release 4.0

5.3.2 Other Program Product Requirements

Tivoli Storage Manager for VM has the following requisites:

- One of the following:
  - IBM Language Environment® for MVS & VM Version 1 Release 5 (5688-198) and later
  - IBM C/370™ Library Version 2 (5688-188) and later
5.3.3 Program Installation/Service Considerations

This section describes items that should be considered before you install or service Tivoli Storage Manager for 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 Tivoli Storage Manager for VM strictly using the MAINT user ID, but will use a new user ID named 5654A09A. 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 Tivoli Storage Manager for VM” step 8 on page 17, than after you have installed this product.
- If you decide to move Tivoli Storage Manager for VM from minidisk to Shared File System (SFS) after you have initially installed the product, or if you want to change from the default SFS file pool or directories, then you will need to follow the steps in Appendix C, “Moving Tivoli Storage Manager for VM to SFS Directories and Creating PPF Override” on page 45. These steps will have you create the SFS directories, move the files to the SFS directories and create a PPF override. You can also refer to the *VMSES/E Introduction and Reference* manual for more information on creating a PPF override.
- RSU tapes will be supplied as necessary. Service between RSU tapes can be obtained through CORrective service.

5.4 DASD Storage and User ID Requirements

Figure 8 on page 11 lists the user ID and minidisks that are used to install and service the Tivoli Storage Manager for VM program product. The figure does not include DASD storage requirements needed for the Tivoli Storage Manager for VM database or server machine. These requirements are discussed in *Tivoli ADSTAR Distributed Storage Manager for VM: Quick Start.*
Important Installation Notes:

- User ID(s) and minidisks will be defined in 6.2, “Plan Your Installation For Tivoli Storage Manager for VM” on page 14 and are listed here so that you can get an idea of the resources that you will need prior to allocating them.

- 5654A09A 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 Tivoli Storage Manager for VM” step 8 on page 17.

- If you choose to install Tivoli Storage Manager for VM on a common user ID the default minidisk addresses for Tivoli Storage Manager for VM may already be defined. If any of the default minidisks required by Tivoli Storage Manager for VM are already in use you will have to create an override to change the default minidisks for Tivoli Storage Manager for VM so they are unique.

---

**Figure 8 (Page 1 of 2). DASD Storage Requirements for Target Minidisks**

<table>
<thead>
<tr>
<th>Minidisk owner (user ID)</th>
<th>Default Address</th>
<th>Storage in Cylinders</th>
<th>FB-512 Blocks</th>
<th>SFS 4K Blocks</th>
<th>Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>5654A09A</td>
<td>2B2</td>
<td>3390 3380 9345</td>
<td>25 30 30</td>
<td>36000 4500</td>
<td>Contains all the base code shipped with Tivoli Storage Manager for VM VMSYS:5654A09A.ADSM.OBJECT</td>
</tr>
<tr>
<td>5654A09A</td>
<td>2D2</td>
<td>3390 3380 9345</td>
<td>90 108 108</td>
<td>129600 16200</td>
<td>Contains serviced files VMSYS:5654A09A.ADSM.DELTA</td>
</tr>
<tr>
<td>5654A09A</td>
<td>2A6</td>
<td>3390 3380 9345</td>
<td>2 2 2</td>
<td>2400 300</td>
<td>Contains AUX files and software inventory tables that represent the test service level of Tivoli Storage Manager for VM VMSYS:5654A09A.ADSM.APPLYALT</td>
</tr>
</tbody>
</table>

Notes:

1. An SFS directory **SHOULD NOT** be used for the production disk or the test build disk to avoid suspension of the server. The message repository, which is read as needed by the server, will reside on these disks. By placing the message repository in an SFS directory the can be suspended while the SFS Server satisfies a read request when a message text is needed.

2. 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. 37,650 4K blocks are needed for SFS install.

3. The list of DASD in this figure does not show all devices supported by VM/ESA and z/VM and you are not limited to only these devices when installing the Tivoli Storage Manager for VM program product. To determine the amount of space needed on a device not listed but supported by VM/ESA and z/VM start with the value in the “SFS 4K Blocks” column.
### Figure 8 (Page 2 of 2). DASD Storage Requirements for Target Minidisks

<table>
<thead>
<tr>
<th>Minidisk owner (user ID)</th>
<th>Default Address</th>
<th>Storage in Cylinders</th>
<th>FB-512 Blocks</th>
<th>SFS 4K Blocks</th>
<th>Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>5654A09A</td>
<td>2A2</td>
<td>3390 3380 9345</td>
<td>2 2</td>
<td>2400 300</td>
<td>Contains AUX files and software inventory tables that represent the service level of Tivoli Storage Manager for VM that is currently in production. <strong>VMSYS:5654A09A.ADSM.APPLYPROD</strong></td>
</tr>
<tr>
<td>5654A09A</td>
<td>491</td>
<td>3390 3380 9345</td>
<td>45 54 54</td>
<td>64800 8100</td>
<td>This is the production disk. All the files needed by the Server and the CMS Admin client will exist in this disk. <strong>SFS directory not recommended.</strong> (1*)</td>
</tr>
<tr>
<td>5654A09A</td>
<td>4E2</td>
<td>3390 3380 9345</td>
<td>45 54 54</td>
<td>64800 8100</td>
<td>This is the test build disk which will contain the production files after the service process completes. Once testing is complete, files must be copied to the production disk. <strong>SFS directory not recommended.</strong> (1*)</td>
</tr>
<tr>
<td>5654A09A</td>
<td>191</td>
<td>3390 3380 9345</td>
<td>1 1</td>
<td>1200 150</td>
<td>5654A09A user ID's 191 minidisk <strong>VMSYS:5654A09A.</strong></td>
</tr>
</tbody>
</table>

**Notes:**

1. An SFS directory **SHOULD NOT** be used for the production disk or the test build disk to avoid suspension of the server. The message repository, which is read as needed by the server, will reside on these disks. By placing the message repository in an SFS directory the can be suspended while the SFS Server satisfies a read request when a message text is needed.

2. 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. 37,650 4K blocks are needed for SFS install.

3. The list of DASD in this figure does not show all devices supported by VM/ESA and z/VM and you are not limited to only these devices when installing the Tivoli Storage Manager for VM program product. To determine the amount of space needed on a device not listed but supported by VM/ESA and z/VM start with the value in the "SFS 4K Blocks" column.
6.0 Installation Instructions

This chapter describes the installation methods and the step-by-step procedures to install the Tivoli Storage Manager for VM program product.

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 the Dialog with the System" in the VM/ESA or z/VM Installation Guide manual.

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, minidisk addresses, or SFS directories to install Tivoli Storage Manager for VM, adapt these instructions as needed for your environment.

Note

The sample console output presented throughout these instructions was produced on a VM/ESA Version 2 Release 3 system. If you’re installing Tivoli Storage Manager for VM on a different VM/ESA or on a z/VM system, the results obtained for some commands may differ from those depicted here.

6.1 VMSES/E Installation Process Overview

The following is a brief description of the main steps in installing Tivoli Storage Manager for VM using VMSES/E.

- Plan Your Installation
  Use the VMFINS command to load several VMSES/E files from the product tape and to obtain Tivoli Storage Manager for VM resource requirements.

- Allocate Resources
  The information obtained from the previous step is used to allocate the appropriate minidisks (or SFS directories) and the user ID needed to install the Tivoli Storage Manager for VM program product.

- Install the Tivoli Storage Manager for VM Product
  Use the VMFINS command to load the Tivoli Storage Manager for 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.

- Place Tivoli Storage Manager for VM Files into Production
Once the product files have been tested and the operation of Tivoli Storage Manager for VM is satisfactory, they must be copied from the test BUILD disk to the production BUILD disk.

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

### 6.2 Plan Your Installation For Tivoli Storage Manager for VM

**Note**

This planning section should be followed no matter what release of VM/ESA or z/VM you are installing on. Follow the instructions that pertain to your VM/ESA or z/VM release.

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

- load the first tape file, containing installation files
- generate a ‘PLANINFO’ file listing
  - the install user ID and minidisk requirements
  - required products

To obtain planning information for your environment:

1. Logon to a user ID where the installation planning tasks can be performed.
   
   This user ID can be any ID that has the following:
   
   - read access to MAINT's 5E5 minidisk
   - write access to MAINT's 51D minidisk
   - Privilege class E authority required for VM/ESA 2.4.0, z/VM 3.1.0 or higher installations.

2. Establish read access to the VMSES/E code.

   ```
   link MAINT 5e5 5e5 rr
   access 5e5 b
   ```
   
   The 5E5 disk contains the VMSES/E code.

3. 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.

What's Next?
Beginning with VM/ESA 2.4.0, Tivoli Storage Manager for VM 3.1.2 is pre-installed, using VMSES/E, in a DISABLED state, on the VM/ESA and z/VM System DDRs. If, and only if, you have a license for Tivoli Storage Manager for VM 3.1.2, you can enable it for use. If you are
- running on VM/ESA 2.4.0, z/VM 3.1.0 or higher
- optionally installed Tivoli Storage Manager for VM from the VM/ESA and z/VM System DDRs, and
- are licensed for Tivoli Storage Manager for VM
then continue with step 4.
Otherwise, continue with step 6 on page 16.

---

VM/ESA 2.4.0, z/VM 3.1.0 or higher Licensed Users of Tivoli Storage Manager for VM only!

4 Set Tivoli Storage Manager for VM to the enabled state.

vmfins enable pff 5654A09A {ADSM | ADSMSFS}

Use ADSM if installing using minidisk or ADSMSFS if installing using Shared File System directories.

This command will perform the following:
- Set Tivoli Storage Manager for VM as ENABLED in VMSES/E and within CP.
- Create a 5654A09A PRODSYS file on the A-disk that contains the CP system configuration PRODUCT statement with a state of ENABLED

5 In order to retain the ENABLED state for Tivoli Storage Manager for VM, update the CP system configuration file with the information in the 5654A09A PRODSYS file.

The 5654A09A PRODSYS file was created by VMFINS in the previous step. You need to update the CP system config file so that the next time you IPL your system Tivoli Storage Manager for VM will be in the ENABLED state. If
you are not authorized to update the CP system configuration file then contact your CP System Administrator.

The CP system configuration file default name is SYSTEM CONFIG and it resides on the CP parm disk (MAINT's CF1 and CF2 minidisks). The section, PRODUCT ENABLE/DISABLE INFORMATION, in the SYSTEM CONFIG file, is what needs to be updated. You will need to replace the current DISABLED entry for PRODID 5654A09A (Tivoli Storage Manager for VM) with the entry from the 5654A09A PRODSYS file (created by VMFINS in the previous step). If necessary, refer to the VM/ESA or z/VM Planning and Administration manual for more information about the CP system configuration file.

---

**What’s Next?**

All remaining installation steps have already been completed for you. Continue with 6.4.2, “Place Tivoli Storage Manager for VM into Production” on page 25.

**Notes:**

1. If, in the future, you are no longer licensed for Tivoli Storage Manager for VM 3.1.2, you **must** follow the instructions in Appendix B, “Disabling Tivoli Storage Manager for VM” on page 43 to disable Tivoli Storage Manager for VM.

2. If you do not have a set of manuals for Tivoli Storage Manager for VM 3.1.2, you should contact your IBM marketing representative and order Tivoli Storage Manager for VM as described in 2.0, “Program Materials” on page 3. Remember to check the area which indicates to suppress media shipment, which will order you a set of manuals for Tivoli Storage Manager for VM 3.1.2.

---

End of VM/ESA 2.4.0, z/VM 3.1.0 or higher Licensed Users of Tivoli Storage Manager for VM only!

---

6 Mount the Tivoli Storage Manager for 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.

7 Load the Tivoli Storage Manager for VM product control files to the 51D minidisk.
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.

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.

```
VMFINS2760I VMFINS processing started
VMFINS1999I VMFINS PRODLIST created on your A-disk
VMFINS2760I VMFINS processing completed successfully
Ready;
```

8 Obtain resource planning information for Tivoli Storage Manager for VM.

**Note:** The product will **not** be loaded by the VMFINS command at this time.

```
vmfins install ppf 5654A09A {ADSM | ADSMSFS} {plan nomemo}
```

Use **ADSM** for installing on minidisks or **ADSMSFS** for installing in Shared File System directories.

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.

**You can override any of the following:**

- the name of the product parameter file
- the default install user ID
- minidisk/directory definitions
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 Tivoli Storage Manager for VM. For example, you will need to specify your PPF override file name instead of 5654A09A 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. For more information about changing the VMSYS file pool name refer to Chapter 3 in the VMSES/E Introduction and Reference.
Complete this step only if you received message VMFREQ2806W for any of the products that are required by Tivoli Storage Manager for VM: either IBM Language Environment (5688-198) or IBM C/370 Library (5688-188).

<table>
<thead>
<tr>
<th>VMFREQ2806W</th>
<th>The following requisites for product:PPF 5654A09A ADSM</th>
<th>PRODID 5654A09A%ADSM are not satisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Type</td>
<td>Product</td>
</tr>
<tr>
<td>-------------</td>
<td>------------</td>
<td>-------------</td>
</tr>
<tr>
<td>VMFREQ2806W</td>
<td>Requisite</td>
<td>5688198E</td>
</tr>
<tr>
<td>OR</td>
<td>5688188</td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td>5688188A</td>
<td></td>
</tr>
</tbody>
</table>

This message indicates that the product or products listed is/are a pre-requisite product for Tivoli Storage Manager for VM but were not found in the current system inventory.

If you are certain that C/370 V2R1M0 or lower is installed on your system, then the VMSES/E system inventory must be updated before proceeding with the install of Tivoli Storage Manager for VM, as these products were not in VMSES/E format. Update the software inventories by issuing the following commands for each of the products listed. For additional information about the System Inventory files and the VMFSIM command see the VMSES/E Introduction and Reference.

- If C/370 (5688188) V2R1M0 or lower is installed on your system, enter:

  vmfsim modify vm sysrecs d tdata :prodid 5688188 :PPF 5688188 lib :stat received
  vmfsim modify vm sysapps d tdata :prodid 5688188 :PPF 5688188 lib :stat applied
  vmfsim modify vm sysreqt d tdata :prodid 5688188

If you want to use LE V1R5M0 or higher or C/370 V2R2M0, which are in VMSES/E format, then you need to install them before installing Tivoli Storage Manager for VM.

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

vmfview install
6.3 Allocate Resources for Installing Tivoli Storage Manager for VM

Use the planning information in the 5654A09A PLANINFO file, created in the PLAN step, to:

- Create the 5654A09A user directory for minidisk install
  OR
- Create the 5654A09A user directory for SFS install.

6.3.1 Installing Tivoli Storage Manager for VM on Minidisk

1. Obtain the user directory from the 5654A09A PLANINFO file.

   **Note:** The 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 5654A09A user ID. Use the directory entry found in PLANINFO as a model for defining 5654A09A.

2. Add the MDISK statements to the directory entry for 5654A09A. Use Figure 8 on page 11 to obtain the minidisk requirements.

3. Change the password for 5654A09A from xxxxxxxx to a valid password, in accordance with your security guidelines.

4. Add the 5654A09A directory definition to the system directory.

   **Note:** Updates to the CP system directory can be done only from authorized user IDs. If you or any of your user IDs do not have the proper authority, then seek help from the person who has the proper authority.

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

   **Note**

   All minidisks for the 5654A09A user ID must be formatted before installing Tivoli Storage Manager for VM.

6.3.2 Installing Tivoli Storage Manager for VM in SFS Directories

1. Obtain the user directory from the 5654A09A PLANINFO file.

   **Note:** The 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 5654A09A user ID. Use the directory entry found in PLANINFO as a model for defining 5654A09A.
2 Change the password for 5654A09A from xxxxxxxxx to a valid password, in accordance with your security guidelines.

3 If you intend to use an SFS directory in place of the 191 minidisk for the 5654A09A user ID, the IPL statement must include the values "PARAM FILEPOOL poolid:" (poolid is the name of the SFS Filepool where 5654A09A is enrolled). For example:

   IPL CMS PARM FILEPOOL NEWPOOL:

   This will cause CMS to automatically access 5654A09A's top directory as file mode A.

4 Include MDISK statements for the test BUILD disk (default virtual address 4E2) and for the production BUILD disk (default virtual address of 491) in the directory definition for 5654A09A. Refer to Figure 8 on page 11 to obtain the minidisk requirements for these two disks.

   **Note:** These minidisks must be formatted before installing Tivoli Storage Manager for VM.

5 Add the 5654A09A directory definition to the system directory.

   **Note:** Updates to the CP system directory can be done only from authorized user IDs. If you or any of your user IDs do not have the proper authority, then seek help from the person who has the proper authority.

6 Place the new directory definition on-line using VM/Directory Maintenance (DIRMAINT) or an equivalent CP directory maintenance method.

7 An SFS install will also require the following steps:

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

   If you intend to use all of the default Tivoli Storage Manager for VM SFS directories, the 4K block requirements for each are summarized in Figure 8 on page 11.

   This information will be used when enrolling the 5654A09A to the VMSYS filepool.

   **b** Enroll user 5654A09A in the VMSYS filepool using the ENROLL USER command:

   ENROLL USER 5654A09A VMSYS: (BLOCKS blocks

   where blocks is the number of 4K blocks that you calculated in the previous step.
Note: This must be done from a user ID that is an administrator for VMSYS: filepool.

C Determine if there are enough blocks available in the filepool to install Tivoli Storage Manager for VM. This information can be obtained with the QUERY FILEPOOL STATUS command. Near the end of the output from this command is a list of minidisks in the filepool and the number of blocks free. If the number of blocks free is smaller than the total 4K blocks needed to install Tivoli Storage Manager for VM you will need to add space to the filepool. See the VM/ESA or z/VM File Pool Planning, Administration, and Operation manual for information on adding space to a filepool.

d Create the necessary subdirectories listed in the 5654A09A PLANINFO file using the CREATE DIRECTORY command.

```bash
set filepool vmsys:
create directory vmsys:5654A09A.adsm
create directory vmsys:5654A09A.adsm.object
create directory vmsys:5654A09A.adsm.applyalt
create directory vmsys:5654A09A.adsm.applyprod
create directory vmsys:5654A09A.adsm.delta
```

Refer to Figure 8 on page 11 to find out what each SFS directory is used for.

If necessary, see the VM/ESA or z/VM CMS Command Reference manual for more information about the CREATE DIRECTORY command.

### 6.4 Install Tivoli Storage Manager for VM

The *ppfname* used throughout these installation instructions is **5654A09A**, which assumes you are using the PPF supplied by IBM for Tivoli Storage Manager for VM. If you have your own PPF override file for Tivoli Storage Manager for VM, you should use your file's *ppfname* instead of **5654A09A**. The *ppfname* you selected should be used **throughout** the rest of this procedure.

1. Logon to the installation user ID **5654A09A**.

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

3 Execute 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

5 Have the Tivoli Storage Manager for VM installation tape mounted and attached to 5654A09A at virtual address 181. The VMFINS EXEC requires the tape drive to be at virtual address 181.

6 Install Tivoli Storage Manager for VM.

Notes:

a. If you've already created a PPF override file, you should specify your override file name, in place of the default PPF name (5654A09A), after the PPF keyword for the following VMFINS command.

b. 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.

vmfins install ppf 5654A09A {ADSM | ADSMSFS} (nomemo nolink)

Use ADSM for installing on minidisks or ADSMSFS for installing in Shared File System directories.
The NOLINK option indicates that you don't want VMFINS to link to the appropriate minidisks, only access them if not accessed.
Review the install message log ($VMFINS $MSGLOG). If necessary, correct any problems before going on. For information about handling specific error messages, see the VM/ESA or z/VM System Messages and Codes, manual or use on-line HELP.
6.4.1 Update Build Status Table for Tivoli Storage Manager for VM

1 Update the VM SYSLDS software inventory file for Tivoli Storage Manager for VM.

vmfins build ppf 5654A09A {ADSM | ADSMSFS} (serviced nolink

Use ADSM for installing on minidisks or ADSMSFS for installing in Shared File System directories.

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 5654A09A has been built.

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

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 VM/ESA or z/VM System Messages and Codes manual, or use on-line HELP.

6.4.2 Place Tivoli Storage Manager for VM into Production

1 Copy the Tivoli Storage Manager for VM files from the test BUILD disk to the production BUILD disk.

access 4e2 e
access 491 f
vmfcopy * * e = = f1 (prodid 5654A09A%ADSM olddate replace
4E2 is the test BUILD disk where the production files were placed during the install process.

491 is the production BUILD disk where the production files must be copied to.

VMFCOPY is used to copy the production files since it will update the VMSES PARTCAT file on the 491 disk.

Refer to *Tivoli ADSTAR Distributed Storage Manager for VM Quick Start* for instructions on how to setup the Tivoli Storage Manager for VM Server and the CMS Admin Client on your system. The book also contains instructions for migrating a Version 2 ADSM system to Version 3.

Tivoli Storage Manager for VM is now installed and built on your system.
7.0 Service Instructions

RSU Warning

If applying a Tivoli Storage Manager for VM RSU (Recommended Service Upgrade) go to the instructions in Appendix A, “Applying an RSU Tape for Tivoli Storage Manager for VM” on page 36. You will return to a step in this chapter as specified in that appendix.

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

Note: 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.

7.1 VMSES/E Service Process Overview

The following is a brief description of the main steps in servicing Tivoli Storage Manager for 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 VM/ESA or z/VM Service Guide manual for this procedure.

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• 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
  Once the service is satisfactorily tested it is ready to put into production by copying the new service to the production disk.

## 7.2 Servicing Tivoli Storage Manager for VM

### RSU Warning

If applying a Tivoli Storage Manager for VM RSU go to the instructions in Appendix A, “Applying an RSU Tape for Tivoli Storage Manager for VM” on page 36. You will return to a step in this chapter as specified in that appendix.

### 7.2.1 Prepare to Receive Service

The *ppfname* used throughout these servicing instructions is **5654A09A**, which assumes you are using the PPF supplied by IBM for Tivoli Storage Manager for VM. If you have your own PPF override file for Tivoli Storage Manager for VM, you should use your file’s *ppfname* instead of **5654A09A**. The *ppfname* you selected should be used **throughout** the rest of this procedure, unless otherwise stated differently.

1. Logon to Tivoli Storage Manager for VM service user ID **5654A09A**
2. 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.

3. Have the Tivoli Storage Manager for VM CORrective service tape mounted and attached to **5654A09A**.
4. Establish the correct minidisk access order.

   ```
   vmfsetup 5654A09A {ADSM | ADSMSFS}
   ```
5654A09A is the PPF that was shipped with the product. If you have your own PPF override you should substitute your PPF name for 5654A09A.

Use ADSM for installing on minidisks or ADSMSFS for installing in Shared File System directories.

5 Receive the documentation.

Electronic Service

If you are receiving service from ServiceLink (electronic service) see Appendix A, "Receiving Service for VMSES Envelopes" section 'Receive Service Documentation', in the VM/ESA or z/VM Service Guide manual. Remember to substitute the ppfname and compname used for servicing Tivoli Storage Manager for VM in the instructions shown in the Appendix. Then return back to this PD and continue with step 9.

vmfrec info

The INFO option loads the documentation and displays a list of all the products on the tape.

6 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.

7 Read the product memo (5654A09A MEMO) before going on. This memo was loaded to the A-disk.

8 Setup the correct minidisk access order.

vmfsetup 5654A09A {ADSM | ADSMSFS}

Use ADSM for installing on minidisks or ADSMSFS for installing in Shared File System directories.

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

vmfmrdsk 5654A09A {ADSM | ADSMSFS} apply
Use **ADSM** for installing on minidisks or **ADSMSFS** for installing in Shared File System directories.

This command clears the alternate APPLY disk.

10 Review the merge message log ($VMFMRD $MSGLOG). If necessary, correct any problems before going on. For information about handling specific error messages, see the VM/ESA or z/VM *System Messages and Codes* manual, or use on-line HELP.

```vmfview mrd```

### 7.2.2 Receive the Service

**Electronic Service**

If you are receiving service from ServiceLink (electronic service) see Appendix A, "Receiving Service for VMSES Envelopes", section 'Receive the Service', in the VM/ESA or z/VM *Service Guide* manual. Remember to substitute the `ppfname` and `compname` used for servicing Tivoli Storage Manager for VM in the instructions shown in the Appendix. Then return back to this PD and continue with 7.2.3, “Apply the Service” on page 31.

1 Receive the service.

```vmfrec ppf 5654A09A {ADSM | ADSMSFS}```

Use **ADSM** for installing on minidisks or **ADSMSFS** for installing in Shared File System directories.

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

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

```vmfview receive```
7.2.3 Apply the Service

1 Apply the new service.

vmfapply pff 5654A09A {ADSM | ADSMSFS}

Use ADSM for installing on minidisks or ADSMSFS for installing in Shared File System directories.

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 VM/ESA or z/VM System Messages and Codes manual, or use on-line HELP.

vmfview apply
If you get the message VMFAPP2120W then re-apply any local modifications before building the new Tivoli Storage Manager for VM. Refer to chapter 7 in the VM/ESA or z/VM Service Guide manual. Follow the steps that are applicable to your local modification.

The following substitutions need to be made:

- `esalcl` should be 5654A09A
- `esa` or `zvm` should be 5654A09A
- `compname` should be `ADSM` or `ADSMSFS` (minidisk or SFS)
- `appid` should be 5654A09A
- `fm-applyalt` should be the fm of 4A6

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 VM/ESA or z/VM Service Guide manual, you should return back to this program directory at 7.2.4, “Update the Build Status Table” on page 32.

### 7.2.4 Update the Build Status Table

1. Update the Build Status Table with serviced parts.

```bash
vmfbld ppf 5654A09A {ADSM | ADSMSFS} (status
```

Use `ADSM` for installing on minidisks or `ADSMSFS` for installing in Shared File System directories.

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 5654A09A $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 5654A09A $PPF

vmfppf 5654A09A *

Note: If you've created your own PPF override then use your PPF name instead of 5654A09A.

Use ADSM for installing on minidisks or ADSMSFS for installing in Shared File System directories.

COPYFILE 5654A09A $PPF a = = d (olddate replace
ERASE 5654A09A $PPF a

Note: Do not use your own PPF name in place of 5654A09A for the COPYFILE and ERASE commands.

vmfblid ppf 5654A09A {ADSM | ADSMSFS} (status
1

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

Use ADSM for installing on minidisks or ADSMSFS for installing in Shared File System directories. 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 Tivoli Storage Manager for VM serviced parts.

```
vmfbld ppf 5654A09A {ADSM | ADSMSFS} (serviced
```

Use **ADSM** for installing on minidisks or **ADSMSFS** for installing in Shared File System directories.

**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 VM/ESA or z/VM *System Messages and Codes* manual, or use on-line HELP.

```
vmfview build
```

### 7.2.6 Place the New Tivoli Storage Manager for VM Service into Production

1 Copy the serviced files from the test BUILD disk onto the production BUILD disk using VMFCOPY.

```
access 4e2 e
access 491 f
vmfcopy * * e = = f1 (prodid 5654A09A%ADSM olddate replace
```
4E2 is the test BUILD disk where the production files were updated by the service.

491 is the production BUILD disk where the production files must be copied to.

VMFCOPY is used to copy the production files since it will update the VMSES PARTCAT file on the 491 disk.

You have finished servicing Tivoli Storage Manager for VM.
Appendix A. Applying an RSU Tape for Tivoli Storage Manager for VM

Note

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

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

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

- This process will not alter any of your tailored flat files (files serviced full part replacement only) in any way.
- Planning must be done (such as determining disk sizes, and determining what service, if any, on your existing system is not contained on the RSU Tape) prior to actually loading the service from the RSU Tape. These tasks will be discussed.

The following outline is an overview of what tasks need to be performed during the Preventive Service procedure (PSU) using the RSU tape:

- Prepare System
  In this task, you will receive the documentation contained on the RSU Tape and determine the DASD required to install the RSU Tape.
- Merge Service
  Use the VMFMRDSK command to clear the alternate APPLY disk before receiving the RSU Tape. This allows you to easily remove the new service if a serious problem is found.
- Receive Service
  The VMFINS command receives service from the RSU Tape and places it on the DELTA disk.
- Apply Additional Service
  The VMFAPPLY command updates the version vector table (VVT), which identifies the service level of all the serviced parts. In addition, AUX files are generated from the VVT for parts that require them. These steps are used to reapply service that was not contained on the RSU tape that was already installed for Tivoli Storage Manager for VM.
- Reapplying Local Modifications (if applicable)
All local modifications must be entered into the software inventory to allow VMSES/E to track the changes and build them into the system.

- Building New Levels
  The build tasks generates the serviced level of an object and places the new object on a BUILD disk.
- Placing the New Service into Production
  Once the service is satisfactorily tested it should be put into production by copying the new service to the production disk.

### A.1 Apply Tivoli Storage Manager for VM RSU

#### A.1.1 Prepare Your System for Service Refresh

The `ppfname` used throughout these instructions is **5654A09A**, which assumes you are using the PPF supplied by IBM for Tivoli Storage Manager for VM. If you have your own PPF override file for Tivoli Storage Manager for VM you should use your file’s `ppfname` instead of **5654A09A**. The `ppfname` you use should be used **throughout** the rest of this procedure.

**Electronic Service (envelope file)**

If you have received the RSU electronically, follow the appropriate instructions to retrieve and decompact the envelope file to your A-disk. The decompaction is currently done by using the DETERSE module. The file name of the decompacted file will be of the format RPTFnum. The file type will be SERVLINK. You will need to enter the file name on the VMFINS commands.

1. Read through the latest RSU information hard copy memo.
2. 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 write access to it. Do not use `mw` mode.

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

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

3. Mount the RSU tape on the tape drive as virtual device 181. You must use 181. (Skip this step if you have received the RSU electronically.)

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

a If receiving the RSU from tape

vmfins install info (nomemo)

b If receiving the RSU from an envelope file

vmfins install info (nomemo env rptfnum)

5 Determine DASD sizes for disks to receive service

In order to receive the service from the RSU Tape, you need to have adequate space available on the alternate APPLY and DELTA disks. The required sizes are identified in the Tivoli Storage Manager for VM documentation (5654A09A MEMO D) received in the previous step.

6 Setup the correct minidisk access order

vmfsetup 5654A09A {ADSM | ADSMSFS}

Use ADSM for installing on minidisks or ADSMSFS for installing in Shared File System directories.

7 Merge the APPLY disks for Tivoli Storage Manager for VM

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

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

vmfmrdsk 5654A09A {ADSM | ADSMSFS} apply

Use ADSM for installing on minidisks or ADSMSFS for installing in Shared File System directories.

8 Obtain additional information about the Tivoli Storage Manager for VM service on the RSU and how it will affect your local modifications by invoking the VMFPSU command. This command creates an output file, appid PSUPLAN, which you can review. See the VM/ESA or z/VM Service Guide manual for an explanation of this file.
vmfpsu 5654A09A {ADSM | ADSMSFS}

Use **ADSM** for installing on minidisks or **ADMSFS** for installing in Shared File System directories.

This command produces an output file that contains information about the service on the RSU compared against the service and local modifications on your system. The file name is *appid PSUPLAN*, where *appid* is specified in the PPF file.

### A.1.2 Receive the Preapplied, Prebuilt Service

1. **Refresh the Tivoli Storage Manager for VM service disks by loading new service from the RSU Tape**
   
   a. If receiving the RSU from tape

   `vmfins install ppf 5654A09A {ADSM | ADSMSFS} (nomemo nolink override no)`

   Use component name **ADSM** if the product is installed on minidisks or **ADMSFS** if the product is installed in SFS.

   b. If receiving the RSU from an envelope file

   `vmfins install ppf 5654A09A {ADSM | ADSMSFS} (nomemo nolink env rptf num override no)`

   Use component name **ADSM** if the product is installed on minidisks or **ADMSFS** if the product is installed in SFS.
2 Check the receive message log ($VMFREC $MSGLOG) for warning and error messages. If necessary, correct any problems before going on. For information about handling specific receive messages, see the VM/ESA or z/VM System Messages and Codes manual, or use online HELP.

vmfview install

A.1.3 Process Additional Service

1 Apply additional service

The VMFAPPLY command is used to reapply service that was not contained on the refresh tape that was already installed for the component.

Applying service with preapplied, prebuilt service will reapply any reach-ahead service that may be on the system or indicate that there are no reach-ahead PTFs to be applied.
vmfapply ppf 5654A09A {ADSM | ADSMSFS}

Use **ADSM** for installing on minidisks or **ADSMSFS** for installing in Shared File System directories.

Messages VMFAPP2122E and VMFAPP2109R will be displayed only if you have reach-ahead service that needs to be reapplied. If you receive these messages, enter 1 in reply to VMFAPP2109R to reapply the reach-ahead service (as shown in the example below).

VMFAPP2122E The set of PTFs in the Apply Status Table (5654A09A SRVAPPS) on the 2A2 (F) disk is not a subset of the PTFs in the highest Level Apply Status Table on the 2A6 (E) disk. This is an inconsistent state.

VMFAPP2109R VMFAPPLY will automatically correct the problem identified by message 2122E by including the missing PTFs in the current Apply List. Enter (1) to continue; (0) to quit.

1 Enter 1 for VMFAPPLY to reapply the reach-ahead service.

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

vmfview apply

3 If necessary, rework **local modifications**.

The output from the VMFPSU command (which was run in an earlier step), appid PSUPLAN file, can be used to indicate what local service or mods are affected by the RSU Tape. If a PTF is applied and it contains service to a part for which you have a local modification, you will need to rework the local modification. Refer to the VM/ESA or z/VM Service Guide manual.

**A.1.4 Build the New Service Level and Place Into Production**

To rebuild all objects that were affected by reach-ahead service that was reapplied or local modifications continue with the instructions in 7.2.4, “Update the Build Status Table” on page 32. This will also lead you into the steps to place Tivoli Storage Manager for VM into production.
A.1.5 Determine RSU Service Level

The service contained on each RSU constitutes a new service level. Use this service level when ordering corrective service. The service level is updated in the system inventory when the RSU is installed.

The following command is used to query the current service level of the system.

```
vmfsim query vm sysrecs tdata :ppf ppfname :stat
```

The output from this command is similar to the following console log. The last part of the status line indicates the RSU service level: 9901

```
VMFSIP2408I RESULTS FOR
   TDATA :PPF ppfname :STAT
 :PPF ppfname compname
 :STAT RECEIVED.mm/dd/yy.hh:mm:ss.userid.RSU-9901
```
Appendix B. Disabling Tivoli Storage Manager for VM

If you are running VM/ESA 2.4.0, z/VM 3.1.0 or higher and had previously licensed and enabled Tivoli Storage Manager for VM 3.1.2 for use, and no longer are licensed for it, you need to explicitly disable it. Perform the following steps to disable Tivoli Storage Manager for VM.

1 Logon to a user ID that has privilege class E authority and has access to the VMSES/E code disk (default MAINT 5E5) and VMSES/E Software Inventory disk (default MAINT 51D).

2 Establish read access to VMSES/E code.

```
link MAINT 5e5 5e5 rr
access 5e5 b
```

The 5E5 minidisk is where VMSES/E resides.

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.

4 Set Tivoli Storage Manager for VM to the disabled state.

```
vmfins disable ppp 5654A09A {ADSM | ADSMSFS}
```

Use **ADSM** if installed using minidisk or **ADSMSFS** if installed using Shared File System directories.

This command will perform the following:

- Set Tivoli Storage Manager for VM as DISABLED in VMSES/E and within CP.
- Create a 5654A09A PRODSYS file on the A-disk that contains the CP system configuration PRODUCT statement with a state of DISABLED.

5 In order to retain the DISABLED state for Tivoli Storage Manager for VM, update the CP system configuration file with the information in the 5654A09A PRODSYS file.
The 5654A09A PRODSYS file was created by VMFINS in the previous step. You need to update the CP system config file so that the next time you IPL your system Tivoli Storage Manager for VM will be in the DISABLED state. If you are not authorized to update the CP system configuration file then contact your CP System Administrator.

The CP system configuration file default name is SYSTEM CONFIG and it resides on the CP parm disk (MAINT's CF1 and CF2 minidisks). The section, PRODUCT ENABLE/DISABLE INFORMATION, in the SYSTEM CONFIG file, is what needs to be updated. You will need to replace the current ENABLED entry for PRODID 5654A09A (Tivoli Storage Manager for VM) with the entry from the 5654A09A PRODSYS file (created by VMFINS in the previous step). If necessary, refer to the VM/ESA or z/VM Planning and Administration manual for more information about the CP system configuration file.

6 Shutdown the Tivoli Storage Manager for VM server.
Appendix C. Moving Tivoli Storage Manager for VM to SFS Directories and Creating PPF Override

This appendix describes how to move Tivoli Storage Manager for VM into shared file (SFS) if it was not installed into SFS at initial install time. It also gives sample instructions on creating a PPF (Product Parameter File) override.

By default, Tivoli Storage Manager for VM is installed to minidisks, as part of the System DDR for VM/ESA 2.4.0, z/VM 3.1.0 or higher; unless you choose to move Tivoli Storage Manager for VM to SFS during the initial install of VM/ESA 2.4.0, z/VM 3.1.0 or higher. If you prefer to use SFS, you can move the Tivoli Storage Manager for VM service minidisks to SFS directories. Refer to the figure Figure 8 on page 11 to see which minidisks can reside in SFS. You can use either the default VMSYS file pool or a file pool of your choosing.

A summary of the steps that are needed to place Tivoli Storage Manager for VM into SFS are:

- Allocate space in the user-defined file pool
- Provide the installation user ID, 5654A09A, access to the file pool
- Create the necessary Tivoli Storage Manager for VM subdirectories
- Copy files from the minidisks to the new SFS subdirectories
- Create a PPF override, if not using the default file pool or subdirectory names.

Where to next

You need to do one of the following:

- If you want to place Tivoli Storage Manager for VM into SFS directories using the defaults defined in the 5654A09A PPF file you need to continue with the instructions provided in the VM/ESA Installation Guide, in the Appendix titled "Moving Components to SFS Directories".

- If you want to place Tivoli Storage Manager for VM into your own user-defined file pool or SFS directories, continue with the instructions in C.1, “Setup SFS File Pool and Directories” on page 45.

- If you need to just create a PPF override, continue with the instructions in C.3, “Create Product Parameter File (PPF) Override” on page 48.

After you have chosen one of the previous options and completed the steps required (whether in this appendix or in the VM/ESA or z/VM Installation Guide manual) you need to return to the section that pointed you to this appendix and continue from there (if you were pointed to this appendix).

C.1 Setup SFS File Pool and Directories
Notes:

1. The steps that follow help you determine the Tivoli Storage Manager for VM file pool space requirements, file pool enrollment, and SFS directory definitions. If not all of these steps are required - for example, you are changing only SFS directory or subdirectory names - adapt these instructions as needed for your environment.

2. The following steps assume that a user-defined SFS file pool name is being used. If you will be using the VM/ESA or z/VM default VMSYS file pool name, substitute it in any place you see 'user-defined file pool' or \texttt{userfilepool}.

3. For more information about planning for, generating and managing a file pool and server, see the VM/ESA or z/VM \textit{File Pool Planning, Administration and Operation} manual.

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

   If you intend to use all of the default Tivoli Storage Manager for VM SFS directories, the 4K block requirements for each directory are summarized in Figure 8 on page 11.

   This information is used when enrolling the 5654A09A to the user-defined file pool.

2. Enroll user 5654A09A in the user-defined file pool using the \texttt{ENROLL USER} command:

   \texttt{ENROLL USER 5654A09A userfilepool: (BLOCKS blocks)}

   where \texttt{blocks} is the number of 4k blocks that you calculated in the previous step.

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

3. Determine if there are enough blocks available in the file pool to install Tivoli Storage Manager for VM. This information can be obtained from the \texttt{QUERY FILEPOOL STATUS} command. Near the end of the output from this command is a list of minidisks in the file pool and the number of blocks free. If the number of blocks free is smaller than the total 4k blocks needed to install Tivoli Storage Manager for VM you need to add space to the file pool. See the VM/ESA or z/VM \textit{SFS and CRR Planning, Administration, and Operation} manual for information on adding space to a file pool.

4. Create the necessary subdirectories using the \texttt{CREATE DIRECTORY} command.

   A complete list of default Tivoli Storage Manager for VM SFS directories is provided in Figure 8 on page 11.
set filepool userfilepool:
create directory dirid

dirid is the name of the SFS directory you’re creating, such as the default names:
create directory userfilepool:5654A09A.adsm
create directory userfilepool:5654A09A.adsm.OBJECT
create directory userfilepool:5654A09A.adsm.DELTA
create directory userfilepool:5654A09A.adsm.ALTAAPPLY
create directory userfilepool:5654A09A.adsm.PRODAPPLY

If necessary, see the VM/ESA or z/VM CMS Command Reference manual for more information about the CREATE DIRECTORY command.

5 If you intend to use an SFS directory as the work space for the 5654A09A used ID, include the following IPL control statement in the 5654A09A directory entry:

IPL CMS PARM FILEPOOL userfilepool

This will cause CMS to automatically access the 5654A09A’s top directory as file mode A.

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

1 Copy the files from the Tivoli Storage Manager for VM minidisks or VMSYS file pool (if you already have Tivoli Storage Manager for VM installed in the default SFS file pool) to your new user defined SFS file pool and directories using VMFCOPY.

Note: Repeat the ACCESS and VMFCOPY commands, that follow, for each disk of SFS directory you need to copy. Refer to Figure 8 on page 11 for the default minidisk and SFS directory names for Tivoli Storage Manager for VM.

access vdev e
access dirid f
vmfcopy * * e = = f1 (prodid 5654A09A%ADSM olddate replace
Where

- $vdev$ is the minidisk you are copying files from. If you are copying from SFS then substitute in the SFS directory name in place of $vdev$.
- $dirid$ is the name of the (target) SFS directory that you are copying files to.
- $5654A09A$%ADSM is the PRODID defined within the 5654A09A PPF file for the Tivoli Storage Manager for VM minidisk and SFS components.

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

C.3 Create Product Parameter File (PPF) Override

This section provides information to help you create a product parameter file (PPF) override. The example used in this section is how to change the shared file system (SFS) file pool where Tivoli Storage Manager for VM files reside. Refer to the $VMSES/E$ Introduction and Reference for more information on PPF overrides.

Note: Do **not** modify the product supplied 5654A09A $PPF$ or 5654A09A PPF files to change the VMSYS file pool name or any other installation parameters. If the 5654A09A $PPF$ file is serviced, the existing $PPF$ file will be replaced, and any changes to that file will be lost. By creating your own $PPF$ override, your updates will be preserved.

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

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

   **xedit** $overname$ $PPF$ $fm2$

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

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

   If you modify an existing override file, specify a file mode of A or D, based on where the file currently resides (A being the file mode of a R/W 191 minidisk, or equivalent; D, that of the MAINT 51D minidisk).
2 Create (or modify as required) the Variable Declarations (:DCL.) section for the ADSMSFS override area so that it resembles the :DCL. section as shown below.

:OVERLST. ADSMSFS
* 
*======================================================================*
:ADSMFS. ADSM 5654A09A
*======================================================================*
:DCL. UPDATE
&PROD191 DIR MYPOOL:5654A09A. * 5654A09A Userid A-disk
&BASE DIR MYPOOL:5654A09A.ADSM.OBJECT * Initial Product code
&APPLY1 DIR MYPOOL:5654A09A.ADSM.APPLYPROD * Production APPLY disk
&APPLY2 DIR MYPOOL:5654A09A.ADSM.APPLYALT * Alternate APPLY disk
&DELTA1 DIR MYPOOL:5654A09A.ADSM.DELTA  * Production DELTA disk
&5654A09A USER 5654A09A * ADSM Code Owner Userid
:EDCL.
:END.
* 
This override will replace the :DCL. section of the adsmsfs override area of the 5654A09A $PPF file.

3 If your $PPF override file was created at file mode A, copy it to file mode D—the Software Inventory minidisk (MAINT 51D).

file


copyfile overname $PPF fm = = d (olddate)

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

vmfppf overname adsmsfs where overname is the file name of your $PPF override file.

Now that the overname PPF file has been created, you should specify overname instead of 5654A09A as the PPF name to be used for any VMSES/E commands that require a PPF name.
## Appendix D. Tivoli Storage Manager for VM Installation Tape

### Contents

**File 1:**
- **INS99yzerodotyzerodot** Tape descriptor file
- **$$TAPE$$** VMSES Standard header file for SES format tapes
- **5654A09A PRODPART** Product Parts file
- **5654A09A $$PPF$$** Base Product Parameter File
- **5654A09A PPF** Default usable form Product Parameter File
- **5654A09A MEMO** Tivoli Storage Manager for VM Memo-to-Users

**File 2:**
- **5654A09A 0312101** Program level file
- **5654A09A MEMO** Tivoli Storage Manager for VM Memo-to-Users
- **5654A09A PRODPART** Product Parts file
- **5654A09A $$PPF$$** Base Product Parameter File
- **5654A09A PPF** Default usable form Product Parameter File

**File 3:**
- **5654A09A 0312101** Program level file
- **5654A09A $$INS99yzerodotyzerodot$$** Product contents directory file

**File 4:**
- **5654A09A MEMO** Tivoli Storage Manager for VM Memo-to-Users

**File 5:**
- **DUMMY FILE**

**File 6:**
- **DUMMY FILE**

**File 7:**
- **DUMMY FILE**

**File 8:**
- **DUMMY FILE**

**File 9:**
- **DSMLOAD EXEC** Format 2 build list to build usable forms of the Tivoli Storage Manager for VM product
- **DSMINST EXEC** Initialize the server database
- **DSMMDISK EXEC** Prepare minidisks for use as server storage pool space
- **DSMOP EXEC** Sample Operator tape mount reply procedure
- **DSMMOUNT EXEC** Sample tape mount procedure
- **DSMDELETE EXEC** Sample tape deletion procedure
- **DSMAMENG HLP** American English server help text repository
- **DMSERV MODULE** Server run-time module
DSMADMC MODULE CMS Admin Client module
ANRVSVM MODULE SVM module
DSMSEVR PROFILE Sample PROFILE EXEC for DSMSERV virtual machine
DSMEXIT PROFILE Sample PROFILE EXEC for tape mount virtual machine
DSMSEVR SAMPDIR Sample DSMSERV virtual machine directory definition
DSMEXIT1 SAMPDIR Sample DSMEXIT1 virtual machine directory definition
DSMSEVR SAMPPOPTS Sample DSMSERV OPT file (server options)
DSM SAMPPOPTS Sample DSM OPT file (CMS Admin Client options)
ANRUME TEXT American English message repository for DSMINST EXEC
DSMAMENG TXT American English message repository for the server
DSCAMENG TXT American English message repository for the CMS Admin Client
ANRVCM CNTRL Control file containing the Version Vector Table level
SCRIPTS SAMPLE Server sample SCRIPTs
ANRBAROC SAMPLE
ANRUSRX A SAMPLE
ANRUSRXC SAMPLE
ANRUSRXH SAMPLE
DSMSEVR IDL Server IDL file
ASHG998 CLASS Server Web client panel
CMNMDLN CLASS Server Web client panel
DSMCNSL CLASS Server Web client panel
README TXT Server and CMS Admin client latest info

File 10: DSMINST EXEC Initialize the server database
DSMMDISK EXEC Prepare minidisks for use as server storage pool space
DSMOP EXEC Sample Operator tape mount reply procedure
DSMOUNT EXEC Sample tape mount procedure
DSMDELETE EXEC Sample tape deletion procedure
DSMAMENG HLP American English server help text repository
DSMSEVR MODULE Server run-time module
DSMADMC MODULE CMS Admin Client module
ANRVSVM MODULE SVM module
DSMSEVR PROFILE Sample PROFILE EXEC for DSMSERV virtual machine
DSMEXIT PROFILE Sample PROFILE EXEC for tape mount virtual machine
DSMSEVR SAMPDIR Sample DSMSERV virtual machine directory definition
DSMEXIT1 SAMPDIR Sample DSMEXIT1 virtual machine directory definition
DSMSEVR SAMPPOPTS Sample DSMSERV OPT file (server options)
DSM SAMPPOPTS Sample DSM OPT file (CMS Admin Client options)
ANRUME TEXT American English message repository for DSMINST EXEC
DSMAMENG TXT American English message repository for the server
DSCAMENG TXT American English message repository
for the CMS Admin Client

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<td>Server sample SCRIPTs</td>
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<td>Server Web client panel</td>
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<tr>
<td>Contents of program directory</td>
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<td>Readability and organization of program directory tasks</td>
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<tr>
<td>Necessity of all installation tasks</td>
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<tr>
<td>Accuracy of the definition of the installation tasks</td>
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<tr>
<td>Technical level of the installation tasks</td>
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<tr>
<td>Installation verification procedure</td>
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<tr>
<td>Ease of customizing the product</td>
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<tr>
<td>Ease of migrating the product from a previous release</td>
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<td>Ease of putting the system into production after installation</td>
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<tr>
<td>Ease of installing service</td>
<td></td>
<td></td>
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</table>

- Did you order this product as an independent product or as part of a package?
  - Independent
  - Package
    - What type of package was ordered?
      - CustomPac
      - FunctionPac®
      - SystemPac
      - 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 Tivoli Storage Manager for VM Development group:

International Business Machines Corporation
Information Development
Dept. 61C
9000 South Rita Road
Tucson, AZ 85744-0001