Note:

Before you use this information and the product it supports, read the information in "Notices" on page 339.

This edition applies to the version 6, release 4, modification 0 of IBM z/VM (product number 5741-A07) and to all subsequent releases and modifications until otherwise indicated in new editions.

This edition replaces GC24-6246-03.

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About this document

This document guides the customer through the installation of version 6 release 4 of IBM® z/VM® using step-by-step installation procedures. The procedures cover traditional installation of a z/VM system, first-level (in a processor’s logical partition) or second-level (as a guest operating system hosted by z/VM), from DVD media, and installing z/VM V6.4 as an upgrade to either z/VM V6.2 or z/VM V6.3.

See Chapter 1, “Installation overview,” on page 3 for an overview of the techniques available for installing z/VM and guidelines for selecting the technique that will best suit your needs.

For information about servicing your system, see z/VM: Service Guide.

Note: See z/VM: General Information for a list of the processors supported by z/VM and the guest operating systems hosted by z/VM.

Intended audience

This information is intended for the customer responsible for installing z/VM.

A general knowledge of what z/VM does and an understanding of virtual machine concepts is required for getting the most out of this information. You should also have a general understanding of z/VM and IBM Z(R) data processing techniques and z/VM commands.

Conventions and terminology

Various conventions are used to depict what you should type and what system responses you might see. Procedures will use the following conventions:

- The procedures in this document are in a two-column format. The left column shows the representative sequence of user entries and system responses, the right column contains explanatory comments and instructions about the entries shown in the left column.

  Example:

  ```
  attach dasdaddr *
  DASD dasdaddr ATTACHED TO userid dasdaddr
  ...
  Ready; T=n.nn/n.nn hh:mm:ss
  dasdaddr
  is the address of the DASD volume.
  userid
  is the first-level user ID logged on to in the previous substep.
  ```

- Normal font indicates system responses and requests.

  Example: The following shows a system response:

  ```
  IUGIPX8475I THE PRODUCTS YOU SELECTED TO LOAD TO MINIDISK ARE:
  VM RSCS TCPIP OSA ICKDSF DIRM RACF PERFTK VMHCD
  ```

- Bold font indicates exactly what you should type.

  Example: The following shows a command you would type:

  ```
  disconnect
  ```

- Italic font indicates variable input or output, which can occur in commands you type or in system output.

  Examples: The following are examples in which italics indicate variable input or output:
- In the following, you would need to supply the address of a minidisk for diskaddr:
  attach diskaddr w
- In the following, the system would supply the storage size for nnn in its response:
  Query virtual storage
  STORAGE = nnn M

- Reverse type indicates special keys you must press.
  Example: The following indicates you must press Enter:
    ENTER
- A vertical bar (|) indicates you will receive or enter one of the values within the braces ({}).
  Example: The following indicates sample output where you might receive one of two responses:
    {MDREST|ECKDREST}: WROTE nnnn {BLOCKS|TRACKS} ON addr, RC=0

In this example, you would actually receive one of the following two responses:
MDREST: WROTE nnnn BLOCKS ON addr, RC=0
ECKDREST: WROTE nnnn TRACKS ON addr, RC=0

Where to find more information

This document includes all updates available at the time of publication. Any updates to this document will be reflected in the copy available in the IBM: z/VM Internet Library (www.vm.ibm.com/library).

For information about related documents, see “Bibliography” on page 345.

Links to other documents and websites

The PDF version of this document contains links to other documents and websites. A link from this document to another document works only when both documents are in the same directory or database, and a link to a website works only if you have access to the Internet. A document link is to a specific edition. If a new edition of a linked document has been published since the publication of this document, the linked document might not be the latest edition.
How to send your comments to IBM

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Use one of the following methods to send us your comments:
1. Send an email to mhvrcfs@us.ibm.com.
2. Go to IBM z/VM Reader's Comments (www.ibm.com/systems/z/os/zvm/zvmforms/webqs.html).

Include the following information:
• Your name
• Your email address
• The publication title and number:
  z/VM V6.4 Installation Guide
  GC24-6246-04
• The topic name or page number related to your comment
• The text of your comment

When you send comments to IBM, you grant IBM a nonexclusive right to use or distribute your comments in any way it believes appropriate without incurring any obligation to you.

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If you have a technical problem

Do not use the feedback methods listed above. Instead, do one of the following:
• Contact your IBM service representative.
• Contact IBM technical support.
• See IBM: z/VM Service Resources (www.ibm.com/vm/service/).
• Go to IBM Support Portal (www.ibm.com/supportentry/portal/Overview/).
Summary of changes

This document contains terminology, maintenance, technical, and editorial changes. Technical changes are indicated by a vertical line to the left of the change. Some product changes might be provided through service and might be available for some prior releases.


This edition includes changes to support product changes provided or announced after the general availability of z/VM V6.4.

The following chapters have been updated:

- Chapter 15, “Upgrade installation overview,” on page 137
- Chapter 16, “Plan your upgrade installation,” on page 139

Various other updates have been made throughout the document as well.

GC24-6246-03, z/VM Version 6 Release 4

This edition includes changes to support the general availability of z/VM V6.4.

- The upgrade installation process has been extended to allow you to upgrade from z/VM V6.2 or V6.3 to z/VM V6.4.
- Support is added for installation of z/VM on the 3390 Model 27.
- You can no longer order the z/VM product or service for z/VM on 3590/3592 tape media. z/VM V6.4 is available on DVD and through electronic delivery.
- The following new releases of components and features are preinstalled:
  - Directory Maintenance Facility, function level 640 (disabled)
  - Performance Toolkit for VM, function level 640 (disabled)
  - RACF Security Server for z/VM, function level 640 (disabled)
  - RSCS Networking for z/VM, function level 640 (disabled)
  - TCP/IP, function level 640
  - HCD and HCM for z/VM, function level 640

GC24-6246-02, z/VM Version 6 Release 3 (April 2014)

This edition includes changes to support product changes provided or announced after the general availability of z/VM V6.3.

GC24-6246-01, z/VM Version 6 Release 3

This edition includes changes to support the general availability of z/VM V6.3.

- A new upgrade installation process, Upgrade Installation, is described in Part 4, “Upgrade installation,” on page 135.
- The following new releases of components and features are preinstalled:
  - Directory Maintenance Facility, function level 630 (disabled)
  - Performance Toolkit for VM, function level 630 (disabled)
  - RACF Security Server for z/VM, function level 630 (disabled)
  - RSCS Networking for z/VM, function level 630 (disabled)
- TCP/IP, function level 630

- To ensure that they are available to all members of an SSI cluster containing multiple releases of z/VM, the minidisks associated with the DirMaint™ user IDs DIRMAINT, DIRMSAT*, DATAMOV*, and 6VMDIR30, and the minidisks associated with the VMHCD user ID 6VMHCD20, have all been moved to volumes designated as COMMON.
Part 1. z/VM installation

This part contains an overview of the techniques available for installing z/VM and guidelines for selecting the technique that will best suit your needs.
Chapter 1. Installation overview

There are two techniques available for installing z/VM.

The first technique, traditional installation, installs a new z/VM system or a new SSI cluster on a set of DASD which can then be customized according to your needs. If you are a new customer, or a current customer running z/VM V5.4, this is the installation method you should use. If you are a current customer running z/VM V5.4, there is a traditional migration procedure that can be used only with a non-SSI installation after your new system is installed. If you plan to use this migration procedure, review the requirements for migration in “Step 1. Review and comply with the requirements” on page 99 before you install your new system.

The second installation technique, upgrade installation, is used to upgrade from z/VM V6.2 or z/VM V6.3. In an upgrade installation, a new release system to be used as a temporary work system is installed as a second level guest of the current release system that you want to upgrade. The new level of code from the work system is then moved to your current system with minimal impact to your current running system. This current running system can be a non-SSI system, the only member of a single member SSI cluster, or any member of a multimember SSI cluster. In a multimember SSI cluster, you will upgrade one member at a time so that there is minimum impact to the other members. Note that you must complete the upgrade for one member before starting the upgrade of the next member.

Select the installation technique that best meets your needs, as follows:
- For traditional installation, follow all of the steps in Part 2, “Traditional installation,” on page 5.
- For upgrade installation, follow all of the steps in Part 4, “Upgrade installation,” on page 135.

Within each part, read and follow all the procedures in the order presented.
Part 2. Traditional installation

This part contains procedures for the traditional installation of z/VM to either a non-SSI or to a SSI cluster. If you received the z/VM product electronically, you must first complete the instructions you downloaded with your order before using the procedures here in Part 2 to install z/VM.

In this part, you will:

- Plan your traditional installation.
- Complete worksheets.
- Install the z/VM system.
Traditional installation
Chapter 2. Plan your traditional installation

In this chapter, you will:
- Plan your installation.
- Complete the traditional installation worksheets and the TCP/IP configuration worksheets.
Step 1. Select your installation procedure

If your z/VM product was obtained via electronic delivery, you must follow the instructions that accompanied the deliverable to do one of the following before proceeding with your installation:

- Create a physical DVD.
- Load the deliverable into an FTP server directory.

Installation procedures:

- **First-level installation** can be done from:
  - A physical DVD mounted in a DVD drive attached to the Hardware Management Console (HMC).
  - A physical DVD mounted in a DVD drive connected through an FTP server.
  - An FTP server that has access to a directory where the files from the physical DVDs or electronic deliverables have been stored.

- **Second-level installation** can be done from:
  - A physical DVD mounted in a DVD drive connected through an FTP server.
  - An FTP server that has access to a directory where the files from the physical DVDs or electronic deliverables have been stored.
  - A CMS-formatted minidisk that is accessible by your installation user ID.
Step 2. Review and comply with the requirements

Before you install version 6 release 4, you must review the following information and make sure all requirements are satisfied:

**Note:** For current information affecting installation, see the following topics at [z/VM Installation Resources](www.vm.ibm.com/install):

- Important z/VM Installation News
- z/VM Installation Tips
- Preventative Service Planning (PSP) bucket for z/VM 640 installation

**z/VM media deliverable requirements**

- For delivery through physical DVDs, make sure you have the z/VM product DVD and the installation recommended service upgrade (RSU) DVD.
- For electronic delivery, make sure you have the product and RSU .zip files.
- The RSU that was shipped as part of the z/VM product will be installed during the installation process. If additional service is required, install it after your initial installation is complete.

**General requirements**

- A processor supported by z/VM version 6 release 4. For a list of processors supported by z/VM, see [z/VM: General Information](#).
- A local non-SNA 3270 terminal or equivalent, configured with at least 32 lines, or an integrated 3270 console.
- For z/VM installation on FBA, note that z/VM installation supports only emulated FBA on SCSI volumes. Real FBA volumes are *not* supported.
- For instructions on how to receive current service, see the Program Directory for z/VM.
- If you plan to migrate from another z/VM system, review [z/VM: Migration Guide](#).
- If you plan to deploy Linux on z Systems™, see [z/VM: Getting Started with Linux on z Systems](#) for important planning information about Linux virtual servers.
- The z/VM FTP installation procedure complies with the FTP client protocol standards described in RFC 959 and RFC 1123. Passive FTP data transfers are used in order to minimize the affects of intervening firewall systems, so your FTP server must support the PASV command.
- A Single System Image (SSI) cluster installation requires the IBM z/VM Single System Image Feature, a priced feature whose use is governed by the terms and conditions of the IBM International Program License Agreement and the z/VM License Information Document. Copies of these documents are included with your z/VM order.

The feature must be appropriately licensed for all machines that contain a member of the single system image cluster. If you need to order this feature, visit [www.ibm.com/software/ShopzSeries](www.ibm.com/software/ShopzSeries). In countries where Shop zSeries is not available, contact your IBM representative or IBM Business Partner.

- If you plan to use the IBM migration procedures documented in Part 3, “Post traditional system installation,” on page 81 to migrate from a z/VM V5.4 system, you must select a non-SSI installation.

**Note:** You *cannot* use the migration procedures in Part 3, “Post traditional system installation,” on page 81 to migrate from a z/VM V6.2 or V6.3 system. If you are migrating from z/VM V6.2 or V6.3, you should use Part 4, “Upgrade installation,” on page 135.

**First-level installation requirements**

- Hardware requirements:
  - Access to the integrated 3270 console on the HMC for your LPAR (CONS=SYSG) for use as the console during first-level installation.
Review and comply with the requirements

– At least 768 MB of real storage assigned to the LPAR where z/VM will be installed.

Note: The storage required for installation is not necessarily the amount you should have assigned for running production workloads. See \textit{z/VM: CP Planning and Administration} for information on determining production storage requirements.

– For the LPAR where you are installing, “Input/output (I/O) configuration control” must be enabled. This can be done by enabling this in the image profile which is then used to activate the LPAR. Alternatively, you can use the “Change Logical Partition Security” task to query the current setting and, if necessary, dynamically change the setting.

• If installing from a physical DVD mounted in a DVD drive attached to the Hardware Management Console (HMC):
  – The HMC must communicate with the desired support element. An HMC can communicate only with support element versions that are equal to or lower than the version of the HMC. For example, an HMC version 2.10.1 can communicate with a support element at version 2.10.0, or 2.10.1, but it cannot communicate with a support element at version 2.10.2.

• If installing from a physical DVD mounted in a DVD drive connected through an FTP server:
  – The FTP server must comply with RFC 959 and RFC 1123.
  – The FTP server must be able to communicate with both the HMC and primary SE of the LPAR where you will install. This means that both the HMC and primary SE must be enabled for TCP/IP communication, including any required firewall authorizations, and authorized to use FTP.
  – The FTP server must be able to access to the DVD drive.

• If installing from an FTP server that has access to a directory where the files from the physical DVD or electronic deliverables have been stored:
  – The FTP server must comply with RFC 959 and RFC 1123.
  – The FTP server must be able to communicate with both the HMC and primary SE of the LPAR where you will install. This means that both the HMC and primary SE must be enabled for TCP/IP communication, including any required firewall authorizations, and authorized to use FTP.
  – The FTP server must be able to access the directory where the contents of the DVD will be stored.
  – There must be at least 4 GB of available space to store the contents of the z/VM product DVD and the installation RSU DVD.

Second-level installation requirements

• Hardware requirements:
  – A processor supported by the release of z/VM that is running first level and by the release of z/VM that is being installed second level.
  – Access to a local non-SNA 3270 terminal, or equivalent, configured with at least 32 lines.

• System software requirements:
  – A first-level system running a supported release of z/VM.

• User ID requirements:
  – You must complete the entire installation using a single installation user ID.
  – Access to the INSTPIPE MODULE on your current system. The module was shipped on the MAINT 2CC disk with pre-V6.2 releases. Starting with z/VM V6.2, the INSTPIPE MODULE is shipped on the MAINTvrm 4CC disk.
  – Privilege class G.
  – Privilege class B, if installation DASD volumes are not already attached to your installation user ID.
  – At least 128 MB of virtual storage.

Note: The virtual storage required for installation is not necessarily the amount you should have assigned when running a system second level. For information about determining virtual storage requirements, see \textit{z/VM: CP Planning and Administration}.
Review and comply with the requirements

- A 191 read/write minidisk accessed as file mode A.
- If installing from a CMS-formatted minidisk (referred to as “From a VM Minidisk”), write access to the disk where the files will be loaded.
- A 222 read/write minidisk, matching the supported DASD type (3390 or FBA) of your installation media, that is exactly:
  - 10 cylinders (3390)
  - 14400 512-KB blocks (FBA)
- A 24CC read/write minidisk, matching the supported DASD type (3390 or FBA) of your installation media, that is exactly:
  - 10 cylinders (3390)
  - 14400 512-KB blocks (FBA)
- A 2CF0 read/write minidisk, matching the supported DASD type (3390 or FBA) of your installation media, that is exactly:
  - 120 cylinders (3390)
  - 172800 512-KB blocks (FBA)
- If installing from a physical DVD mounted in a DVD drive connected through an FTP server:
  - The FTP server must comply with RFC 959 and RFC 1123.
  - The FTP server must have a TCP/IP communication path to the system you are using to install.
  - The FTP server must be able to access a DVD drive.
- If installing from an FTP server that has access to a directory where the files from the physical DVDs or electronic deliverables have been stored:
  - The FTP server must comply with RFC 959 and RFC 1123.
  - The FTP server must have a TCP/IP communication path to the system you are using to install.
  - The FTP server must be able to access the directory where the contents of the DVDs will be stored.
  - The contents of the z/VM product DVD and the installation RSU DVD must be stored in the same directory.
  - There must be at least 4 GB of available space to store the contents of the z/VM product DVD and the installation RSU DVD.
- If installing from a CMS-formatted minidisk where the contents of the physical DVD or electronic deliverable will be uploaded:
  - The CMS-formatted minidisk must be the equivalent of at least 6000 cylinders of 3390 DASD.
Step 3. Complete the installation worksheets

1. Determine the installation method you will use, and record the selected installation method on DVD installation worksheet 1 (Table 1 on page 17).
   - Choose first-level installation if no supported z/VM system is running on the processor or LPAR on which you are installing.
   - Choose second-level installation if you are installing in a virtual machine on a supported z/VM system.

2. Each product on the z/VM product DVD allows file pool directories to be used for service. Using file pool directories for service (the default) could avoid potential service space problems. Determine which products will use the installation file pools for service disks and which products will use minidisks. Record your choices under the Install To column on traditional installation worksheet 1 (Table 1 on page 17).

3. Select your default system language and record your choice on traditional installation worksheet 1 (Table 1 on page 17). The choices are:
   - Mixed Case English (AMENG)
   - Uppercase English (UCENG)
   - Kanji (KANJI)

4. Select the DASD type and model you will use to install, and record the DASD information on traditional installation worksheet 1 (Table 1 on page 17).
   - If you are using the FBA (SCSI) DVD:
     - Record FBA on the "DASD type and model" line.
     - Record the size on the "SCSI volume size" line.
       - The size of the FBA volumes must be at least 6.0 GB.
       - All volumes must be at least the size recorded.
   - If you are using the 3390 DVD:
     - On the "DASD type and model" line:
       - Record 3390 Mod 3 if your DASD contains 3339 - 10016 cylinders.
       - Record 3390 Mod 9 if your DASD contains 10017 - 32759 cylinders.
       - Record 3390 Mod 27 if your DASD contains 32760 or more cylinders.

   Notes:
   a. FBA cannot be used for an SSI installation.
   b. z/VM installation supports only emulated FBA on SCSI volumes. Real FBA volumes are not supported.
   c. The spool and paging volumes will be reallocated for spool and page space up to block 16777214 (approximately 8 GB). Any additional space on those volumes will remain PERM space.
   d. IBM strongly recommends that you not use any remaining space on the installation volumes.

5. Select a name for the common service filepool and record your choice on traditional installation worksheet 1 (Table 1 on page 17). The common service filepool contains the service minidisks for the products you choose to load into the installation filepools, and will reside on the COMMON volumes. This filepool will exist even if you do not load any product into the filepool. The file ICOMDIR NAMES will be created to map your filepool name to the filepool nickname VMPSFS. If you will not be adding this system or SSI cluster to a larger ISFC collection, you can use the name "VMPSFS" as your filepool name. The filepool name:
Complete the installation worksheets

- Has no default value. You must enter a name.
- Must be 1 to 8 alphanumeric characters (A through Z and 0 through 9).
- Cannot start with the characters “VMSYS”.
- Cannot start with a number.
- Cannot be “ALLOW”, “ANY”, or “SYSTEM”.
- Should not match any user ID on the system.

Note, also, that if at some time in the future you plan on adding this system or SSI cluster to a larger ISFC collection, the common service filepool name must not match any filepool name used by any other system or member in the ISFC collection.

6. Select the installation type, Non-SSI or Single System Image (SSI), and record your choice on traditional installation worksheet 1 (Table 1 on page 17). If installing to FBA, you must select Non-SSI.

For more information on planning for an SSI cluster, see z/VM: CP Planning and Administration

**Note:** To select SSI, you must first order the IBM z/VM Single System Image Feature. This feature must be appropriately licensed for all machines that will contain a member of the single system image cluster.

7. If you selected Non-SSI, record the name of your system on traditional installation worksheet 1 (Table 1 on page 17). Note that the system name:
   - Must be 1 to 8 alphanumeric characters
   - Cannot start with a number, that is, the first character must be non-numeric
   - Cannot contain blanks
   - Cannot be NOSSI or NOSYS.

**Attention:** The system name you select should be considered a permanent name. In previous releases, selecting a “test” name and then later changing it to a “production” name was a common practice. However, due to numerous dependencies in the current release, this practice should not be used. Changing the system name after installation is a complicated process. If you intend to configure RSCS, the RSCS node ID should match the system name.

**Note:** If your current system is z/VM V5.4 and you plan to use the migration procedure:

If any pre-installed products reside in SFS on your current system, the system name for your new z/VM V6.4 system must be different from the system name of your current z/VM V5.4 system.

8. If you selected SSI:
   a. On traditional installation worksheet 1 (Table 1 on page 17):
      1) Record the number of members you wish to install (must be 1 to 4).
      2) Record the name of your SSI cluster (must be 1 to 8 alphanumeric characters).
   b. On traditional installation worksheet 6 (Table 6 on page 19):
      1) Select “First-level” if you intend to IPL your SSI cluster members in first-level LPARs. Otherwise, select “Second-level”. An SSI cluster can be installed to IPL all members in first-level LPARs or to IPL all members second-level from user IDs on an existing z/VM system.
      2) For each SSI member, record the following:
         a) A member name, which:
            - Must be 1 to 8 alphanumeric characters
            - Cannot start with a number, that is, the first character must be non-numeric
            - Cannot contain blanks
            - Cannot be NOSSI or NOSYS
            - Must be unique (from all other member names) in the last 7 characters.
### Attention:
The system name you select should be considered a **permanent** name. In previous releases, selecting a “test” name and then later changing it to a “production” name was a common practice. However, due to numerous dependencies in the current release, this practice should **not** be used. Changing the system name after installation is a complicated process. If you intend to configure RSCS, the RSCS node IDs should match the system names.

b) The LPAR name or the user ID where the SSI member will be IPLed.

### Notes:
1. The LPAR name is the name that is defined on the resource statement of the hardware input output control program (IOCP). See your hardware administrator for more information.
2. If you are installing a multimember SSI cluster that will be IPLed second-level, the file SSI2ND DIR-PROF will be generated during installation processing. This file contains the directory definitions and the profile execs needed for these user IDs.

9. Select whether to use an SMAPI client, such as the Cloud Manager Appliance (CMA), or to use other, non-SMAPI system management tools. The installation process can configure and enable your new system to be managed by CMA or some other SMAPI client. With this configuration, you **cannot** use an external security manager program, such as RACF® for VM, or a directory manager program, such as DirMaint. All system management must be performed using SMAPI clients, such as CMA.
   If you intend to use an external security manager product or a directory manager product from IBM or another vendor, or if you do not have access to any SMAPI clients for system management, you should enter No on traditional installation worksheet 2 (Table 2 on page 17).
   If you will only be using CMA or some other SMAPI client for system management and will not use an external security manager product or a directory manager product from IBM or another vendor, then you may want to enter Yes on DVD installation worksheet 2 (Table 2 on page 17). Keep in mind that if you say Yes, you should **not** attempt to manage your system in any other way.
   If you are not sure how you will be managing your system, you should enter No on DVD installation worksheet 2 (Table 2 on page 17). For additional information on using SMAPI clients and CMA, see *z/VM: Systems Management Application Programming*.

10. If installing to 3390, determine the number of volumes required to install and record that information on traditional installation worksheet 3 (Table 3 on page 18) for non-SSI or DVD installation worksheet 7 (Table 7 on page 19) for SSI.
   a. If you choose:
      • 3390 Model 3:
        - If you choose to load all products to minidisk:
          - For non-SSI, you will need eleven volumes.
          - For SSI, you will need eleven volumes for member 1, plus six volumes for each additional member.
        - If you choose to load all products to filepool, you will **not** need the RELVOL2 or RELVOL3 volumes:
          - For non-SSI, you will need nine volumes.
          - For SSI, you will need nine volumes for member 1, plus six volumes for each additional member.
        - If you choose to load some products to minidisk and some products to filepool, you may or may not need the RELVOL2 or RELVOL3 volumes. Use the following table to make the determination by totalling the cylinders for all of the products that you will load to the filepool. If the products you selected total 1110 or more cylinders, then you will **not** need the RELVOL3 volume. If the products you selected total 4418 or more cylinders, then you will **not** need either the RELVOL2 or RELVOL3 volumes:
          - For non-SSI, you will need nine to eleven volumes.
- For SSI, you will need nine to eleven volumes for member 1, plus six volumes for each additional member.

<table>
<thead>
<tr>
<th>Product</th>
<th>Cylinders</th>
</tr>
</thead>
<tbody>
<tr>
<td>VM</td>
<td>2129</td>
</tr>
<tr>
<td>OSA</td>
<td>0</td>
</tr>
<tr>
<td>PERFTK</td>
<td>121</td>
</tr>
<tr>
<td>VMHCD</td>
<td>1379</td>
</tr>
<tr>
<td>RACF</td>
<td>182</td>
</tr>
<tr>
<td>DIRM</td>
<td>0</td>
</tr>
<tr>
<td>RSCS</td>
<td>94</td>
</tr>
<tr>
<td>ICKDSF</td>
<td>0</td>
</tr>
<tr>
<td>TCPIP</td>
<td>749</td>
</tr>
</tbody>
</table>

- 3390 Model 9, you will not need multiple common, release, or member volumes:
  - For non-SSI, you will need six volumes.
  - For SSI, you will need six volumes for member 1, plus four volumes for each additional member.
- 3390 Model 27, you will not need a member volume or multiple common or release volumes:
  - For non-SSI, you will need five volumes.
  - For SSI, you will need five volumes for member 1, plus three volumes for each additional member.

**Notes:**
1. INSTPLAN, which is run early in the installation procedure, will tell you exactly how many volumes are required.
2. IBM strongly suggests that you do not use any left over space on the installation volumes.

b. Record the address for each 3390 volume in the **Address** column. If you are changing any of the default installation labels, record the new labels in the **New Label** column. Disregard any volumes that you do not need. Note that you must not use any of IBM’s default volume labels for a volume other than the volume for which it is originally defined.

- Volume labels must be 1 to 6 alphanumeric characters.
- If you selected non-SSI, use traditional installation worksheet 3 (Table 3 on page 18).
- If you selected SSI, use traditional installation worksheet 7 (Table 7 on page 19).

**Note:** The address of the VMCOM1 volume is written out by the SALIPL command to cylinder 0 of the IPL volume for each member (M0xRES), to be used at IPL time to locate the SYSTEM CONFIG file. Because of this, the address of the VMCOM1 volume cannot be redefined to a different address without rerunning SALIPL.

11. If you are installing to FBA (SCSI) volumes, use traditional installation worksheet 4 (Table 4 on page 18). Record the address for each volume in the **Address** column. If you are changing any of the default installation labels, record the new labels in the **New Label** column. Note that you must not use any of IBM’s default volume labels for a volume other than the volume for which it is originally defined.
Complete the installation worksheets

- FBA (SCSI) can be used for non-SSI installation only.
- If the size of your FBA volumes is equal to or greater than 9.7 GB:
  - You will need five volumes. You will not need the M01W01 volume.
- If the size of your FBA volumes is less than 9.7 GB:
  - You will need six volumes.
- Volume labels must be 1 to 6 alphanumeric characters.

Note: IBM strongly suggests that you do not use any left over space on the installation volumes.

12. If you are using FBA (SCSI) disks, and they are already defined, you need only the addresses of the volumes and can continue to the next substep. If they are not already defined, you need to know the WWPN and LUN address for each disk, as well as either the valid FCP address(es) or the channel path (CHPID) they belong to.

   Record each LUN and its corresponding WWPN on traditional installation worksheet 4 (Table 4 on page 18). Also make a note of the valid FCP address(es) or CHPID.

13. If you selected SSI and “First-level” in substep 8b1 on page 13, complete worksheet 8 (Table 8 on page 20):
   a. Enter the real addresses of the COMMON volume as it is defined to each LPAR. The COMMON volume must be available to each LPAR where your SSI cluster will run.
   b. If installing more than one member, specify the CTCA addresses that will be used to communicate between members of the SSI cluster.

   Notes:
   1. Each SSI member must have at least one CTC connection to every other SSI member.
   2. Installation allows you to define up to two connections between any two members. More connections may be defined after installation is complete.
   3. The number of CTC device addresses defined for communication between two members must be the same.

14. If you are installing with an FTP server (using a physical DVD or the server directory), record the path information required to access the DVD drive or FTP directory on DVD installation worksheet 5 (Table 5 on page 18).
   a. Record the IP address or host name of the FTP server.
   b. Record the user ID and password of the FTP server.
   c. Record the DVD or FTP directory path name for the FTP server.

15. If you are installing from a VM minidisk, record the VM user ID and address of the VM minidisk where contents of the z/VM product DVD will be uploaded on DVD installation worksheet 5 (Table 5 on page 18).

What to do next

Go to “Step 4. Complete the basic TCP/IP connectivity worksheets” on page 21.
Table 1. Traditional installation worksheet 1

Installation method (first-level or second-level): ___________________________

Record an “M” if you will load the product to a minidisk or an “F” if you will load the product to the VMPSFS file pool in the Install To column.

<table>
<thead>
<tr>
<th>Install To</th>
<th>Product</th>
<th>Install To</th>
<th>Product</th>
<th>Install To</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>VM</td>
<td>DIRM</td>
<td>ICKDSF</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OSA</td>
<td>PERFTK</td>
<td>RACF</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RSCS</td>
<td>TCP/IP</td>
<td>VMHCD</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Default system language: ___________________________

DASD type and model: ___________________________

SCSI volume size: _______

Common service filepool name: ___________________________

Installation Type:

__ Non-SSI

__ SSI

Number of Members: ___

SSI Cluster Name: ___________________________

* The system name you select should be considered a permanent name. Changing the system name after installation is a complicated process.

Table 2. Traditional installation worksheet 2

Would you like to have your system automatically configured to be managed by an SMAPI client for system management, such as the Cloud Manager Appliance (CMA)? (Yes/No) _______

Keep the following in mind:

If you say Yes, you should not attempt to manage your system in any other way.

If you’d like to manage your own system, or use a purchased external security manager or a purchased directory manager, say No.
Complete the installation worksheets

**Table 3. Traditional installation worksheet 3 (3390 Non-SSI Only)**

<table>
<thead>
<tr>
<th>Volume Type</th>
<th>Default Label</th>
<th>New Label</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMMON</td>
<td>VMCOM1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COMMON2</td>
<td>VMCOM2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RELVOL</td>
<td>640RL1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RELVOL2</td>
<td>640RL2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RELVOL3</td>
<td>640RL3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RES</td>
<td>M01RES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPOOL</td>
<td>M01S01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAGE</td>
<td>M01P01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MEMBER</td>
<td>M01W01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MEMBER</td>
<td>M01W02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MEMBER</td>
<td>M01W03</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: You must not use any of IBM's default volume labels for a volume other than the volume for which it is originally defined.

**Table 4. Traditional installation worksheet 4 (FBA Non-SSI Only)**

<table>
<thead>
<tr>
<th>Volume Type</th>
<th>Default Label</th>
<th>New Label</th>
<th>Address</th>
<th>FCP Address</th>
<th>WWPN</th>
<th>LUN</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMMON</td>
<td>VMCOM1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RELVOL</td>
<td>640RL1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RES</td>
<td>M01RES</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPOOL</td>
<td>M01S01</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAGE</td>
<td>M01P01</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MEMBER</td>
<td>M01W01</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Channel path (CHPID): __________________________________________
Valid FCP addresses: __________________________________________

Note: You must not use any of IBM's default volume labels for a volume other than the volume for which it is originally defined.

**Table 5. Traditional installation worksheet 5**

<table>
<thead>
<tr>
<th>IP address or host name:</th>
<th>____________________________</th>
</tr>
</thead>
<tbody>
<tr>
<td>FTP server user ID and password:</td>
<td>____________________________</td>
</tr>
<tr>
<td>DVD/FTP directory path name:</td>
<td>____________________________</td>
</tr>
<tr>
<td>VM user ID and address of VM minidisk to upload DVD:</td>
<td>____________________________</td>
</tr>
</tbody>
</table>
After installation is complete, SSI will be IPLed:

- First-Level
- Second-Level

<table>
<thead>
<tr>
<th>SSI Member Name(s) / IPL LPAR Name(s) or User ID Name(s):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slot Number</td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
</tbody>
</table>

* The member names you select should be considered permanent names. Changing a member name after installation is a complicated process.

### Table 7. Traditional installation worksheet 7 (3390 SSI Only)

<table>
<thead>
<tr>
<th>Volume Type</th>
<th>Default Label</th>
<th>New Label</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMMON</td>
<td>VMCOM1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COMMON2</td>
<td>VMCOM2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RELVOL</td>
<td>640RL1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RELVOL2</td>
<td>640RL2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RELVOL3</td>
<td>640RL3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Volume Type</th>
<th>Default Label</th>
<th>New Label</th>
<th>Address</th>
<th>Volume Type</th>
<th>Default Label</th>
<th>New Label</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Member 1:</td>
<td></td>
<td></td>
<td></td>
<td>Member 2:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Volume Type</th>
<th>Default Label</th>
<th>New Label</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>RES</td>
<td>M01RES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPOOL</td>
<td>M01S01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAGE</td>
<td>M01P01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MEMBER</td>
<td>M01W01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MEMBER</td>
<td>M01W02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MEMBER</td>
<td>M01W03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Member 3:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Volume Type</th>
<th>Default Label</th>
<th>New Label</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>RES</td>
<td>M03RES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPOOL</td>
<td>M03S01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAGE</td>
<td>M03P01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MEMBER</td>
<td>M03W01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MEMBER</td>
<td>M03W02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MEMBER</td>
<td>M03W03</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** You must not use any of IBM's default volume labels for a volume other than the volume for which it is originally defined.
**Complete the installation worksheets**

Table 8. Traditional installation worksheet 8 (SSI First-Level Configuration Only)

Real addresses for the COMMON volume on each member LPAR:

<table>
<thead>
<tr>
<th>Member 1 Address</th>
<th>Member 2 Address</th>
<th>Member 3 Address</th>
<th>Member 4 Address</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CTC device addresses:

<table>
<thead>
<tr>
<th>From: Member 1</th>
<th>From: Member 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>To: Member 1</td>
<td>N/A</td>
</tr>
<tr>
<td>To: Member 2</td>
<td>_____ _____</td>
</tr>
<tr>
<td>To: Member 3</td>
<td>_____ _____</td>
</tr>
<tr>
<td>To: Member 4</td>
<td>_____ _____</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>From: Member 3</th>
<th>From: Member 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>To: Member 1</td>
<td>_____ _____</td>
</tr>
<tr>
<td>To: Member 2</td>
<td>_____ _____</td>
</tr>
<tr>
<td>To: Member 3</td>
<td>N/A</td>
</tr>
<tr>
<td>To: Member 4</td>
<td>_____ _____</td>
</tr>
</tbody>
</table>
Step 4. Complete the basic TCP/IP connectivity worksheets

1. This step is optional. If you do not wish to create a minimal TCP/IP configuration that establishes basic connectivity to your IP network, skip to “Step 5. Choose your next step” on page 22.

2. After you have completed your z/VM installation, you can optionally create a minimal TCP/IP configuration that establishes basic connectivity to your IP network. If you choose to perform this configuration, you must gather the necessary information from your network system administrator and record the information in the tables in Appendix K, “Basic TCP/IP Connectivity Worksheets,” on page 273.

If you are installing a multimember SSI, the TCP/IP configuration must be done separately on each SSI member. Fill out a set of configuration worksheets for each member on which you will create a minimal TCP/IP configuration. Configuration worksheets can be found in Appendix K, “Basic TCP/IP Connectivity Worksheets,” on page 273.
Step 5. Choose your next step

What to do next

Base your choice on the installation method that fits your situation.

<table>
<thead>
<tr>
<th>If you chose the...</th>
<th>Then go to...</th>
</tr>
</thead>
<tbody>
<tr>
<td>First-level installation method</td>
<td>Chapter 3, “Traditional installation for first level,” on page 23</td>
</tr>
<tr>
<td>Second-level installation method</td>
<td>Chapter 4, “Traditional installation for second level,” on page 29</td>
</tr>
</tbody>
</table>
Chapter 3. Traditional installation for first level

In this chapter, you will:
• Use step-by-step procedures to IPL the RAMDISK and run DVDRIME.
Step 1. Load the RAMDISK

Before you begin: You need to complete traditional installation worksheets 1 (Table 1 on page 17) through 8 (Table 8 on page 20). If you have not done so, return to Chapter 2, “Plan your traditional installation,” on page 7.

1. Prepare to access the installation files.
   If you are installing from:
   • An HMC DVD drive, load the z/VM product DVD in the HMC DVD drive.
   • An FTP server DVD drive, load the z/VM product DVD in the FTP connected DVD drive.
   • An FTP server directory, if you have not already done so, upload the contents of each DVD to a new directory on the FTP server. After the contents of the z/VM product DVD have been uploaded, upload the contents of the installation RSU DVD to the same directory, overwriting any duplicate files.
     a. Create a new directory on the FTP server. The maximum length of the directory path name is 40 characters. The FTP server will need at least 4 GB of free space.
     b. Load the contents of the z/VM product DVD and the installation RSU DVD to the directory. When copying the files, make sure the case is preserved.

2. On the HMC, open an integrated 3270 console for the LPAR you are going to use for installation.
   a. In the Hardware Management Console, select the LPAR you are going to use for installation.
   b. Under Recovery, click on Integrated 3270 Console. The Integrated 3270 Console window for that LPAR opens. Messages are displayed in the Integrated 3270 Console window when the system IPLs.

3. Select Load from Removable Media or Server under Recovery for the LPAR you are going to use for installation. The Load from Removable Media or Server window is displayed.

4. In the load window, select one of the following:
   • Hardware Management Console CD / DVD-ROM
   • FTP Source

   **Attention:** Do not select Hardware Management Console CD / DVD-ROM and assign for operating system use.

   If you are installing from the HMC DVD drive, select Hardware Management Console CD / DVD-ROM. If you are installing from an FTP server DVD drive or from an FTP server directory, select FTP Source.

   **Note:** If you are installing from an FTP server directory, the z/VM product DVD and the installation RSU DVD must have been copied into the same directory on the FTP server.

5. Fill in the fields in the task window.
   • If you selected Hardware Management Console CD-ROM / DVD, enter /CPDVD as the file location.
   • If you selected FTP Source and you are using an FTP server DVD drive:
     – Specify the FTP connection information for the server (host computer, user ID, and password).
     – Enter the path information required by your FTP server (e.g. DVD drive letter or blank) to access the DVD drive, followed by /CPDVD.
   • If you selected FTP Source and you are using an FTP server directory:
     – Specify the FTP connection information for the server (host computer, user ID, and password).
     – Enter the path to the directory where you uploaded the z/VM product DVD as the file location.

   **Note:** If using a DVD drive, wait until the light on the drive goes out or stops blinking before continuing.
6. Click OK to continue. The **Load from Removable Media or Server - Select Software to Install** task window will be displayed.

7. Load the RAMDISK.
   a. In the task window, select **640VM.ins**, and click **OK**. One or more **Confirm the Action** prompts are displayed.
   b. Click **Yes** to continue.
   c. Messages indicating the status of the load are displayed in the task progress window. When a message is displayed indicating the load is successful, click **OK** to close the window and return to the Integrated 3270 Console window for the LPAR you are going to use for installation.

8. The RAMDISK IPLs and the system loads with the MAINT user ID logged on. System messages are displayed in the Integrated 3270 Console window:

   ```
   hh:mm:ss z/VM V6 R4.0
   SERVICE LEVEL nnnn (64-BIT)
   hh:mm:ss SYSTEM NUCLEUS CREATED ON yyyy-mm-dd AT hh:mm:ss, LOADED FROM $RAMD$
   hh:mm:ss
   hh:mm:ss ************************************************************
   hh:mm:ss * LICENSED MATERIALS - PROPERTY OF IBM* *
   hh:mm:ss * 5741-A07 (C) COPYRIGHT IBM CORP. 1983, 2016. ALL RIGHTS *
   hh:mm:ss * RESERVED. US GOVERNMENT USERS RESTRICTED RIGHTS - USE *
   hh:mm:ss * DUPLICATION OR DISCLOSURE RESTRICTED BY GSA ADP SCHEDULE *
   hh:mm:ss * CONTRACT WITH IBM CORP. *
   hh:mm:ss * * TRADMARK OF INTERNATIONAL BUSINESS MACHINES *
   hh:mm:ss ***************************************************************
   hh:mm:ss
   hh:mm:ss HCPZCO6718I Using parm disk 1 on volume $RAMD$ (device nnnn).
   hh:mm:ss HCPZCO6718I Parm disk resides on blocks nnn through nnn.
   :
   hh:mm:ss HCP CRC8082I Accounting records are accumulating for userid OPERACCT
   hh:mm:ss HCP CRC8082I EREP records are accumulating for userid OPERACCT
   DMSIND2015W Unable to access the Y-disk. File mode Y (19E) not accessed
   z/VM V6.4.0 yyyy-mm-dd hh:mm
   DMSDCS1083E Saved segment CMSPIPES does not exist
   DMSDCS1083E Saved segment CMSVPLIB does not exist
   DMSDCS1083E Saved segment CMSVMLIB does not exist
   Ready; T=n.nn/n.nn hh:mm:ss
   ```
RUN DVDPRIIME

Step 2. Run DVDPRIIME

1. Run DVDPRIIME with the dasdtype and source you are using to install.

   **dvdprime dasdtype (source**
   
   **dasdtype**
   
   3390 or FBA
   
   **source**
   
   One of the following:
   
   **dvd** if installing from a physical DVD
   
   loaded in an HMC or FTP server drive
   
   **server** if installing from an FTP server that has
   
   access to a directory where the files
   
   from the physical DVD or electronic
   
   deliverables have been stored

   IUGDVP8327I **NOW EXECUTING DVDPRIIME EXEC ON date AT time **
   
   IUGDVP8440I NOW LOADING 4CC DISK
   
   DVDLOAD: LOADING FILE 'FBA22200 IMAGE '*
   
   DVDLOAD: RC=0
   
   MDREST: WROTE 1800 BLOCKS ON 04CC, RC=0
   
   IUGDVP8392I DVDPRIIME EXEC ENDED SUCCESSFULLY
   
   Ready; T=n.nn/n.nn hh:mm:ss
## Step 3. Choose your next step

### What to do next

<table>
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<tr>
<th>If this is a...</th>
<th>Then...</th>
</tr>
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<td>Non-SSI install</td>
<td>Continue with <a href="#">Chapter 5, “Non-SSI traditional installation method,” on page 47</a></td>
</tr>
<tr>
<td>SSI install</td>
<td>Go to <a href="#">Chapter 6, “SSI traditional installation method,” on page 61</a></td>
</tr>
</tbody>
</table>
Choose your next step
Chapter 4. Traditional installation for second level

In this chapter, you will:

- Set up the user ID for installation.
- Use DVDPRIME to load the 24CC and 2CF0 minidisks.

Base your choice on which source you will use to perform a second-level installation.

<table>
<thead>
<tr>
<th>If you chose to install from a . . .</th>
<th>Then see . . .</th>
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<tbody>
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<td>VM minidisk</td>
<td>“From a VM minidisk” on page 35</td>
</tr>
</tbody>
</table>
From a DVD drive

Step 1. Set up the user ID for installation

Before you begin: You need to complete traditional installation worksheets 1 (Table 1 on page 17) through 8 (Table 8 on page 20). If you have not done so, return to Chapter 2, “Plan your traditional installation,” on page 7.

1. Load the z/VM product DVD in the DVD drive of the FTP server you are using for installation. Wait until the light on the DVD drive goes out or stops blinking to continue.

2. Log on to the first-level user ID that you will use for installation. Make sure the user ID meets the user ID requirements listed under “Second-level installation requirements” on page 10.

3. Spool the console to make sure it is empty, started, and spooled to the reader.

   ```
   spool console close start *
   RDR FILE filenum SENT FROM userid CON WAS nnnn RECS nnnn CPY nnn T NOHOLD NOKEEP
   Ready;
   ```

4. Verify you have a 2222 read/write minidisk with exactly 10 cylinders if installing to 3390 or 14400 512-KB blocks if installing to FBA.

   ```
   query v 2222
   DASD 2222 3390 xxxxxx R/W 10 CYL ON DASD nnnn SUBCHANNEL = nnnn
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

5. Access the minidisk (diskaddr) that contains the INSTPIPE MODULE as file mode C. The INSTPIPE MODULE was shipped on the MAINT 2CC disk with pre-V6.2 releases. Starting with z/VM V6.2, the INSTPIPE MODULE is shipped on the MAINTvrm 4CC disk.

   ```
   access diskaddr c
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

6. Copy the files needed to run DVDPRIME from the DVD to the 2222 minidisk.

   a. Run INSTPIPE.

   ```
   instpipe
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

   b. Copy the files from the DVD to the 2222 minidisk.

   ```
   pipe ftpget -h host -u userid -p password -d ftpdir/CPDVD
   -v BEF -DVDEOF -f ddd222+ |UNPACK| restcmd 2222
   ```
From a DVD drive - set up the user ID for installation

**host**

IP address or FTP host name. An IP address is in dotted-decimal form for your IP version 4 interface. For example:

129.42.16.99

A host name must begin with a letter, and may contain only alphanumeric characters (A-Z,a-z,0-9) or hyphens (-). For example:

MyOrg-VM01

**userid**

User ID used to log on to the FTP server. Must be 40 or less alphanumeric characters.

**password**

Password for the user ID used to log on to the FTP server. Must be 40 or less alphanumeric characters.

**ftpdirt**

Path to the DVD drive with /CPDVD appended to the end of the path. The maximum length is 40 characters. For example:

mydvddrive/CPDVD
cpvdde:/cpdvd
vmftpdirt/CPDVD

**ddd**

CKD for 3390 or FBA for FBA. They must be entered in uppercase.

**restcmd**

ECKDREST for 3390 or MDREST for FBA.

**Note:** In the above PIPE command you may use a different stage separator by including the **stagesep** keyword. For example:

```
pipe ( stagesep !_ ) ftpget -h host -u userid -p
password -d ftpdir/CPDVD -v BEF -DVDEOF -f
```

```
ftpdir/CPDVD
```

```
restcmd 2222
```

```
{FBA222*|CKD222*}
```

**DMSRXS1408W File TCPIP DATA * not found**

You might not receive this message.

**{MDREST|ECKDREST}: WROTE nnn (BLOCKS|TRACKS) ON 2222, RC=0**

Ready; T=n.nn/n.nn hh:mm:ss
From a DVD drive - run DVDPRIME

Step 2. Run DVDPRIME

1. IPL CMS to remove the old INSTPIPE MODULE from storage.

```
  ipl cms
  z/VM Vv.r.m yyyy-mm-dd hh:mm

  ENTER
  Ready; T=n.nn/n.nn hh:mm:ss
```

2. Access the 2222 minidisk as file mode C.

```
  access 2222 c
  Ready; T=n.nn/n.nn hh:mm:ss
```

3. Verify that the first occurrence of the INSTPIPE MODULE is on the minidisk accessed as file mode C. Remove or rename all other copies.

```
  listfile instpipe module *
  INSTPIPE MODULE C1
  Ready; T=n.nn/n.nn hh:mm:ss
```

4. Run DVDPRIME with the `dasdtype` you are using to install.

```
  dvdprime dasdtype (dvd dasdtype
  3390 or FBA.
  IUGDVP8327I ** NOW EXECUTING DVDPRIME EXEC ON date AT time **
```

5. Complete the DVDPRIME panel by filling in the information for your FTP server.

   **Note:** The information for HOSTNAME OR IP ADDRESS, FTP USERID, FTP PASSWORD, and DVD PATHNAME was recorded in traditional installation worksheet 5 (Table 5 on page 18).

---

***** DVDPRIME PANEL ***

Enter information in empty fields and press F5 to process.

**HOSTNAME OR IP ADDRESS:**

**FTP USERID:**

**FTP PASSWORD:**

**DVD PATHNAME:**

**PORT NUMBER:** 21

F1 = HELP  F3/F12 = QUIT  F5 = Process  ENTER = Refresh

---

**HOSTNAME OR IP ADDRESS:**

This field should be filled in with the IP ADDRESS or HOSTNAME of your FTP server. A host name must begin with a letter, and may contain only alphanumeric characters (A-Z,a-z,0-9) or hyphens (-). For example: **MyOrg-VM01**

Specify an IP address in dotted-decimal form for your IP version 4 interface. For example: **129.42.16.99**

**FTP USERID:**
User ID used to log on to the FTP server. Must be 40 or less alphanumeric characters.

FTP PASSWORD:
Password used to log on to the FTP server. Must be 40 or less alphanumeric characters.

DVD PATHNAME:
Enter the path to the DVD drive according to the conventions used by your server and append CPDVD to the end of your path. This should be the same path name used on the ftpget command in Step 1, substep 6 on page 30. The maximum length is 40 characters. For example:
mydvddrive/CPDVD
cpdvd
e:/cpdvd
vmftpd dir/CPDVD

PORT NUMBER:
The FTP server’s port number. The default port number is 21.

6. Press F5 to process.

F5

IUGDVP8440I NOW LOADING 24CC DISK
{FBA222*|CKDZ22*}

DMSRXS1408W File TCPIP DATA * not found                     You might not receive this message.

{MDREST|ECKDREST}: WROTE nnnn (BLOCKS|TRACKS) ON 24CC, RC=0

IUGDVP8440I NOW LOADING 2CF0 DISK
{FBACF0*|CKDCF0*}

DMSRXS1408W File TCPIP DATA * not found                     You might not receive this message.

{MDREST|ECKDREST}: WROTE nnnn (BLOCKS|TRACKS) ON 2CF0, RC=0

IUGDVP8392I DVDRUIME EXEC ENDED SUCCESSFULLY
Ready; T=n.nn/n.nn hh:mm:ss

What to do next

Go to “Step 3. Choose your next step” on page 46.
From an FTP server directory

Step 1. Set up the user ID for installation

Before you begin: You need to complete traditional installation worksheets 1 (Table 1 on page 17) through 8 (Table 8 on page 20). If you have not done so, return to Chapter 2, “Plan your traditional installation,” on page 7.

The RSU that is shipped as part of the z/VM product will be installed during the installation process. Do not attempt to skip installing the RSU during upgrade. If additional service is required, install the additional service after installation of your system is complete.

1. Upload the contents of each DVD to the directory. After the contents of the z/VM product DVD have been uploaded, upload the contents of the installation RSU DVD to the same directory, overwriting any duplicate files.
   a. Create a new directory on the FTP server. The maximum length of the directory path name is 40 characters. The FTP server will need at least 4 GB of free space.
   b. Load the contents of the z/VM product DVD and the installation RSU DVD to the directory. When copying the files, make sure the case is preserved.

2. Log on to the first-level user ID that you will use for installation. Make sure the user ID meets the “Second-level installation requirements” on page 10.

3. Spool the console to make sure it is empty, started, and spooled to the reader.

   spool console close start *
   RDR FILE filenum SENT FROM userid CON WAS nnnn RECS nnnn CPY nnn T NOHOLD NOKEEP
   Ready;

4. Verify you have a 2222 read/write minidisk with exactly 10 cylinders if installing to 3390 or 14400 512-KB blocks if installing to FBA.

   query v 2222
   DASD 2222 3390 xxxx R/W 10 CYL ON DASD nnnn SUBCHANNEL = nnnn
   Ready; T=n.nn/n.nn hh:mm:ss

5. Access the minidisk (diskaddr) that contains the INSTPIPE MODULE as file mode C. The INSTPIPE MODULE was shipped on the MAINT 2CC disk with pre-V6.2 releases. Starting with z/VM V6.2, the INSTPIPE MODULE is shipped on the MAINTvrm 4CC disk.

   access diskaddr c
   Ready; T=n.nn/n.nn hh:mm:ss

6. Copy the files needed to run DVDPRIME to the 2222 minidisk from the FTP server.
   a. Run INSTPIPE.

      instpipe
      Ready; T=n.nn/n.nn hh:mm:ss

   b. Copy the files from the FTP server to the 2222 minidisk.

      Note: The information for host, userid, password, and ftpdir was recorded in DVD installation worksheet 5 (Table 5 on page 18).

      pipe ftpget -h host -u userid -p password -d ftpdir
      -v BEF -DVDEOF -f ddu222* |UNPACK| restcmd 2222

   From an FTP server directory
From an FTP server directory - set up the user ID for installation

host
IP address or FTP host name. An IP address is in dotted-decimal form for your IP version 4 interface. For example:
129.42.16.99

A host name must begin with a letter, and may contain only alphanumeric characters (A-Z,a-z,0-9) or hyphens (-). For example:
MyOrg-VM01

userid
User ID used to log on to the FTP server. Must be 40 or less alphanumeric characters.

password
Password for the user ID used to log on to the FTP server. Must be 40 or less alphanumeric characters.

ftpdir
Path to the FTP server directory where you loaded the contents of the DVD in substep 1 on page 34. The maximum length is 40 characters.

ddd
CKD for 3390 or FBA for FBA. These must be entered in uppercase.

restcmd
ECKDREST for 3390 or MDREST for FBA.

Note: In the above PIPE command you may use a different stage separator by including the stagesep keyword. For example:

pipe ( stagesep ! ) ftpget -h host -u userid -p password -d ftpdir -v BEF -DVDEOF -f ddd222* !UNPACK! restcmd 2222

You might not receive this message.
From an FTP server directory - run DVDPRIME

Step 2. Run DVDPRIME

1. IPL CMS to remove the old INSTPIPE MODULE from storage.

   ```
   ipl cms
   z/VM Vv.r.m yyyy-mm-dd hh:mm
   ENTER
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

2. Access the 2222 minidisk as file mode C.

   ```
   access 2222 c
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

3. Verify that the first occurrence of the INSTPIPE MODULE is on the minidisk accessed as file mode C. Remove or rename all other copies.

   ```
   listfile instpipe module *
   INSTPIPE MODULE C1
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

4. Run DVDPRIME with the `dasdtype` you are using to install.

   ```
   dvdprime dasdtype (server dasdtype
   3390 or FBA.
   IUGDVP8327I ** NOW EXECUTING DVDPRIME EXEC ON date AT time **
   ```

5. Complete the DVDPRIME panel by filling in the information for your FTP server.

   **Note:** The information for HOSTNAME OR IP ADDRESS, FTP USERID, FTP PASSWORD, and DVD PATHNAME was recorded in traditional installation worksheet 5 (Table 5 on page 18).

   **Figure 2. DVDPRIME Panel**

   *** DVDPRIME PANEL ***
   Enter information in empty fields and press F5 to process.

<table>
<thead>
<tr>
<th>Field</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOSTNAME OR IP ADDRESS</td>
<td>________________________________</td>
</tr>
<tr>
<td>FTP USERID:</td>
<td>________________________________</td>
</tr>
<tr>
<td>FTP PASSWORD:</td>
<td>________________________________</td>
</tr>
<tr>
<td>DVD PATHNAME:</td>
<td>________________________________</td>
</tr>
<tr>
<td>PORT NUMBER:</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>F1 = HELP F3/F12 = QUIT F5 = Process ENTER = Refresh</td>
</tr>
</tbody>
</table>

   HOSTNAME OR IP ADDRESS:
   This field should be filled in with the IP ADDRESS or HOSTNAME of your FTP server. A host name must begin with a letter, and may contain only alphanumeric characters (A-Z,a-z,0-9) or hyphens (-). For example: MyOrg-VM01

   Specify an IP address in dotted-decimal form for your IP version 4 interface. For example: 129.42.16.99

   FTP USERID:
From an FTP server directory - run DVDFRAME

User ID used to log on to the FTP server. Must be 40 or less alphanumeric characters.

**FTP PASSWORD:**

Password used to log on to the FTP server. Must be 40 or less alphanumeric characters.

**DVD PATHNAME:**

Enter the path to the FTP server directory according to the conventions used by your server. The maximum length is 40 characters. For example:
- mydvddrive/ftppdir
- e:/dirname
- vmftppdir

**PORT NUMBER:**

The FTP server's port number. The default port number is 21.

6. Press F5 to process.

```
IUGDVP8440I NOW LOADING 24CC DISK
{FBA222*|CKD222*}
DMSRXS1408W File TCPIP DATA * not found You might not receive this message

{MDREST|ECKDREST}: WROTE nnnn {BLOCKS|TRACKS} ON 24CC, RC=0

IUGDVP8440I NOW LOADING 2CF0 DISK
{FBACF0*|CKDCF0*}
DMSRXS1408W File TCPIP DATA * not found You might not receive this message.

{MDREST|ECKDREST}: WROTE nnnn {BLOCKS|TRACKS} ON 2CF0, RC=0

IUGDVP8392I DVDPRIME EXEC ENDED SUCCESSFULLY
Ready; T=n.nn/n.nn hh:mm:ss
```

**What to do next**

Go to “Step 3. Choose your next step” on page 46.
Step 1. Set up the user ID for installation

Before you begin: You need to complete traditional installation worksheets 1 through 8. If you have not done so, return to Chapter 2, “Plan your traditional installation,” on page 7.

The RSU that is shipped as part of the z/VM product will be installed during the installation process. Do not attempt to skip installing the RSU during upgrade. If additional service is required, install the additional service after installation of your system is complete.

1. Log on to the first-level user ID that you will use for installation. Make sure the user ID meets the user ID requirements listed under “Second-level installation requirements” on page 10.

2. Link to the VM minidisk where you will load the files from the DVDs. The VM minidisk needs to have the equivalent of at least 6000 cylinders of available 3390 DASD space. The minidisk must not contain any other image files. You must link the minidisk in write mode.

   Note: The information for userid and diskaddr was recorded in traditional installation worksheet 5.

   link userid diskaddr diskaddr MR
   Ready; T=n.nn/n.nn hh:mm:ss

3. Access the VM minidisk as file mode W.

   access diskaddr w
   Ready; T=n.nn/n.nn hh:mm:ss

   diskaddr
   Address of the CMS-formatted VM minidisk where the DVD files are to be copied.

4. If the z/VM product and RSU files have already been loaded to the minidisk you are using, skip to substep 16 on page 43.

5. Link to the 592 TCP/IP client code minidisk.

   link tcpmaint 592 592 rr
   Ready; T=n.nn/n.nn hh:mm:ss

6. Access the 592 TCP/IP client code minidisk as file mode Z.

   access 592 z
   Ready; T=n.nn/n.nn hh:mm:ss

7. Set the terminal to alert you one second after CP issues the MORE... status and to clear one second after the alert.

   terminal more 1 1
   Ready;

8. Copy the contents of the z/VM product DVD to the VM minidisk accessed as file mode W.

   Note: If you have an FTP server with access to a DVD drive, continue with this substep. If you do not have an FTP server with access to a DVD drive, you can use the upload function of your terminal emulator to copy the contents of the z/VM product DVD to the minidisk. See Appendix J, “Using a terminal emulator to upload files from a DVD,” on page 271. After uploading the files using your terminal emulator, continue with substep 15 on page 43.
From a VM minidisk - set up the user ID for installation

a. Load the z/VM product DVD in the DVD drive of the FTP server you are using for installation. Wait until the light on the DVD drive goes out or stops blinking before continuing.

b. Start an FTP session.

```
ftp
VM TCP/IP FTP Level nnn
```

c. Connect to the FTP server. Enter the FTP server IP address or host name (host), the user ID used to log on to the FTP server (userid), and the password for the user ID used to log on to the FTP server (password).

Note: The information for host, userid, password, and ftpdir was recorded in DVD installation worksheet 5 (Table 5 on page 18).

```
OPEN (name of foreign host):
host

Connecting to host
220 FTP Server ready...
USER (identify yourself to the host):
userid

>>>USER userid
331 User name okay, need password.
Password:
password

>>>PASS ********
230 User logged in, proceed
```

d. Change the remote directory to the FTP path of the DVD drive (ftpdir) with /CPDVD appended to the end of the path. For example, e:/CPDVD.

Command:
```
   cd ftpdir/CPDVD
```

```
>>CDX ftpdir/CPDVD
250 Directory changed to ftpdir/CPDVD
```

e. Change the local directory to W.

Command:
```
   lcd w
```

```
Local directory mode is 'W'
```

f. Set the file transfer mode to binary, the record format to fixed, and the record length to 1028.

Command:
```
   binary f 1028
```

```
>>TYPE i
200 Type set to I.
Command:
```

This value must be entered in uppercase - CKD for 3390 or FBA for FBA (SCSI).

g. Copy all required files from the z/VM product DVD.

```
mget ddd*
```

This value must be entered in uppercase - CKD for 3390 or FBA for FBA (SCSI).
From a VM minidisk - set up the user ID for installation

>>>TYPE a
200 Type set to A
>>>PORT host
200 PORT Command successful.
>>>NLST ddd*
150 Opening ASCII mode data connection for /bin/ls.
226 Transfer complete.
>>>TYPE i
200 Type set to I.
>>>PORT host
200 PORT Command successful.
>>>RETR dddnnnnn
150 Opening BINARY mode data connection for dddnnnnn (nnnnnnn Bytes).
nnnnnn bytes transferred.
226 Transfer complete.
nnnnnnn bytes transferred in nn.nnn seconds. Transfer rate nnn.nn Kbytes/sec.

h. When all files have been transferred, quit the FTP session.

Command:
quit

>>>QUIT
221 Goodbye!
Ready;

9. Verify that all of the files copied from the z/VM product DVD have a fixed (F) file format and a logical record length (LRECL) of 1028.

If the file format or logical record length of any file is incorrect, then the files were copied incorrectly. Erase all of the files from the minidisk and copy the contents of the z/VM product DVD again, using the correct parameters. Repeat substep 8 on page 38.

filelist * $default w

<table>
<thead>
<tr>
<th>Cmd</th>
<th>Filename</th>
<th>Filetype</th>
<th>Fm</th>
<th>Format</th>
<th>Lrecl</th>
<th>Records</th>
<th>Blocks</th>
<th>Date</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>xxx22200</td>
<td>$DEFAULT</td>
<td>W1</td>
<td>F</td>
<td>1028</td>
<td>nnnn</td>
<td>nnn</td>
<td>dddd</td>
<td>tttt</td>
<td></td>
</tr>
</tbody>
</table>

;

10. Verify that all of the files were copied from the z/VM product DVD.

filelist * $default w

userid FILELIST W0 V 169 Trunc=169 Size=nnnn Line=1 Col=1 Alt=0

<table>
<thead>
<tr>
<th>Cmd</th>
<th>Filename</th>
<th>Filetype</th>
<th>Fm</th>
<th>Format</th>
<th>Lrecl</th>
<th>Records</th>
<th>Blocks</th>
<th>Date</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>xxx22200</td>
<td>$DEFAULT</td>
<td>W1</td>
<td>F</td>
<td>1028</td>
<td>nnnn</td>
<td>nnn</td>
<td>dddd</td>
<td>tttt</td>
<td></td>
</tr>
</tbody>
</table>

;

In the Size=nnnn field, nnnn is the number of $DEFAULT files on the minidisk. The DVD contains the 640PROD DVDIMAGE file, which lists the number of image files that should have been copied.

Verify that the numbers are the same. If the numbers are not the same, there are files missing. In this case, you can do one of the following:

a. Copy the missing files.

1) Determine which files are missing. The 640PROD DVDIMAGE file contains a list of all of the files that should have been copied.
2) Copy each of the the missing files from the z/VM product DVD by repeating substep 8 on page 38, replacing:

   mget ddd (replace

   with:

   get filename filename.$default

b. Copy the contents of the z/VM product DVD again by repeating substep 8 on page 38.

11. If you used your terminal emulator to upload the contents of the z/VM installation RSU DVD, skip to substep 15 on page 43. Otherwise, copy the contents of the z/VM installation RSU DVD to the same VM minidisk used for the z/VM product DVD.

   a. Load the z/VM installation RSU DVD in the DVD drive of the FTP server you are using for installation. Wait until the light on the DVD drive goes out or stops blinking before continuing.

   b. Start an FTP session:

   
   ftp
   VM TCP/IP FTP Level nnn

   c. Connect to the FTP server. Enter the FTP server’s IP address or host name (host), the user ID used to log on to the FTP server (userid), and the password for the user ID used to log on to the FTP server (password).

   Note: The information for host, userid, password, and ftpdir was recorded in DVD installation worksheet 5 (Table 5 on page 18).

   OPEN (name of foreign host):

   host

   Connecting to host
   220 FTP Server ready...
   USER (identify yourself to the host): userid

   >>>USER userid
   331 User name okay, need password.
   Password: password

   >>>PASS ********
   230 User logged in, proceed

d. Change the remote directory to the FTP path of the DVD drive (ftpdir) with /CPDVD appended to the end of the path (e:/CPDVD, for example).

   Command:

   cd ftpdir/CPDVD

   >>>CWD ftpdir/CPDVD
   250 Directory changed to ftpdir/CPDVD

e. Change the local directory to W.

   Command:

   1cd w

   Local directory mode is 'W'

f. Set the file transfer mode to binary, the record format to fixed, and the record length to 1028.

   Command:

   binary f 1028

   >>>TYPE i
   200 Type set to I.
   Command:

   g. Copy all required files from the z/VM installation RSU DVD.
From a VM minidisk - set up the user ID for installation

mget ddd* (replace

>>>TYPE a
200 Type set to A
>>>PORT host
200 PORT Command successful.
>>>NLST ddd*
150 Opening ASCII mode data connection for /bin/ls.
226 Transfer complete.
>>>TYPE i
200 Type set to I.
>>>PORT host
200 PORT Command successful.
>>>RETR dddnnnnn
150 Opening BINARY mode data connection for dddnnnnn (nnnnnn Bytes).
nnnnnnn bytes transferred.
226 Transfer complete.
nnnnnnn bytes transferred in nn.nnn seconds. Transfer rate nnn.nn Kbytes/sec.
:

h. When all files have been transferred, quit the FTP session.

   Command:
   quit

>>>QUIT
221 Goodbye!
Ready;

12. Verify that all of the files copied from the z/VM installation RSU DVD have a fixed (F) file format and a logical record length (LRECL) of 1028.

   If the file format or logical record length of any file is incorrect, the files were copied incorrectly. Erase all of the new $DEFAULT files from the minidisk and copy the contents of the z/VM installation RSU DVD again, using the correct parameters. Repeat substep 11 on page 41.

   filelist ddd/500* $default w

   ddd
   - CKD for 3390 or FBA for FBA.

   Cmd Filename Filetype Fm Format Lrecl Records Blocks Date Time
   xxx50000 $DEFAULT WI F 1028 nnnn nnn dddd ttttt
   :

13. Verify that all of the files were copied from the z/VM installation RSU DVD.

   filelist ddd/500* $default w

   ddd
   - CKD for 3390 or FBA for FBA.

   userid FILELIST WI V 169 Trunc=169 Size=nnnn Line=1 Col=1 Alt=0
   Cmd Filename Filetype Fm Format Lrecl Records Blocks Date Time
   xxx22200 $DEFAULT WI F 1028 nnnn nnn dddd ttttt
   :

   In the Size=nnnn field, nnnn is the number of $DEFAULT files from the RSU DVD on the minidisk. The DVD contains the 64CKDRSU and 64FBARSU DVDIMAGE files, which list the number of image
files that should have been copied for each DASD type. Verify that the numbers are the same. If the numbers are not the same, there are files missing. In this case, you can do one of the following:

a. Copy the missing files.
   1) Determine which files are missing. The 64dddRSU DVDIMAGE file contains a list of all of the files that should have been copied.
   2) Copy each of the missing files from the z/VM installation RSU DVD by repeating substep [11 on page 41] replacing:
      
      \begin{verbatim}
      mget ddd* (replace
      with:
      get filename filename.$default
      \end{verbatim}

   b. Copy the contents of the z/VM installation RSU DVD again by repeating substep [11 on page 41].

14. The FTP MGET command copied the files with a file type of $DEFAULT. The file type needs to be renamed to IMAGE.

   \begin{verbatim}
   rename * $default w = image =
   \end{verbatim}

15. Set the terminal to alert you 50 seconds after CP issues the MORE... status and to clear 10 seconds after the alert.

   \begin{verbatim}
   terminal more 50 10
   \end{verbatim}

16. Spool the console to make sure it is empty, started, and spooled to the reader.

   \begin{verbatim}
   spool console close start *
   \end{verbatim}

17. Verify you have a 2222 read/write minidisk of exactly 10 cylinders if installing to 3390 or 14400 512-KB blocks if installing to FBA.

   \begin{verbatim}
   query v 2222
   DASD 2222 3390 xxxxxx R/W 10 CYL ON DASD nnnn SUBCHANNEL = nnnn
   Ready; T=n.nn/n.nn hh:mm:ss
   \end{verbatim}

18. Access the minidisk (diskaddr) that contains the INSTPIPE MODULE as file mode C. The INSTPIPE MODULE was shipped on the MAINT 2CC disk with pre-V6.2 releases. Starting with z/VM V6.2, the INSTPIPE MODULE is shipped on the MAINTorm 4CC disk.

   \begin{verbatim}
   access diskaddr c
   \end{verbatim}

19. Copy the files needed to run DVDPRIME to the 2222 minidisk.
   a. Run INSTPIPE.

   \begin{verbatim}
   instpipe
   \end{verbatim}

   b. Decode, unpack, and write the files needed to run DVDPRIME to the 2222 minidisk.

   \begin{verbatim}
   pipe dvedecod ddd222 image w | UNPACK | restcmd 2222
   \end{verbatim}

   {MDREST|ECKDREST}: WROTE nnn {BLOCKS|TRACKS} ON 2222, RC=0
   Ready; T=n.nn/n.nn hh:mm:ss
From a VM minidisk - set up the user ID for installation

**ddd**
This value must be entered in uppercase - CKD for 3390 or **FBA** for FBA.

**restcmd**
**ECKDREST** for 3390 or **MDREST** for FBA.

**Note:** In the above PIPE command you can use a different stage separator by including the **stagesep** keyword. For example:

```
pipe ( stagesep ! ) dviddecod ddd222 image w !UNPACK! restcmd 2222
```
Step 2. Run DVDPRIME

1. IPL CMS to remove the old INSTPIPE MODULE from storage.

   \[ \text{IPL} \text{ cms} \]
   \[ \text{z/VM Vv.r.m yyyy-mm-dd hh:mm} \]
   \[ \text{ENTER} \]
   \[ \text{Ready; T=n.nn/n.nn hh:mm:ss} \]

2. Access the minidisk that contains the image files as file mode W.

   \[ \text{access diskaddr w} \]
   \[ \text{diskaddr} \]
   \[ \text{Address of the minidisk where the image files were copied.} \]
   \[ \text{Ready; T=n.nn/n.nn hh:mm:ss} \]

3. Access the 2222 minidisk as file mode C.

   \[ \text{access 2222 c} \]
   \[ \text{Ready; T=n.nn/n.nn hh:mm:ss} \]

4. Verify that the first occurrence of the INSTPIPE MODULE is on the minidisk accessed as file mode C. Remove or rename all other copies.

   \[ \text{listfile instpipe module *} \]
   \[ \text{INSTPIPE MODULE C1} \]
   \[ \text{Ready; T=n.nn/n.nn hh:mm:ss} \]

5. Run DVDPRIME with the \textit{dasdtype} you are using to install.

   \[ \text{dvdprime dasdtype (disk)} \]
   \[ \text{dasdtype} \]
   \[ \text{3390 or FBA.} \]
   \[ \text{IUGDVP8327I ** NOW EXECUTING DVDPRIME EXEC ON date AT time **} \]
   \[ \text{IUGDVP8440I NOW LOADING 24CC DISK} \]
   \[ \text{DMSRXS1408W File TCPIP DATA * not found} \]
   \[ \{\text{MDREST|ECKREST}\}: \text{WROTE nnnn \{BLOCKS|TRACKS\} ON 24CC, RC=0} \]
   \[ \text{IUGDVP8440I NOW LOADING 2CF0 DISK} \]
   \[ \text{DMSRXS1408W File TCPIP DATA * not found} \]
   \[ \{\text{MDREST|ECKREST}\}: \text{WROTE nnnn \{BLOCKS|TRACKS\} ON 2CF0, RC=0} \]
   \[ \text{IUGDVP8392I DVDPRIME EXEC ENDED SUCCESSFULLY} \]
   \[ \text{Ready; T=n.nn/n.nn hh:mm:ss} \]
## Choose your next step

### Step 3. Choose your next step

**What to do next**

<table>
<thead>
<tr>
<th>If this is...</th>
<th>Then...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-SSI install</td>
<td>Continue with Chapter 5, “Non-SSI traditional installation method,” on page 47.</td>
</tr>
<tr>
<td>SSI install</td>
<td>Go to Chapter 6, “SSI traditional installation method,” on page 61.</td>
</tr>
</tbody>
</table>
Chapter 5. Non-SSI traditional installation method

In this chapter, you will:

- Install a non-SSI z/VM system
Run INSTPLAN for non-SSI

Step 1. Run INSTPLAN for non-SSI

**Before you begin:** You need to complete traditional installation worksheets 1 (Table 1 on page 17) through 8 (Table 8 on page 20). If you have not done so, return to Chapter 2, “Plan your traditional installation,” on page 7.

1. Verify that the correct minidisk (VDEV) is accessed as file mode C. If installing second-level, the disk address is 24CC. If installing first-level, the disk address is 4CC.

   ```
   query disk c
   LABEL VDEV M ...
   MNT4CC addr C ...
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

2. If you are installing to FBA (SCSI) volumes, see traditional installation worksheet 4 (Table 4 on page 18) and query each address to verify it is not already defined for a different device (see example below). If the address is already in use, either detach the device or choose a different dasdaddr and verify that address does not exist.

   For each address:

   ```
   query voladdr
   HCPQVD040E Device voladdr does not exist
   Ready(00040);
   ```

   **Record any** changed addresses in the **Address** column in traditional installation worksheet 4 (Table 4 on page 18).

3. Run INSTPLAN with the DVD operand.

   ```
   instplan DVD
   ```

   The installation planning panels are displayed.

   ![Figure 3. z/VM Traditional Installation Planning Panel](image)

   **a.** See traditional installation worksheet 1 (Table 1 on page 17) and enter:
• “M” in the **Install To** column for each product you selected to be installed onto minidisks.
• “F” in the **Install To** column for each product you selected to be installed into the file pool.

b. Place a nonblank character next to the **System Default Language** you selected for your system on DVD installation worksheet 1 (Table 1 on page 17).

c. Place a nonblank character in front of the **DASD type and model** you will use, recorded on traditional installation worksheet 1 (Table 1 on page 17). For FBA, update the volume size if you are using an FBA volume other than 6.0 GB.

d. Fill in the **Filepool Name** for the common service filepool.

e. Place a nonblank character in front of the type of install you selected for your system on traditional installation worksheet 1 (Table 1 on page 17) – in this case, **Non-SSI Install**.

f. Fill in the **System Name**.

g. Press F5 to process your selections.

<table>
<thead>
<tr>
<th>*** z/VM INSTALLATION PLANNING PANEL 2 ***</th>
</tr>
</thead>
<tbody>
<tr>
<td>Would you like to have your system automatically configured to be managed by a SMAPI client for system management, such as the Cloud Manager Appliance (CMA)? Enter Y or N</td>
</tr>
<tr>
<td>Keep the following in mind:</td>
</tr>
<tr>
<td>If you say YES, you should not attempt to manage your system in any other way.</td>
</tr>
<tr>
<td>If you’d like to manage your own system, or use a purchased external security manager or a purchased directory manager, say NO.</td>
</tr>
</tbody>
</table>

F1 = HELP  F3/F12 = QUIT  F5 = Process  ENTER = Refresh

**Figure 4. z/VM Traditional Installation Planning Panel 2**

h. Refer to traditional installation worksheet 2 (Table 2 on page 17):
• If you will be using the System Management Application Programming Interface (SMAPI) function, enter Y. Otherwise, enter N.

i. Press F5 to process your selections.

F5

**Note:** The output you see may be different due to your planning choices.
Run INSTPLAN for non-SSI

IUGIPX8475I FINAL SELECTIONS DISPLAY
THE PRODUCTS YOU SELECTED TO LOAD TO MINIDISK ARE:
VM OSA PERF TK VMHCD RACF DIRM RSCS ICKDSF TCP/IP

THE PRODUCTS YOU SELECTED TO LOAD TO SFS ARE:
NONE

THE SYSTEM DEFAULT LANGUAGE SELECTED:
AMENG

THE COMMON SERVICE FILEPOOL NAME IS:
poolname

THE INSTALL TYPE YOU SELECTED IS:
Non-SSI

SYSTEM NAME IS:
sysname

THE DASD TYPE YOU SELECTED TO LOAD ON IS:
type model

THE VOLUMES NEEDED TO LOAD z/VM ARE:
COMMON: VMCOM1 VMCOM2
RELEASE: 640RL1 640RL2 640RL3
SYSTEM: M01RES M01S01 M01P01 M01W01 M01W02 M01W03

DO YOU WANT TO CONTINUE? (Y/N)

Compare the information listed in the response from the INSTPLAN command to the information listed in your traditional installation worksheets. Ensure that the information filled in on the worksheets matches what is listed in this response.

y

4. Continue with the following steps to fill in the Installation Volume Definition panel.

*** z/VM INSTALLATION VOLUME DEFINITION ***

<table>
<thead>
<tr>
<th>TYPE</th>
<th>LABEL</th>
<th>ADDRESS</th>
<th>FORMAT (Y/N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMMON</td>
<td>VMCOM1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COMMON</td>
<td>VMCOM2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RELVOL</td>
<td>640RL1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RELVOL2</td>
<td>640RL2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RELVOL3</td>
<td>640RL3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TYPE</td>
<td>LABEL</td>
<td>ADDRESS</td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>-------</td>
<td>---------</td>
<td></td>
</tr>
<tr>
<td>sysname</td>
<td>RES</td>
<td>M01RES</td>
<td></td>
</tr>
<tr>
<td>sysname</td>
<td>SPOOL</td>
<td>M01S01</td>
<td></td>
</tr>
<tr>
<td>sysname</td>
<td>PAGE</td>
<td>M01P01</td>
<td></td>
</tr>
<tr>
<td>sysname</td>
<td>MEMBER</td>
<td>M01W01</td>
<td></td>
</tr>
<tr>
<td>sysname</td>
<td>MEMBER</td>
<td>M01W02</td>
<td></td>
</tr>
<tr>
<td>sysname</td>
<td>MEMBER</td>
<td>M01W03</td>
<td></td>
</tr>
</tbody>
</table>

F1 = HELP   F3/F12 = QUIT   F5 = Process   ENTER = Refresh

Figure 5. z/VM Traditional Installation Volume Definition (Non-SSI Only)

a. If you do not want to use a default volume label, enter a new label in the LABEL field (recorded on traditional installation worksheet 3, Table 3 on page 18 for 3390, or on traditional installation worksheet 4, Table 4 on page 18 for FBA).
b. Fill in the volume addresses using the information from traditional installation worksheet 3
   (Table 3 on page 18) for 3390, or traditional installation worksheet 4 (Table 4 on page 18) for FBA.
   For more information and help, press F1.

c. Fill in the FORMAT (Y/N) column with Y to CP format your installation volumes or N to not
   format your installation volumes. Specify N only if you have already CP formatted your volumes
   for this installation using ICKDSF or CPFMTXA. If you specify N, the volumes will be labeled, but
   not formatted.

d. Press F5 to process.

Note: The output you see may be different due to your planning choices.

Depending on whether you chose to
format your DASD, you will receive
either version of message
IUGIIX8377R.

IUGIIX8377R YOU HAVE SELECTED TO FORMAT YOUR DASD.
DASD SELECTED ARE:

IUGIIX8377R YOU HAVE SELECTED NOT TO FORMAT YOUR DASD.
THIS ASSUMES THEY HAVE ALREADY BEEN FORMATTED.
DASD SELECTED ARE:

lblcom dasdaddr
lbclm2 dasdaddr
lblrl1 dasdaddr
lblrl2 dasdaddr
lblrl3 dasdaddr
lbires dasdaddr
lbispl dasdaddr
lbipag dasdaddr
lb1w01 dasdaddr
lb1w02 dasdaddr
lb1w03 dasdaddr

IUGINP8392I INSTPLAN EXEC ENDED SUCCESSFULLY

Ready; T=n.nn/n.nn hh:mm:ss

5. Compare the information listed in the response from the INSTPLAN command to the information on
   your traditional installation worksheets. Ensure that the information filled in on the worksheets
   matches what is listed in this response.
Verify the volumes needed for installation are available

Step 2. Verify the volumes needed for installation are available

1. If you are installing to 3390 skip to substep 8 on page 53.
2. If the SCSI volumes you are installing to are defined as minidisks on your installation user ID, skip to substep 7 on page 53.
3. If the SCSI volumes you are installing to have already been defined, either in the SYSTEM CONFIG or by using the SET EDEVICE command, skip to substep 6. If not yet defined, continue with the next substep.
4. To define the SCSI volumes, you need to know which FCP addresses are valid for your SCSI volumes. If you know the FCP address or the range of addresses associated with your SCSI volume addresses skip this substep.
   If only the channel path id is known, issue the Query CHPID command to display all FCP addresses associated with the path. For example, if the channel path is X'66', issue:

   query chpid 66
   Path 66 online to devices 517C 5319 5500 8100 8101 8102 8103 8104
   Path 66 online to devices 8105 8106 8107 8108 8109 810A 810B 810C
   Path 66 online to devices 810D 810E 810F 8110 8111 8112 8113 8114
   Path 66 online to devices 8115 8116 8117 8118 8119 811A 811B 811C
   Path 66 online to devices 811D 811E 811F

5. To define the SCSI volumes, use the information recorded in traditional installation worksheet 4 (Table 4 on page 18). See z/VM: CP Planning and Administration for information on defining SCSI disks. The following information will provide each SCSI volume with a basic definition.
   For each SCSI volume:
   a. Select and record a free FCP address for each edevice. You should use one FCP device for the 640RES and a different (or multiple different) FCPs for the other volumes.

      query fcp free

      Choose a device from the output. Record a FCP address for each edevice in the FCP Address column on DVD installation worksheet 7 (Table 7 on page 19).
   b. Define the device address.

      set edevice dasdaddr type fba attr scsi fcp_dev fcpn www lun ll

      dasdaddr
      The edevice address from traditional installation worksheet 7 (Table 7 on page 19).

      fcpn
      FCP address (you should use one FCP device for the 640RES and a different, or multiple different, FCPs for the other disks).

      www
      World Wide port number.

      ll
      LUN address.

6. Vary on any SCSI volumes not already online. Repeat this substep for each volume.

   vary on dasdaddr
7. The following changes might be needed in the SYSTEM CONFIG file for future IPLs.
   • When performing a second-level installation to SCSI volumes, the EDEV statements are added to the SYSTEM CONFIG as comments. If you want to IPL the system first-level, remove the ‘/*...*/’ pairs from the EDEV statements in the SYSTEM CONFIG file.
   • If the SCSI volumes you are installing to are defined as minidisks on your installation user ID, they cannot be IPLed first-level; therefore the SYSTEM CONFIG file is not updated to include any EDEV statements.
   • If you are installing on a second-level (or higher) system, the edevice details of the SCSI volumes to which you are installing cannot be determined; therefore, the SYSTEM CONFIG file is not updated to include any EDEV statements.

   For information about updating the SYSTEM CONFIG file, see \textit{z/VM: CP Planning and Administration}.

8. Attach each DASD volume listed on traditional installation worksheet 3 (Table 3 on page 18) or 4 (Table 4 on page 18) that is not already attached. Enter the following ATTACH command for each volume:

   \begin{verbatim}
   attach dasdaddr *
   DASD dasdaddr ATTACHED TO userid dasdaddr
   ...
   Ready; T=n.nn/n.nn hh:mm:ss
   \end{verbatim}

   \begin{itemize}
   \item \texttt{dasdaddr} \hspace{0.5cm} Address of the DASD volume.
   \item \texttt{userid} \hspace{0.5cm} First-level user ID logged on to previously.
   \end{itemize}

   \textbf{Attention:} Issue the QUERY DASD ATTACH * command to verify there are no volumes attached to your user ID with the same label as those being used for installation. You must detach any duplicate-labeled volumes from your user ID to prevent bringing them online.
Step 3. Run INSTALL to install your new system

1. Run INSTALL to install your new system.

   Note: You must not disconnect your installation user ID. The installation procedure will IPL the z/VM system a number of times and these will fail if the user ID is running disconnected.

```console
install
IUGIIS8490I NOW FORMATTING|LABELING VOLUME dasdaddr (1 OF n)
  :
IUGIIS8490I NOW FORMATTING|LABELING VOLUME dasdaddr (n OF n)
  :
IUGIIS8380I RESTORING IIS TO lblcom lblrl1 lblres and lbispl
IUGIIS8341I LOAD OF THE SYSTEM IIS TO COMMON VOLUME COMPLETED SUCCESSFULLY
  :
IUGIIS8490I NOW ALLOCATING DASD dasdaddr (COMMON VOLUME)
  :
IUGIIS8341I WRITING OWNERSHIP FOR sysname TO spladdr lbispl COMPLETED SUCCESSFULLY
IUGIIS8341I WRITING OWNERSHIP FOR sysname TO pagaddr lbispg COMPLETED SUCCESSFULLY
IUGIDV8341I CREATION OF USER DIRECTORY COMPLETED SUCCESSFULLY
IUGILB8440I NOW LOADING userid cuu (alias) DISK 1 OF nnn
IUGILB8440I NOW LOADING userid cuu (alias) DISK 2 OF nnn
IUGILB8440I NOW LOADING userid cuu (alias) DISK 3 OF nnn
  :
IUGILB8440I NOW LOADING userid cuu (alias) DISK nnn OF nnn

Note: If you receive one of the following messages:

- IUGILB8300E FILE ddd50000 IMAGE W NOT FOUND
- IUGILB8342E THE COMMAND 'PIPE DVDDECOD ddd500 FAILED WITH RC=rc'

   make sure you load the installation RSU DVD to your installation minidisk or FTP server before restarting.
```
Run INSTALL to install your new system

Messages received if installing from a physical DVD:

HCPIRU8484R PLEASE PLACE THE INSTALLATION RSU DVD IN THE DRIVE, THEN TYPE GO TO CONTINUE OR TYPE EXIT TO QUIT.

Place the installation RSU DVD in the DVD drive and wait until the light on the DVD drive goes out or stops blinking, then enter go.

Do not attempt to skip installing the RSU during upgrade.

If you enter exit, your installation will not be complete. You must rerun the INSTALL command and enter go to load the RSU files before you can continue to the next step.

If the installation fails while loading the installation RSU DVD, issue INSTALL to try again.

HCPIRU8440I NOW LOADING MAINTvrm 500 DISK
HCPIRU8341I LOAD OF INSTALLATION RSU COMPLETED SUCCESSFULLY

Messages received if installing first-level:

IUGIDV8341I USER DIRECTORY HAS BEEN BROUGHT ONLINE SUCCESSFULLY
IUGIDV8341I SALIPL COMMAND HAS COMPLETED SUCCESSFULLY

IUGIWF8338I NOW EXECUTING COPY OF CF0 and 4CC STEP

IUGIDV8392I INSTDVD EXEC ENDED SUCCESSFULLY

Messages received if installing second-level:

IUGIDV8341I USER DIRECTORY HAS BEEN BROUGHT ONLINE SUCCESSFULLY
IUGIDV8341I SALIPL COMMAND HAS COMPLETED SUCCESSFULLY
IUGIWF8341I {MDDUMP|ECKDDUMP} OF 2CF0 COMPLETED SUCCESSFULLY
IUGIWF8338I NOW EXECUTING COPY OF 24CC TO 4CC STEP
IUGIWF8341I {MDDUMP|ECKDDUMP} OF 24CC COMPLETED SUCCESSFULLY
IUGIDV8392I INSTDVD EXEC ENDED SUCCESSFULLY
Run INSTALL to install your new system

*******************************
*        NOW IPLing VOLUME dasdaddr       *
*        WITH COMMAND:                  *
*        CP SYSTEM CLEAR                *
*        TERMINAL CONMODE 3270          *
*        SET MACHINE ESA                *
*        IPL dasdaddr CLEAR             *
*******************************

hh:mm:ss z/VM V6 R4.0 SERVICE LEVEL 0000 (64-BIT)

hh:mm:ss SYSTEM NUCLEUS CREATED ON yyyy-mm-dd AT hh:mm:ss, LOADED FROM lblres

hh:mm:ss ******************************************

hh:mm:ss hcpzco6718i Using parm disk 1 on volume lblcom (device nnnn).

hh:mm:ss hcpzco6718i Parm disk resides on cylinders nnn through nnn.

hh:mm:ss hpcrc8082i Accounting records are accumulating for userid DISKACNT

z/VM V6.4.0 yyyy-mm-dd hh:mm

hh:mm:ss AUTO LOGON *** OP1 USERS = 2 BY MAINT640

hh:mm:ss HCPCLS6056I XAUTOLOG information for OP1: The IPL command is verified by the IPL command processor.
Run INSTALL to install your new system

IUGPLD8341I POSTLOAD PROCESSING STARTED

DMSACC724I 4CC replaces C (4CC)
IUGIFP8493I ISSUING XAUTOLOG FOR VMSERVU
AUTO LOGON *** VMSERVU USERS = n
HCPCLS6056I XAUTOLOG information for VMSERVU: The IPL command is verified by the IPL command processor.

IUGIFP8493I ISSUING XAUTOLOG FOR VMSERVU
AUTO LOGON *** VMSERVU USERS = n
HCPCLS6056I XAUTOLOG information for VMSERVU: The IPL command is verified by the IPL command processor.

IUGIFP8493I ISSUING XAUTOLOG FOR VMSERVP
AUTO LOGON *** VMSERVP USERS = n
HCPCLS6056I XAUTOLOG information for VMSERVP: The IPL command is verified by the IPL command processor.

USER DSC LOGOFF AS VMSERVU USERS = n FORCED BY MAINT640
IUGIFP8493I ISSUING XAUTOLOG FOR VMSERVU
AUTO LOGON *** VMSERVU USERS = n
HCPCLS6056I XAUTOLOG information for VMSERVU: The IPL command is verified by the IPL command processor.

USER DSC LOGOFF AS VMSERVR USERS = n FORCED BY MAINT640
IUGIFP8493I ISSUING XAUTOLOG FOR VMSERVR
AUTO LOGON *** VMSERVR USERS = n
HCPCLS6056I XAUTOLOG information for VMSERVR: The IPL command is verified by the IPL command processor.

IUGIFP8493I ISSUING XAUTOLOG FOR VMSERVS
AUTO LOGON *** VMSERVS USERS = n
HCPCLS6056I XAUTOLOG information for VMSERVS: The IPL command is verified by the IPL command processor.

USER DSC LOGOFF AS VMSERVR USERS = n FORCED BY MAINT640
IUGIFP8493I ISSUING XAUTOLOG FOR VMSERVR
AUTO LOGON *** VMSERVR USERS = n
HCPCLS6056I XAUTOLOG information for VMSERVR: The IPL command is verified by the IPL command processor.

IUGIFP8338I UPDATING SYSTEM TABLES AND CLEANING UP FILEPOOL DIRECTORIES

You will receive these messages if you did not select VMPSFS as the common service filepool name.

AUTO LOGON *** BLDCMS USERS = n
HCPCFX6768I SECUSER of BLDCMS initiated for you by BLDCMS.
HCPCNSD440I The Named Saved System (NSS) CMS was successfully defined in fileid nnnn
BLDCMS : LOGOFF AT hh:mm:ss EST MONDAY mm/dd/yy BY MAINT640
USER DSC LOGOFF AS BLDCMS USERS = n FORCED BY MAINT640

AUTO LOGON *** BLDCMS USERS = n
HCPCFX6768I SECUSER of BLDCMS initiated for you by BLDCMS.
HCPCNSD440I The Named Saved System (NSS) ZCMS was successfully defined in fileid nnnn
BLDCMS : LOGOFF AT hh:mm:ss EST MONDAY mm/dd/yy BY MAINT640
USER DSC LOGOFF AS BLDCMS USERS = n FORCED BY MAINT640
Run INSTALL to install your new system

**********************************************************
*  NOW EXECUTING SERVICE ALL  rsuname                  *
**********************************************************

*****  SERVICE messages ***************

**********************************************************
*  NOW EXECUTING PUT2PROD                  *
**********************************************************

******  PUT2PROD messages ***************

**********************************************************
*  INSTCOMP NOW ISSUING SHUTDOWN REIPL     *
**********************************************************

SYSTEM SHUTDOWN STARTED
Ready; T=n.nn/n.nn hh:mm:ss

hh:mm:ss HCPWRP963I SHUTDOWN STEP USOAC - JOURNAL USER TERMINATION:

hh:mm:ss z/VM SYSTEM RESTART FROM SHUTDOWN REIPL
hh:mm:ss z/VM V6 R4.0  SERVICE LEVEL nnnn (64-BIT)

hh:mm:ss SYSTEM NUCLEUS CREATED ON yyyy-mm-dd AT hh:mm:ss, LOADED FROM lblres
hh:mm:ss

hh:mm:ss ****************************
hh:mm:ss * LICENSED MATERIALS - PROPERTY OF IBM*
hh:mm:ss * 5741-A07 (C) COPYRIGHT IBM CORP. 1983, 2016. ALL RIGHTS *
hh:mm:ss * RESERVED. US GOVERNMENT USERS RESTRICTED RIGHTS - USE *
hh:mm:ss * DUPLICATION OR DISCLOSURE RESTRICTED BY GSA ADP SCHEDULE *
hh:mm:ss * CONTRACT WITH IBM CORP. *
hh:mm:ss *
hh:mm:ss * TRADEMARK OF INTERNATIONAL BUSINESS MACHINES *
hh:mm:ss ****************************

hh:mm:ss HCPZCO6718I Using parm disk 1 on volume valid (device nnnn).
hh:mm:ss HCPZCO6718I Parm disk resides on cylinders nn through nn.

HH:mm:ss HCPZRC8082I Accounting records are accumulating for userid DISKACNT

hh:mm:ss DISCONNECT AT hh:mm:ss timezone weekday mm/dd/yy
hh:mm:ss Press enter or clear key to continue

Press Enter or the Clear key to continue.
Step 4. Log on to the new system

1. Log on as MAINT640.

   logon maint640
   :
   Ready; T=n.nn/n.nn hh:mm:ss

   The default password for MAINT640 is WD5JU8QP.
Step 5. IPL the new system

1. If this is a first-level installation, you are done with the RAMDISK.
   a. Shut down the new system.
      
      `shutdown`
   b. Shut down the RAMDISK system.
      
      `shutdown system ibmvmram`
   c. IPL the new system from the HMC.

2. If this is a second-level installation, and this is not where you plan to run your new system, shut down the system and then IPL where you wish the new system to run.

   **Note:** The default SYSTEM CONFIG file allows the following console addresses: 20, 21, 22, 23, F20, F21, 1020. If your console is not one of these addresses, either redefine your console or IPL with the LOADPARM consaddr option. If you use the LOADPARM option, include `cons=consaddr` as an IPL parameter on the z/VM Stand Alone Program Loader (SAPL) panel.

What to do next

Go to **Part 3, “Post traditional system installation,” on page 81.**
Chapter 6. SSI traditional installation method

In this chapter, you will:

• Install a z/VM SSI cluster.
Run INSTPLAN for SSI

### Step 1. Run INSTPLAN for SSI

**Before you begin:** You need to complete traditional installation worksheets 1 through 8. If you have not done so, return to Chapter 2, "Plan your traditional installation," on page 7.

1. Verify that the correct minidisk (VDEV) is accessed as file mode C. If second-level, the disk address is 24CC. If first-level, the disk address is 4CC.

   ```
   query disk c
   LABEL VDEV M ...
   MNT4CC addr C ...
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

2. Run INSTPLAN with the DVD operand.

   ```
   instplan DVD
   ```

The installation planning panels are displayed.

![Figure 6. z/VM Traditional Installation Planning Panel](image)

**Figure 6. z/VM Traditional Installation Planning Panel**

a. See traditional installation worksheet 1 and enter:
   - "M" in the **Install To** column for each product you selected to be installed onto minidisks.
   - "F" in the **Install To** column for each product you selected to be installed into the file pool.

b. Place a nonblank character next to the **System Default Language** you selected for your system on DVD installation worksheet 1.

c. Place a nonblank character in front of the DASD model that matches the **DASD type and model** you will use, recorded on traditional installation worksheet 1.

d. Fill in the **Filepool Name** for the common service filepool.

e. Place a nonblank character in front of the **type of install** you selected for your system on traditional installation worksheet 1 — in this case **SSI Install**.

f. Fill in the **Number of Members** and the **SSI Cluster Name**.

g. Press F5 to process your selections.
3. Continue with the following step to confirm that you have ordered the IBM z™/VM Single System Image Feature, and to accept the licensing terms and conditions.

### Single System Image (SSI) Cluster Installation

You have chosen to install z/VM in a single system image cluster. This requires the IBM z/VM Single System Image Feature, a priced feature whose use is governed by the terms and conditions of the IBM International Program License Agreement and the z/VM License Information Document, copies of which were included with your z/VM order.

The feature must be appropriately licensed for all machines that contain a member of the single system image cluster. If you need to order this feature, visit http://www.ibm.com/software/ShopzSeries. In countries where Shop zSeries is not available, contact your IBM representative or IBM Business Partner.

If you have ordered this feature and accept the licensing terms and conditions referenced above, press F5 to accept. If you are accepting these terms on behalf of another person or a company or other legal entity, you represent and warrant that you have full authority to bind that person, company or legal entity to these terms.

If you do not agree to these terms, press F3 to cancel the installation and refer to the Installation Guide to plan a non-SSI install.

F1 = HELP  F3/F12 = QUIT  F5 = I Accept

---

**Figure 7. z/VM Traditional Single System Image Cluster Installation Panel (SSI Only)**

a. Press F5 to accept these terms and continue processing.

4. Complete the Installation Planning Panel 2, as appropriate to your system.

### *** z/VM INSTALLATION PLANNING PANEL 2 ***

Would you like to have your system automatically configured to be managed by a SMAPI client for system management, such as the Cloud Manager Appliance (CMA)? Enter Y or N

Keep the following in mind:

If you say YES, you should not attempt to manage your system in any other way.

If you'd like to manage your own system, or use a purchased external security manager or a purchased directory manager, say NO.

F1 = HELP  F3/F12 = QUIT  F5 = Process  ENTER = Refresh

---

**Figure 8. z/VM Traditional Installation Planning Panel 2**

a. Refer to traditional installation worksheet 2 (Table 2 on page 17):

- If you will be using the System Management Application Programming Interface (SMAPI) function, enter Y. Otherwise, enter N.

b. Press F5 to process your selections.
5. Continue with the following steps to fill in the Installation Planning Panel 3.

<table>
<thead>
<tr>
<th>SLOT #</th>
<th>MEMBER NAME</th>
<th>IPL LPAR/USERID</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Figure 9. z/VM Traditional Installation Planning Panel 3 (SSI Only)**

a. See traditional installation worksheet 6 [Table 6 on page 19] and enter a nonblank character next to:
   - *First-Level* if the SSI will be IPLed first-level after installation is complete.
   - *Second-Level* if the SSI will continue to be IPLed second-level after installation is complete.

b. Fill in the member name for each member.

c. If, after installation is complete, the SSI will be IPLed:
   - First-level, fill in the LPAR name for each member.
   - Second-level, fill in the user ID that will be used to IPL each member.

d. Press F5 to process your selections.

**Note:** The output you see may be different due to your planning choices.
IUGIPX8475I FINAL SELECTIONS DISPLAY

THE PRODUCTS YOU SELECTED TO LOAD TO MINIDISK ARE:
VM OSA PERF TK VMHCD RACF DIRM RSCS ICKDSF TCPIP

THE PRODUCTS YOU SELECTED TO LOAD TO SFS ARE:
NONE

THE SYSTEM DEFAULT LANGUAGE SELECTED:
AMENG

THE COMMON SERVICE FILEPOOL NAME IS:
poolname

THE INSTALL TYPE YOU SELECTED IS:
SSI

THE SSI CLUSTER NAME IS:
ssiname

THE NUMBER OF MEMBERS IS:
n
MEMBER NAME 1: memname  LPAR/USERID 1: lparname
MEMBER NAME 2: memname  LPAR/USERID 2: lparname
MEMBER NAME 3: memname  LPAR/USERID 3: lparname
MEMBER NAME 4: memname  LPAR/USERID 4: lparname

AFTER INSTALLATION IS COMPLETE, MEMBERS WILL BE IPLed FROM:
level

THE DASD TYPE YOU SELECTED TO LOAD ON IS:
3390 model

THE VOLUMES NEEDED TO LOAD z/VM ARE:
COMMON: VMCOM1 VMCOM2
RELEASE: 640RL1 640RL2 640RL3
MEMBER1: M01RES M01S01 M01P01 M01W01 M01W02 M01W03
MEMBER2: M02RES M02S01 M02P01 M02W01 M02W02 M02W03
MEMBER3: M03RES M03S01 M03P01 M03W01 M03W02 M03W03
MEMBER4: M04RES M04S01 M04P01 M04W01 M04W02 M04W03

DO YOU WANT TO CONTINUE? (Y|N)

Compare the information listed in the response from the INSTPLAN command to the information listed on your traditional installation worksheets. Ensure that the information filled in on the worksheets matches what is listed in this response.

y

6. Continue with the following steps to fill in the Installation Volume Definition panel.
Run INSTPLAN for SSI

**Table 10. z/VM Traditional Installation Volume Definition (SSI Only)**

<table>
<thead>
<tr>
<th>TYPE</th>
<th>LABEL</th>
<th>ADDRESS</th>
<th>FORMAT (Y/N)</th>
<th>TYPE</th>
<th>LABEL</th>
<th>ADDRESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMMON</td>
<td>VMCOM1</td>
<td></td>
<td></td>
<td>COMMON2</td>
<td>VMCOM2</td>
<td></td>
</tr>
<tr>
<td>RELVOL</td>
<td>640RL1</td>
<td></td>
<td></td>
<td>RELVOL2</td>
<td>640RL2</td>
<td></td>
</tr>
<tr>
<td>RELVOL3</td>
<td>640RL3</td>
<td></td>
<td></td>
<td>mem1nam</td>
<td>mem2nam</td>
<td></td>
</tr>
<tr>
<td>mem3nam</td>
<td>mem4nam</td>
<td></td>
<td></td>
<td>RES</td>
<td>M01RES</td>
<td>M02RES</td>
</tr>
<tr>
<td>SPOOL</td>
<td>M01S01</td>
<td></td>
<td></td>
<td>SPOOL</td>
<td>M02S01</td>
<td></td>
</tr>
<tr>
<td>PAGE</td>
<td>M01P01</td>
<td></td>
<td></td>
<td>PAGE</td>
<td>M02P01</td>
<td></td>
</tr>
<tr>
<td>MEMBER</td>
<td>M01W01</td>
<td></td>
<td></td>
<td>MEMBER</td>
<td>M02W01</td>
<td></td>
</tr>
<tr>
<td>MEMBER</td>
<td>M01W02</td>
<td></td>
<td></td>
<td>MEMBER</td>
<td>M02W02</td>
<td></td>
</tr>
<tr>
<td>MEMBER</td>
<td>M01W03</td>
<td></td>
<td></td>
<td>MEMBER</td>
<td>M02W03</td>
<td></td>
</tr>
<tr>
<td>mem3nam</td>
<td>mem4nam</td>
<td></td>
<td></td>
<td>RES</td>
<td>M03RES</td>
<td>M04RES</td>
</tr>
<tr>
<td>SPOOL</td>
<td>M03S01</td>
<td></td>
<td></td>
<td>SPOOL</td>
<td>M04S01</td>
<td></td>
</tr>
<tr>
<td>PAGE</td>
<td>M03P01</td>
<td></td>
<td></td>
<td>PAGE</td>
<td>M04P01</td>
<td></td>
</tr>
<tr>
<td>MEMBER</td>
<td>M03W01</td>
<td></td>
<td></td>
<td>MEMBER</td>
<td>M04W01</td>
<td></td>
</tr>
<tr>
<td>MEMBER</td>
<td>M03W02</td>
<td></td>
<td></td>
<td>MEMBER</td>
<td>M04W02</td>
<td></td>
</tr>
<tr>
<td>MEMBER</td>
<td>M03W03</td>
<td></td>
<td></td>
<td>MEMBER</td>
<td>M04W03</td>
<td></td>
</tr>
</tbody>
</table>

F1 = HELP   F3/12 = QUIT   F5 = Process   ENTER = Refresh

a. If you do not want to use a default volume label, enter a new label (recorded on traditional installation worksheet 7, Table 7 on page 19) in the LABEL field.

b. Fill in the volume addresses using the information from traditional installation worksheet 7 (Table 7 on page 19). For more information and help, press F1.

c. Fill in the FORMAT (Y/N) column with Y to CP format your installation volumes or N to not format your installation volumes. Specify N only if you have already CP formatted your volumes for this installation using ICKDSF or CPFMTXA. If you specify N, the volumes will be labeled, but not formatted.

d. Press F5 to process your selections.

F5

7. If you selected "Second_Level" in answer to the question "After installation is complete, the SSI cluster will be IPLed:" on the z/VM Installation Planning panel 3 (in substep 5 on page 64), proceed to substep 8 on page 67.

If you selected "First_Level" in answer to the question "After installation is complete, the SSI cluster will be IPLed:" on the z/VM Installation Planning panel 3 (in substep 5 on page 64), continue with this step to fill in the First-Level Configuration panel.
Real addresses for the common volume on each member LPAR:

<table>
<thead>
<tr>
<th>VOLUME</th>
<th>DASD</th>
<th>mem1name</th>
<th>mem2name</th>
<th>mem3name</th>
<th>mem4name</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMMON</td>
<td>lblcom</td>
<td>______</td>
<td>______</td>
<td>______</td>
<td>______</td>
</tr>
</tbody>
</table>

CTC device addresses:

From: mem1name
  To: mem1name     N/A
  To: mem2name     ______
  To: mem3name     ______
  To: mem4name     ______

From: mem2name
  To: mem1name     ______
  To: mem2name     ______
  To: mem3name     ______
  To: mem4name     ______

F1 = HELP     F3/F12 = QUIT
F5 = Process
ENTER = Refresh

Figure 11. z/VM Traditional Installation DASD Definitions 2 (SSI Only)

a. Fill in the real address of the VMCOM1 volume as it is defined on each LPAR. Use the information from traditional installation worksheet 8 (Table 8 on page 20).

b. Fill in the CTC device addresses for each member using the information from traditional installation worksheet 8 (Table 8 on page 20).

c. Press F5 to process your selections.

F5

8.

Note: The output you see may be different due to your planning choices.

IUGIIX8377R YOU HAVE SELECTED TO FORMAT YOUR DASD.
DASD SELECTED ARE:

lblcom  dasaddr
lblcm2  dasaddr
lblrl1  dasaddr
lblrl2  dasaddr
lblrl3  dasaddr
lblres  dasaddr
blsp1   dasaddr
blspag  dasaddr
blw01   dasaddr
blw02   dasaddr
blw03   dasaddr

Depending on whether you chose to format your DASD, you will receive either version of message IUGIIX8377R.
Run INSTPLAN for SSI

IUGIIX8377R YOU HAVE SELECTED THE FOLLOWING CTC ADDRESSES:

MEMBER membnam TO MEMBER membnam  ctcaddr  ctcaddr
MEMBER membnam TO MEMBER membnam  ctcaddr  ctcaddr
MEMBER membnam TO MEMBER membnam  ctcaddr  ctcaddr
MEMBER membnam TO MEMBER membnam  ctcaddr  ctcaddr

You will receive the CTC address messages only if you selected "IPL from 1st level after installation is complete".

IUGINP8392I INSTPLAN EXEC ENDED SUCCESSFULLY
Ready; T=n.nn/n.nn hh:mm:ss

9. Compare the information listed in the response from the INSTPLAN command to the information listed on your traditional installation worksheets. Ensure that the information filled in on the worksheets matches what is listed in this response.
Step 2. Run INSTALL to install your new system

1. Attach each volume listed on traditional installation worksheet 7 (Table 7 on page 19) that is not already attached. Enter the following ATTACH command for each volume:

   ```
   attach dasdaddr *
   DASD dasdaddr ATTACHED TO userid dasdaddr
   :
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

   `dasdaddr`
   Address of the DASD volume.

   `userid`
   First-level user ID logged on to previously.

   **Attention:** If there are any DASD volumes or minidisks attached to this user ID (other than the volumes being used for this installation) with the same labels that you are using for your installation volumes, they must be detached from this user ID to prevent bringing them online. Use the QUERY VIRTUAL DASD command to list the DASD volumes and minidisks attached to this user ID.

2. Run INSTALL to install your new system.

   **Note:** You must not disconnect your installation user ID. The installation procedure will IPL the z/VM system a number of times and these will fail if the user ID is running disconnected.
Run INSTALL to install your new system

IUGIIS8490I NOW FORMATTING LABELING VOLUME dasdaddr (1 OF n)
  :
IUGIIS8490I NOW FORMATTING LABELING VOLUME dasdaddr (n OF n)
  :
IUGIIS8380I RESTORING IIS TO lbicom lbirl1 lblres and lblspl
IUGIIS8341I LOAD OF THE SYSTEM IIS TO COMMON VOLUME COMPLETED SUCCESSFULLY
  :
IUGIIS8490I NOW ALLOCATING DASD dasdaddr (COMMON VOLUME)
  :
IUGIIS8341I WRITING OWNERSHIP ssiname NOSYS TO comaddr lbicom COMPLETED SUCCESSFULLY
IUGIIS8341I WRITING OWNERSHIP ssiname memname TO resaddr lblres COMPLETED SUCCESSFULLY
IUGIIS8341I WRITING OWNERSHIP ssiname memname TO spladdr lblspl COMPLETED SUCCESSFULLY
IUGIIS8341I WRITING OWNERSHIP ssiname memname TO pagaddr lbipag COMPLETED SUCCESSFULLY
IUGIIS8341I CREATING PDR ON comaddr COMPLETED SUCCESSFULLY
IUGIDV8341I CREATION OF USER DIRECTORY COMPLETED SUCCESSFULLY
IUGILB8440I NOW LOADING userid cuu (alias) DISK 1 OF nnn
IUGILB8440I NOW LOADING userid cuu (alias) DISK 2 OF nnn
IUGILB8440I NOW LOADING userid cuu (alias) DISK 3 OF nnn
  :
IUGILB8440I NOW LOADING userid cuu (alias) DISK nnn OF nnn

Note: If you receive one of the following messages:
- IUGILB8300E FILE ddd50000 IMAGE W NOT FOUND
- IUGILB8342E THE COMMAND 'PIPE DVDDECOD ddd500 FAILED WITH RC=rc'

make sure you load the installation RSU DVD to your installation minidisk or FTP server before restarting.
Messages received if installing from a physical DVD:

HCPIRU8484R PLEASE PLACE THE INSTALLATION RSU DVD IN THE DRIVE, THEN TYPE GO TO CONTINUE OR TYPE EXIT TO QUIT.

Place the installation RSU DVD in the DVD drive and wait until the light on the DVD drive goes out or stops blinking, then enter go.

Do not attempt to skip installing the RSU during upgrade.

If you enter exit, your installation will not be complete. You must rerun the INSTALL command and enter go to load the RSU files before you can continue to the next step.

If the installation fails while loading the installation RSU DVD, issue INSTALL to try again.

HCPIRU8440I NOW LOADING MAINTvrm 500 DISK
HCPIRU8341I LOAD OF INSTALLATION RSU COMPLETED SUCCESSFULLY

Messages received if installing first-level:

IUGIDV8341I USER DIRECTORY HAS BEEN BROUGHT ONLINE SUCCESSFULLY
IUGIDV8341I SALIPL COMMAND HAS COMPLETED SUCCESSFULLY

:.
IUGIWF8338I NOW EXECUTING COPY OF CF0 and 4CC STEP

:
IUGIDV8392I INSTDVD EXEC ENDED SUCCESSFULLY

Messages received if installing second-level:

IUGIDV8341I USER DIRECTORY HAS BEEN BROUGHT ONLINE SUCCESSFULLY
IUGIDV8341I SALIPL COMMAND HAS COMPLETED SUCCESSFULLY
IUGIF8341I (MDDUMP|ECKDDUMP) OF 2CF0 COMPLETED SUCCESSFULLY
IUGIF8338I NOW EXECUTING COPY OF 24CC TO 4CC STEP
IUGIF8341I (MDDUMP|ECKDDUMP) OF 24CC COMPLETED SUCCESSFULLY
IUGIDV8392I INSTDVD EXEC ENDED SUCCESSFULLY

**********************************************************************
* NOW IPLing VOLUME dasdaddr *
* WITH COMMAND: *
* CP SYSTEM CLEAR *
* TERMINAL CONMODE 3270 *
* SET MACHINE ESA *
* IPL dasdaddr CLEAR *
**********************************************************************
Run INSTALL to install your new system

z/VM V6.4.0 yyyy-mm-dd hh:mm

AUTO LOGON *** OP1 USERS = 2 BY MAINT640
HCPCLS6056I XAUTOLOG information for OP1: The IPL command is verified by the
IPL command processor.

IUGPLD8341I POSTLOAD PROCESSING STARTED

IUGIFP8493I ISSUING XAUTOLOG FOR VMSERVU
AUTO LOGON *** VMSERVU USERS = n
HCPCLS6056I XAUTOLOG information for VMSERVU: The IPL command is verified by the IPL
command processor.

IUGIFP8493I ISSUING XAUTOLOG FOR VMSERV
AUTO LOGON *** VMSERVR USERS = n
HCPCLS6056I XAUTOLOG information for VMSERV: The IPL command is verified by the IPL
command processor.

IUGIFP8493I ISSUING XAUTOLOG FOR VMSERVS
AUTO LOGON *** VMSERVS USERS = n
HCPCLS6056I XAUTOLOG information for VMSERVS: The IPL command is verified by the IPL
command processor.

USER DSC LOGOFF AS VMSERV Users = n FORCED BY MAINT640
IUGIFP8493I ISSUING XAUTOLOG FOR VMSERV
AUTO LOGON *** VMSERV USERS = n
HCPCLS6056I XAUTOLOG information for VMSERV: The IPL command is verified by the IPL
command processor.

IUGIFP8493I ISSUING XAUTOLOG FOR VMSERVp
AUTO LOGON *** VMSERVp USERS = n
HCPCLS6056I XAUTOLOG information for VMSERV: The IPL command is verified by the IPL
command processor.

IUGIFP8338I UPDATING SYSTEM TABLES AND CLEANING UP FILEPOOL DIRECTORIES
Run INSTALL to install your new system
Run INSTALL to install your new system

```
hh:mm:ss  SYSTEM NUCLEUS CREATED ON yyyy-mm-dd AT hh:mm:ss, LOADED FROM lblres
hh:mm:ss
hh:mm:ss *****************************************
hh:mm:ss  * LICENSED MATERIALS - PROPERTY OF IBM*
hh:mm:ss  * hh:mm:ss  5741-A07 (C) COPYRIGHT IBM CORP. 1983, 2016. ALL RIGHTS *
hh:mm:ss  * RESERVED. US GOVERNMENT USERS RESTRICTED RIGHTS - USE *
hh:mm:ss  * hh:mm:ss  DUPLEXION OR DISCLOSURE RESTRICTED BY GSA ADP SCHEDULE *
hh:mm:ss  * hh:mm:ss  CONTRACT WITH IBM CORP. *
hh:mm:ss  *
hh:mm:ss  * * TRADEMARK OF INTERNATIONAL BUSINESS MACHINES *
hh:mm:ss *****************************************
hh:mm:ss  * IBM z/VM Single System Image Feature is enabled and active. *
hh:mm:ss *****************************************

hh:mm:ss  HCPZC6718I Using parm disk 1 on volume valid (device nnnn).
hh:mm:ss  HCPZC6718I Parm disk resides on cylinders nn through nn.

hh:mm:ss  HCPCRC8082I Accounting records are accumulating for userid DISKACNT
```

What to do next

<table>
<thead>
<tr>
<th>If this is a...</th>
<th>Then...</th>
</tr>
</thead>
<tbody>
<tr>
<td>One-member SSI install</td>
<td>Continue with &quot;Step 3. One-member SSI&quot; on page 75</td>
</tr>
<tr>
<td>Multimember SSI install</td>
<td>Go to &quot;Step 4. Multimember SSI&quot; on page 76</td>
</tr>
</tbody>
</table>
Step 3. One-member SSI

1. Processing continues.

   Press Enter or the Clear key to continue.

2. Log on as MAINT640.

   logon maint640

   The default password for MAINT640 is WD5JU8QP.

   Ready; T=n.nn/n.nn hh:mm:ss

3. If this is a first-level installation, you are done with the RAMDISK.
   a. Shut down the new system.
      shutdown
   b. Shut down the RAMDISK system.
      shutdown system ibmvmram
   c. IPL the new system from the HMC.

4. If this is a second-level installation, and this is not where you plan to run your new system, shut
down the system and then IPL where you wish the new system to run.

   Note: The default SYSTEM CONFIG file allows the following console addresses: 20, 21, 22, 23, F20,
   F21, 1020. If your console is not one of these addresses, either redefine your console or IPL
   with the LOADPARM consaddr option. If you use the LOADPARM option, include
   cons=consaddr as an IPL parameter on the z/VM Stand Alone Program Loader (SAPL) panel.

What to do next

Go to Part 3, “Post traditional system installation,” on page 81.
Step 4. Multimember SSI

1. Processing continues.

You will receive these messages for each member (except member 1) that you selected to install.

IUGIMB8380I DDRing CYLINDERS 0 - nnnn FROM lbl1res TO lbl2res
DDR OF lbl1res TO lbl2res SUCCESSFUL

IUGIMB8380I DDRing CYLINDERS 0 - nnnn FROM lbl1wrk1 TO lbl2wrk1
DDR OF lbl1wrk1 TO lbl2wrk1 SUCCESSFUL

IUGIMB8380I DDRing CYLINDERS 0 - nnnn FROM lbl1wrk2 TO lbl2wrk2
DDR OF lbl1wrk2 TO lbl2wrk2 SUCCESSFUL

IUGIMB8380I DDRing CYLINDERS 0 - nnnn FROM lbl1wrk3 TO lbl2wrk3
DDR OF lbl1wrk3 TO lbl2wrk3 SUCCESSFUL

IUGIMB8380I DDRing CYLINDERS 0 - nnnn FROM lbl1res TO lbl3res
DDR OF lbl1res TO lbl3res SUCCESSFUL

IUGIMB8380I DDRing CYLINDERS 0 - nnnn FROM lbl1res TO lbl4res
DDR OF lbl1res TO lbl4res SUCCESSFUL

CPFMTXA LABEL VOLUME FOR lbl2res SUCCESSFUL
CPFMTXA LABEL VOLUME FOR lbl2wrk1 SUCCESSFUL
CPFMTXA LABEL VOLUME FOR lbl2wrk2 SUCCESSFUL
CPFMTXA LABEL VOLUME FOR lbl2wrk3 SUCCESSFUL

CPFMTXA LABEL VOLUME FOR lbl3res SUCCESSFUL

CPFMTXA LABEL VOLUME FOR lbl4res SUCCESSFUL

DASD 0550 DETACHED

CPFMTXA OWNERSHIP FOR lbl2res SUCCESSFUL
CPFMTXA OWNERSHIP FOR lbl2spl SUCCESSFUL
CPFMTXA OWNERSHIP FOR lbl2pag SUCCESSFUL

CPFMTXA OWNERSHIP FOR lbl3res SUCCESSFUL
CPFMTXA OWNERSHIP FOR lbl3spl SUCCESSFUL
CPFMTXA OWNERSHIP FOR lbl3pag SUCCESSFUL

CPFMTXA OWNERSHIP FOR lbl4res SUCCESSFUL
CPFMTXA OWNERSHIP FOR lbl4spl SUCCESSFUL
CPFMTXA OWNERSHIP FOR lbl4pag SUCCESSFUL

DASD 0550 DETACHED

SALIPL FOR addr SUCCESSFUL
SALIPL FOR addr SUCCESSFUL
SALIPL FOR addr SUCCESSFUL
Step 5. Initialize members 2-4

1. Processing continues.

******************************************************************************************
* PROCESSING UPDATE FOR MEMBER nextmemb
******************************************************************************************
IUGISC8403I SYSTEM CONFIG has been updated to allow member nextmemb to be IPL'ed.

member nextmemb will be IPLed by issuing the command:
SHUTDOWN REIPL dasaddr

EXECUTING SHUTDOWN REIPL dasaddr

hh:mm:ss HCPWRP963I SHUTDOWN STEP PLMLV - LEAVE THE SSI CLUSTER
:

hh:mm:ss z/VM SYSTEM RESTART FROM SHUTDOWN REIPL

hh:mm:ss z/VM V6 R4.0 SERVICE LEVEL nnnn (64-BIT)

hh:mm:ss SYSTEM NUCLEUS CREATED ON yyyy-mm-dd AT hh:mm:ss, LOADED FROM lblres

hh:mm:ss **************************************************

HH:mm:ss * LICENSED MATERIALS - PROPERTY OF IBM*     *
HH:mm:ss * 5741-A07 (C) COPYRIGHT IBM CORP. 1983, 2016. ALL RIGHTS *
HH:mm:ss * RESERVED. US GOVERNMENT USERS RESTRICTED RIGHTS - USE *
HH:mm:ss * DUPLICATION OR DISCLOSURE RESTRICTED BY GSA ADP SCHEDULE *
HH:mm:ss * CONTRACT WITH IBM CORP. *
HH:mm:ss * *
HH:mm:ss * TRADEMARK OF INTERNATIONAL BUSINESS MACHINES *
HH:mm:ss **************************************************

HH:mm:ss **************************************************

HH:mm:ss HCPZCO6718I Using parm disk n on volume lblcom (device nnnn).

HH:mm:ss HCPZCO6718I Parm disk resides on cylinders nnn through nnn.
:

HH:mm:ss HCPRCRC8082I Accounting records are accumulating for userid DISKACNT

DMSWSP327I The installation saved segment could not be loaded
z/VM V6.4.0 yyyy-mm-dd hh:mm

DMSDSCS1083E Saved segment CMSPIPES does not exist
DMSDSCS1083E Saved segment CMSPIPES does not exist
DMSDSCS1083E Saved segment CMSVML18 does not exist

HH:mm:ss AUTO LOGON *** OP1 USERS = n BY MAINT640
HH:mm:ss HCPCLS6056I XAUTOLOG information for OP1: The IPL command is verified by the
IPL command processor.

AUTO LOGON *** BLDCMS USERS = n
HCPFCFX6768I SECUSER of BLDCMS initiated for you by BLDCMS.
HCNPNSD440I The Named Saved System (NSS) CMS was successfully defined in fileid nnnn.
BLDCMS : HCNPNSD440I Named Saved System (NSS) CMS was successfully saved
BLDCMS : CONNECT= 00:00:nn VIRTCPU= 000:00.nn TOTCPU= 000:00.nn
BLDCMS : LOGOFF AT hh:mm:ss EST WEDNESDAY mm/dd/yy BY MAINT640
USER DSC LOGOFF AS BLDCMS USERS = n FORCED BY MAINT640
Initialize members 2-4

* PROCESSING MEMBER membername *

IUGINI8493I ISSUING XAUTOLOG FOR VMSERV
AUTO LOGON *** VMSERV USERS = n
HCPCLS6056I XAUTOLOG information for VMSERV: The IPL command is verified by the
IPL command processor.

USER DSC LOGOFF AS VMSERV USERS = n FORCED BY MAINT640
IUGINI8493I ISSUING XAUTOLOG FOR VMSERV
AUTO LOGON *** VMSERV USERS = n
HCPCLS6056I XAUTOLOG information for VMSERV: The IPL command is verified by the
IPL command processor.

IUGINI8493I ISSUING XAUTOLOG FOR VMSERV
AUTO LOGON *** VMSERV USERS = n
HCPCLS6056I XAUTOLOG information for VMSERV: The IPL command is verified by the
IPL command processor.

IUGINI8493I ISSUING XAUTOLOG FOR VMSERV
AUTO LOGON *** VMSERV USERS = n
HCPCLS6056I XAUTOLOG information for VMSERV: The IPL command is verified by the
IPL command processor.

IUGINI8493I ISSUING XAUTOLOG FOR VMSERV
AUTO LOGON *** VMSERV USERS = n
HCPCLS6056I XAUTOLOG information for VMSERV: The IPL command is verified by the
IPL command processor.

IUGINI8493I ISSUING XAUTOLOG FOR VMSERV
AUTO LOGON *** VMSERV USERS = n
HCPCLS6056I XAUTOLOG information for VMSERV: The IPL command is verified by the
IPL command processor.

2. Substep[1 on page 77](#) will repeat for members 3-4, if applicable.
3. Once all members have been initialized, processing will finish.

IUGMLP8392I INSTALLATION ENDED SUCCESSFULLY
Ready; T=n.nn/n.nn hh:mm:ss
Step 6. Update the system configuration file

When “Step 5. Initialize members 2-4” on page 77 has completed for each installed member (2-4):

1. Run INSTSCID to update the system configuration with the final System_Identifier information. At the completion of “Step 5. Initialize members 2-4” on page 77, the SYSTEM CONFIG file is set up to IPL only the last member you installed. In order to successfully IPL all members of your SSI cluster, the SYSTEM CONFIG file must be updated to include the correct System_Identifier statement for each member. Once the SYSTEM CONFIG file is updated, you will only be able to IPL the members on their respective LPARs/user IDs.

   **instscid remove**
   
   **********************************************************
   * PROCESSING REMOVE FOR ALL MEMBERS
   **********************************************************
   IUGISC8404I SYSTEM CONFIG has been updated to allow all members
   to be ipled only from the LPAR/userid
defined for each member at install time.
   IUGISC8392I INSTSCID EXEC ENDED SUCCESSFULLY
   Ready; T=n.nn/n.nn hh:mm:ss

   **Note:** If you attempt to IPL any member except the last member installed before running INSTSCID, your system will not IPL with the correct member volumes and results will be unexpected.

2. Perform a system shutdown.

   **shutdown**
   
   SYSTEM SHUTDOWN STARTED
   Ready; T=n.nn/n.nn hh:mm:ss

   hh:mm:ss HCPWRP963I SHUTDOWN STEP PLMLV - LEAVE THE SSI CLUSTER
   :
   hh:mm:ss HCPWRP961W SYSTEM SHUTDOWN COMPLETE
   HCPGIR450W CP entered; disabled wait PSW 00020000 00000000 00000000 00000961

3. IPL the CMS saved segment if it exists. Otherwise, IPL 190.

   **ipl cms**
   :
   ENTER
   Ready; T=n.nn/n.nn hh:mm:ss
IPL the new SSI cluster

Step 7. IPL the new SSI cluster

1. If you indicated that the SSI cluster members would be IPLed second-level:
   a. Retrieve the SSI2ND DIR-PROF file from the 191 (A) disk of the user ID you used for installation. This file also exists on the new system's MAINT640 4CC disk. This file contains sample user directory information for the user IDs where you will IPL your SSI members.

      **Attention:** Make sure to use the DEVNO statement as documented in this file to allow all members access to the other members' volumes.

   b. On the system where you plan to IPL your SSI members, add or update the user directory information for the user IDs according to the information defined in the SSI2ND DIR-PROF file.

   c. Detach all installation volumes from your installation user ID.

   d. Log on to each of the IPL user IDs as defined in SSI2ND DIR-PROF and create or update the PROFILE EXEC according to the information in the SSI2ND DIR-PROF file.

   e. Run the PROFILE EXEC on each user ID.

2. If this is a first-level installation, you are done with the RAMDISK.
   a. Shut down the RAMDISK system.

      ```
      shutdown system ibmvmmram
      ```

3. IPL each member from its corresponding user ID or LPAR.

   **Note:** The default SYSTEM CONFIG file allows the following console addresses: 20, 21, 22, 23, F20, F21, 1020. If your console is not one of these addresses, either redefine your console or IPL with the LOADPARM `consaddr` option. If you use the LOADPARM option, include `cons=consaddr` as an IPL parameter on the z/VM Stand Alone Program Loader (SAPL) panel.

What to do next

Go to Part 3, “Post traditional system installation,” on page 81.
Part 3. Post traditional system installation

This part contains the following:

- Default system information
- Procedures for creating IPLable utility tapes
- Procedures for configuring a basic TCP/IP network connection
- Procedures for backing up the z/VM system
- Procedures for migrating customized files and service for products that are preinstalled on the z/VM installation media
- Information about the licensed products and features that are preinstalled on the z/VM installation media.
Chapter 7. Default system information

This section provides a summary of important information about your default system setup. Additional information can also be found in Appendix C, “Contents of the z/VM system,” on page 249. Detailed information about configuring your system can be found in z/VM: CP Planning and Administration.

User directory defaults passwords

The USER DIRECT file contains default passwords for all user IDs defined by the installation process. All passwords that are not NOLOG, AUTOONLY, or LBYONLY have been set to the default of WD5JU8QP.

Default information for IPLing your system

The SYSTEM CONFIG file resides on the CF0 PARM disk, owned by PMAINT.

In an SSI cluster, the installation default is to have a single SYSTEM CONFIG file that is shared by all member systems.

The CPLOAD MODULE resides on the CF1 PARM disk, owned by MAINT.

During installation, the system is set up to IPL the CPLOAD MODULE from MAINT’s CF1 PARM disk (extent 1 on the M0xRES volume) and to read the SYSTEM CONFIG file from PMAINT’s CF0 PARM disk (for 3390, parm disk 1 on the VMCOM1 volume; for FBA, parm disk 4 on the M01RES volume).

The following SALIPL record was written to the IPL volume:

For 3390:

SALIPL m0xresaddr (EXTENT 1 IPLPARMS fn=SYSTEM ft=CONFIG pdnum=1 pdvol=vmcom1addr

For FBA:

SALIPL m0xresaddr (EXTENT 1 IPLPARMS fn=SYSTEM ft=CONFIG pdnum=4

For 3390: If you change the address of the VMCOM1 volume, you will need to run SALIPL to rewrite the IPL record for the system to point to the new VMCOM1 volume address:

SALIPL m0xresaddr (EXTENT 1 IPLPARMS fn=SYSTEM ft=CONFIG pdnum=1 pdvol= newvmcom1addr

For FBA: If you IPL first level, enter the edevice number of the RES volume (M01RES address) in the IPL PARAMETERS section with the PDVOL=edevicenumber statement

Where you can IPL your systems

When installation is complete the following System_Identifier statements exist in the SYSTEM CONFIG file on the CF0 PARM disk:

• Non-SSI:

  System_Identifier ** systemname

  This statement allows the system to be IPLed from any LPAR or user ID.

• One-member SSI:

  /* System_Identifier LPAR system1 member1name */
  /* System_Identifier LPAR @LLU-2 @@MEMSLOT2 */
Default system information

The SYSTEM CONFIG file contains a System_Identifier statement that allows the member to be IPLed from any LPAR or user ID. To prevent the member from being IPLed from anywhere else except on the LPAR/user ID you designated during installation, remove the comments from the appropriate System_Identifier statement and add comments around the System_Identifier * * member1name statement.

* Multimember SSI:

System_Identifier LPAR lpar1 member1
System_Identifier LPAR lpar2 member2
System_Identifier LPAR lpar3 member3
System_Identifier LPAR lpar4 member4

/* System_Identifier * * member4 */

For a multimember SSI, the members can be IPLed only from the LPAR/user ID designated during installation.

For emergency purposes, the CF0 also contains the file INSTALL CONFIG, which will allow member one to be IPLed anywhere:

INSTALL CONFIG

System_Identifier LPAR lpar1 member1
System_Identifier LPAR lpar2 member2
System_Identifier LPAR lpar3 member3
System_Identifier LPAR lpar4 member4

System_Identifier * * member1

Default PARM disk information

The default PARM disks are owned and utilized as follows:

- **CF1**: Owned by MAINT, allocated on M01RES, holds the default production CPLOAD MODULE.
- **CF3**: Owned by MAINT, allocated on M01RES, used as a backup of the CF1 PARM disk.
- **CFD**: Owned by MAINT, allocated on M01RES, a dummy parm disk designed to maintain the EXTENT 1 and 3 values for CF1 and CF3.
- **CF2**: Owned by MAINT640, allocated on 640RL1, used by SERVICE to hold the test CPLOAD MODULE.
- **CF0**: Owned by PMAINT, allocated on VMCOM1, holds the SYSTEM CONFIG file.

Volume ownership

z/VM allows DASD volumes to be owned by an SSI cluster or by a specific member of a SSI cluster or non-SSI system. Installation volumes contain the following ownership information:

- **Non-SSI**:
  - VMCOM1: No ownership
  - VMCOM2: No ownership
  - 640RL1: No ownership
  - 640RL2: No ownership

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For more information on volume ownership, see z/VM: CP Planning and Administration

**Full-pack minidisk definitions**

Each volume used for installation, except those used for paging space, has a full-pack minidisk defined in the default user directory. Full-pack minidisk definitions are required for DDR backups. The 123 minidisk is required to create the object user directory.

- **MAINT**
  
  ```
  MDISK 122 3390 000 END M01S01 MR
  MDISK 123 3390 000 END M01RES MR
  MDISK 124 3390 000 END M01W01 MR
  MDISK 125 3390 000 END M01W02 MR
  MDISK 126 3390 000 END M01W03 MR
  ```

- **MAINT640**
  
  ```
  MDISK 131 3390 000 END 640RL1 MR
  MDISK 132 3390 000 END 640RL2 MR
  MDISK 133 3390 000 END 640RL3 MR
  ```

  ```
  LINK MAINT 122 122 MR
  LINK MAINT 123 123 MR
  LINK MAINT 124 124 MR
  LINK MAINT 125 125 MR
  LINK MAINT 126 126 MR
  LINK PMAINT 141 141 MR
  LINK PMAINT 142 142 MR
  ```

- **PMAINT**
Default system information

MDISK 141 3390 000 END VMCOM1 MR
MDISK 142 3390 000 END VMCOM2 MR

Miscellaneous

A new user ID, OPN CLOUD, was included on your 640 system. The OPN CLOUD 100 and 101 minidisks are defined but not initialized. These disks will be used by the IBM z/VM Cloud Manager Appliance and will be initialized when CMA is installed.
Chapter 8. Create IPLable utilities

In this chapter, you will:

- Create IPLable utilities.
Create a standalone dump tape

**Step 1. Create a stand-alone dump device**

z/VM includes a stand-alone dump utility that you tailor according to your installation's configuration, using CMS. After you install z/VM, you should create the stand-alone dump utility and place it on DASD for emergency use. If, after a system failure, CP cannot create an abend dump, you can use the stand-alone dump on DASD to dump all of storage.

For instructions on creating a stand-alone dump utility, see [z/VM: CP Planning and Administration](#).

**Note:** Do not use a stand-alone dump from a previous release of z/VM to attempt to dump your V6.4 system.
Step 2. Create an IPLable DDR utility tape

You can optionally create an IPLable DDR utility tape. This tape can be used to IPL DDR stand-alone if you need to run DDR when CMS (and the DDR Module) is not available. If you choose to create the IPLable DDR utility tape, continue with this step. Otherwise, go to “Step 3. Create an IPLable ICKDSF utility tape” on page 90.

Note: IBM has included the DDR MODULE on the MAINT CF1 minidisk. This DDR MODULE can be selected and IPLed from the SALIPL screen. For information, see z/VM: System Operation.

1. Attach a tape drive (tapeaddr) to MAINT640 at virtual device address 181.

   ```
   attach tapeaddr = 181
   TAPE 0181 ATTACHED
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

2. Mount a tape, to be used for the IPLable DDR utility, on the tape drive attached at virtual device address 181.

3. Access the 193 minidisk in read/write mode as file mode Z.

   ```
   access 193 z
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

4. Load the DDRXA utility to tape.

   ```
   utility utiltape ddrxa
   Rewind complete
   IUGWUT8317I MOVING IPL DDRXA TO TAPE
   IUGWUT8318I THE IPL DDRXA PROGRAM IS
   ON TAPE FILE NUMBER 1
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

5. Rewind the DDR utility tape attached at virtual device address 181.

   ```
   rewind 181
   Rewind complete
   ```

6. IPL the tape and answer the prompts from DDRXA to verify the tape contents. For information about DDRXA, see z/VM: CP Commands and Utilities Reference and z/VM: System Operation.

   ```
   ipl 181 clear
   z/VM DASD DUMP/RESTORE PROGRAM
   ENTER CARD READER ADDRESS OR CONTROL STATEMENTS
   ENTER:
   ```

   CLEAR is necessary. Do not omit it.

   Wait a few moments for DDRXA to prompt you. If a prompt does not appear, press Enter.

   This message verifies that IPLable DDRXA has been written to the tape.

7. IPL CMS.

   ```
   #cp ipl cms
   z/VM V6.4.8 yyyy-mm-dd hh:mn
   ENTER
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

8. Rewind the tape and store for future use.

   ```
   tape run
   ```
Create an IPLable ICKDSF utility tape

Step 3. Create an IPLable ICKDSF utility tape

You can optionally create an IPLable ICKDSF utility tape. This tape can be used to IPL ICKDSF stand-alone if you need to run ICKDSF when the ICKDSF module is not available. If you choose to create the IPLable ICKDSF utility tape, continue with this step. Otherwise, go to “Step 1. Create a stand-alone dump device” on page 88.

Note: IBM has included the ICKDSF MODULE on the MAINT CF1 minidisk. This ICKDSF MODULE can be selected and IPLed from the SALIPL screen. For information, see z/VM: System Operation.

1. Attach a tape drive (tapeaddr) to MAINT640 at virtual device address 181.

   ```
   attach tapeaddr * 181
   TAPE 0181 ATTACHED
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

2. Mount a tape, to be used for the IPLable ICKDSF utility, on the tape drive attached at virtual device address 181.

3. Access the 193 minidisk in read/write mode as file mode Z.

   ```
   access 193 z
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

4. Load the ICKDSF utility to tape.

   ```
   utility utiltape dsf
   Rewind complete
   IUGWUT8317I MOVING ICKSADF COREIMAG TO TAPE
   IUGWUT8318I THE ICKSADF COREIMAG PROGRAM IS
   ON TAPE FILE NUMBER 1
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

5. Rewind the ICKDSF utility tape attached at virtual device address 181.

   ```
   rewind 181
   Rewind complete
   ```

6. IPL the tape and answer the prompts from ICKDSF to verify the tape contents. For information about ICKDSF, see Device Support Facilities: User’s Guide and Reference.

   ```
   ipl 181 clear
   ```
   CLEAR is necessary. Do not omit it.
   Wait a few moments for ICKDSF to prompt you. If a prompt does not appear, press Enter.
   This message tells you that the Device Support Facilities (ICKDSF) is loaded and ready.

   ```
   console
   CONSOLE
   ICK006E DEFINE OUTPUT DEVICE, REPLY
   'DDDO,CUU' OR 'CONSOLE'
   ENTER INPUT/COMMAND:
   ```

7. IPL CMS.
Create an IPLable ICKDSF utility tape

#cp ipl cms
z/VM V6.4.0  yyyy-mm-dd hh:mm

ENTER
Ready; T=n.nn/n.nn hh:mm:ss

8. Rewind the tape and store for future use.

tape run
Create an IPLable ICKDSF utility tape
Chapter 9. Configure an initial network connection and back up the system

In this chapter, you will:

- Configure a basic TCP/IP network connection.
- Optionally back up the system.
Configure TCP/IP for an initial network connection

Step 1. Configure TCP/IP for an initial network connection

You can optionally create a minimal TCP/IP configuration that establishes basic connectivity to your IP network. The TCP/IP configuration created in this step provides only a basic IP network connection for your z/VM host. In addition, this configuration is suitable for installations that employ only static (as opposed to dynamic) network routes.

Note: The IP configuration wizard supports real network devices only. If you plan on using virtual network devices for TCP/IP, they must be configured manually. See z/VM: TCP/IP Planning and Customization.

If you choose to configure a basic IP network connection for your z/VM host at this time, continue with this step. Otherwise, go to “Step 2. Optionally back up the system” on page 96.

Note: If you are using QDIO Layer 2 for the network interface in IPWIZARD, you need to add or update the VMLAN MACPREFIX statement in your SYSTEM CONFIG file to define a unique MAC address prefix for this system. If you are installing a multimember SSI, the VMLAN MACPREFIX and USERPREFIX must be configured in each SSI member. For more information, see “Media Access Control (MAC) Address” in z/VM: Connectivity and the VMLAN statement in z/VM: CP Planning and Administration. If changes are made to your SYSTEM CONFIG file, the z/VM image must be re-IPLed so that the statements take effect.

For details about any DTCIPW messages you might receive while running IPWIZARD, see z/VM: TCP/IP Messages and Codes.

To establish a TCP/IP configuration that provides more comprehensive TCP/IP services, after you have completed your z/VM installation, see z/VM: TCP/IP Planning and Customization.

If you are going to use z/VM: Getting Started with Linux on z Systems to set up your Linux on z Systems images, skip this step and go to “Step 2. Optionally back up the system” on page 96.

If you came to this step from z/VM: Getting Started with Linux on z Systems, continue with this step and then return to z/VM: Getting Started with Linux on z Systems.

Perform the following steps to configure TCP/IP for an initial network connection.

Before you begin: You should have completed the TCP/IP configuration worksheets in Appendix K, “Basic TCP/IP Connectivity Worksheets,” on page 273. If you have not done so, gather the necessary information from your network system administrator and complete the worksheets before you continue.

1. Log on to the system/member you are going to configure as MAINT640.

   logon maint640
   :
   Ready; T=n.nn/n.nn hh:mm:ss

2. Access the minidisk 193 as file mode E.

   access 193 e
   Ready; T=n.nn/n.nn hh:mm:ss

3. Run IPWIZARD.

   ipwizard
### z/VM TCP/IP Configuration Wizard

The items that follow describe your z/VM host.

- User ID of VM TCP/IP stack virtual machine: TCPIP
  - Host name: _____________________
  - Domain name: _____________________
  - Gateway IP address: ________________________
  - DNS IP Addresses:
    1) ________________________
    2) ________________________
    3) ________________________

PF1 = HELP PF3 = QUIT PF8 = Continue ENTER = Refresh

---


5. Fill in the General Interface Configuration Panel and press F8 to continue. The panel content will depend on whether IPv4 or IPv6 is to be used.

6. Fill in the Interface Configuration Panel and press F5 to process. The panel content will depend on which interface type is to be used.

7. IPWIZARD attempts to create the TCP/IP configuration files. If the TCPIP user ID is logged on, IPWIZARD asks if you want to restart TCP/IP and continue processing.

   DTCIPW2508I The TCP/IP stack (TCPIP) must be restarted as part of this procedure. Would you like to restart TCP/IP and continue?

   Enter 0 (No), 1 (Yes)

   If you continue, IPWIZARD tests the information you provided and returns any errors that occurred. If no errors are encountered, TCP/IP configuration files containing the network information you provided are created. For additional information on configuring TCP/IP, see z/VM: TCP/IP Planning and Customization.

8. The PROFILE EXEC on the AUTOLOG1 191 minidisk contains a commented-out XAUTOLOG statement for TCPIP. Removing the comment characters around the statement will autolog the TCPIP server during CP IPL.

   link autolog1 191 999 wr
   access 999 z
   xedit profile exec z

   Remove the comment characters from this line:

   /* "PIPE CP XAUTOLOG TCPIP" */

   The line should now look like this:

   "PIPE CP XAUTOLOG TCPIP"

   Then:

   file release z (detach)

9. **If you have a multimember SSI cluster,** log on as MAINT640 on each member and repeat substeps 2 through 8 to configure a basic IP network connection for each member, using the corresponding tables from Appendix K, “Basic TCP/IP Connectivity Worksheets,” on page 273.
Step 2. Optionally back up the system

If you choose to back up your system at this time, use your site backup procedures or else see one of the following:

- Appendix D, “Back up the named saved systems and segments to tape,” on page 255
- Appendix E, “Back up the z/VM system to tape,” on page 257
- Appendix F, “Back up the z/VM system to DASD,” on page 261

What to do next

If you wish to use the IBM migration procedure, continue to Chapter 10, “Plan your traditional migration,” on page 97. Otherwise, skip to Chapter 14, “Preinstalled licensed products and features,” on page 131.
Chapter 10. Plan your traditional migration

In this chapter, you will:

- Review migration requirements for a traditional migration.
- Complete migration worksheets.
Traditional migration overview

Rather than starting from scratch when you upgrade from your current system, you probably want to transfer and adjust your current information for use on the new system. Migration is the transfer and adjustment of information required to upgrade from one release to another.

Information you might want to transfer includes:
- Customized files
- Local modifications
- Service
- User-created files
- Saved segment definitions
- Spool files
- User directory entries
- SFS file pool servers
- Application programs

The z/VM migration procedure automates the transfer of the following types of files from the current to new system:
- Customized files as defined in the product’s migration part table (prodid MIGPerm)
- Local modifications for all products
- Service for products that are at the same release level in the new z/VM deliverable
- User-created files that reside on selected disks as defined in the product’s migration disks table (prodid MIGDerm)

During the migration process, you will be informed of additional actions required to complete migration (such as reworking local modifications and customized parts) to reconcile differences between the two releases.

Additional tasks must be performed after this procedure completes in order to migrate the following:
- Parm disks
- User directory
- Networking and connectivity
- Segments
- Spool space
- Security manager databases
- Directory manager databases
- Products and databases not preinstalled on the z/VM installation media

For more information, see z/VM: Migration Guide and product-specific program directories.
Step 1. Review and comply with the requirements

Restrictions:

1. The z/VM traditional migration procedure is supported only to migrate a V5.4 system to V6.4. To migrate your V5.4 system to an SSI, using the MIGRATE procedure requires a two-step process. First, you must install a non-SSI system and use this procedure to migrate to the new non-SSI system. Once you have completed the migration, you can convert your non-SSI z/VM system to the first member of a z/VM SSI cluster. (See z/VM: CP Planning and Administration for more information.)

The z/VM migration procedure supports only the components and products that comprise the z/VM deliverable and can be used only to transfer files from a V5.4 system. The procedure should be run immediately after completing your traditional installation, prior to enabling or customizing any components on the new system.

If you are not going to use this procedure or do not satisfy these restrictions, skip to Chapter 14, “Preinstalled licensed products and features,” on page 131.

1. To use this migration procedure you must meet these requirements on your first-level V5.4 system (referred to as your current system).
   - General
     - Each customizable file must reside on the disk specified for that part in the product documentation.
     - Unless specifically documented to do otherwise, the VMSES/E local modification procedures must have been used to customize any IBM-supplied parts. The VMSES/E LOCALMOD command, which simplifies creation and reworking of local modifications, has been provided with past releases of z/VM to assist with such changes.
     - If you use a storage management tool (for example DFSMS) you need to make sure that the auto-recall function is turned on so that stored files are available before running these procedures.
     - You must not have removed any user IDs, minidisks, products, or components shipped with z/VM.
   - PPFs
     - The variable labels in the DCL section of a product’s PPF must not be changed.
     - If you have changed a user ID, minidisk address, or SFS directory definition you must override all PPFs that contain the user ID, minidisk address, or SFS directory.
     - If you created PPF overrides for the preinstalled components, products or features of z/VM, then you must override the P2P component in the SERVP2P $PPF file. Your PPF override names must be in the VM SYSSUF software inventory file.
   - If any preinstalled products reside in SFS on your current system:
     - A TSAF collection will be used to allow file pool access.
     - The system name for your new z/VM V6.4 system must be different from the system name of your current z/VM V5.4 system.
     - If the user ID TSAFVM is running (either online or disconnected), then it will be used for the TSAF collection. If it is not running you will be prompted for a user ID to use for the TSAF collection.
     - The TSAF collection user ID must have a 191 minidisk, accessed as file mode A. An SFS directory cannot be used.
     - Enroll the user ID MAINT640 as an administrator of the filepool where your products are installed. (The default is VMSYS.)

2. Requirements for the user ID on your current system where you will run these procedures.
Review and comply with the requirements

- The user ID must be MAINT or a user ID with privilege classes and authorizations equivalent to MAINT.
- The VMSES/E software inventory disk needs to be linked (default is 51D).
- The user ID must have a 191 minidisk, accessed as file mode A. An SFS directory cannot be used.
- If any preinstalled products reside in SFS, the user ID must have SFS administration authority to all file pools that contains these products. Use the command QUERY ENROLL ADMIN filepool to determine which user IDs are enrolled as administrators for filepool filepool.

3. Considerations for the version 6 release 4 system (referred to as your new system).
   - The new system must be running second-level on the current system in order to run the migration tools.
   - If any pre-installed products reside in SFS on your current system, the system name for your new z/VM V6.4 system must be different from the system name of your current z/VM V5.4 system.
   - If you have increased the size of any disk shipped on the z/VM installation media on the current system (unless instructed to do so by IBM Service), you might need to increase the size of that disk on the new system before migration.
   - Do not make any changes to your new system before using these migration procedures other than applying an RSU. Do not customize servers or file pools. Do not customize files or enable products or features on the new system before you use this migration procedure. The one exception is customizing files using the IPWIZARD.

4. To maintain migration compliance and be able to use the z/VM migration procedure in the future:
   - Always use the VMSES/E local modification procedures to alter, modify or customize any IBM-supplied parts, unless it is specifically documented to do otherwise. The LOCALMOD command, which simplifies the creation and reworking of local modifications, is supplied with VMSES/E to assist with making such changes.
   - If you want to use an IBM-supplied SFS for your own data, use VMSYSU. Do not use VMSYS, VMPFSD, or VMSYSR.
   - Additional minidisks should not be defined on the DASD volumes used for the installation defined volumes. The default labels for:
     - z/VM V5.4 are 540RES, 540W01, and 540W02
     - z/VM V6.4 are M01RES, M01W01, M01W02, M01W03, 640RL1, 640RL2, 640RL3, VMCOM1, and VMCOM2.
Step 2. Complete the migration worksheet

1. Record the addresses of your V6.4 DASD.
2. Select the current system user ID you will use to run these procedures. Verify that this user ID meets the following requirements:
   • The user ID must be MAINT or a user ID with privilege classes and authorizations equivalent to MAINT
   • The user ID must have a 191 minidisk, accessed as file mode A. An SFS directory cannot be used.
   • If any preinstalled products reside in SFS on your current system, the first-level user ID must have SFS administration authority to all file pools that contain these products.
3. If no preinstalled products reside in SFS on your current system, record no in the table and skip to substep 4. Otherwise record yes and complete the SFS section of the Migration Table
4. If you use a storage management tool, record a yes in the table and complete the auto-recall question; otherwise record no in the table
Complete the migration worksheet

Table 9. Migration Worksheet

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>z/VM V6.4 system DASD addresses:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current system user ID you will use to run these procedures</td>
<td>______</td>
<td></td>
</tr>
<tr>
<td><strong>SFS questions: (current system)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preinstalled products reside in SFS (yes or no)</td>
<td>______</td>
<td>If yes, answer the remaining SFS questions.</td>
</tr>
<tr>
<td>TSAF collection user ID</td>
<td>______</td>
<td></td>
</tr>
<tr>
<td>TSAF user ID has a 191 (A) on minidisk not in SFS (yes or no)</td>
<td>______</td>
<td>If no, a 191 disk must be defined before continuing.</td>
</tr>
<tr>
<td><strong>Additional questions:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you use a storage management tool? (yes or no)</td>
<td>______</td>
<td></td>
</tr>
<tr>
<td>If yes, is the auto-recall function turned on so that stored files are available? (yes or no)</td>
<td>______</td>
<td>If no, the function must be turned on before continuing</td>
</tr>
</tbody>
</table>
Chapter 11. Set up for traditional migration

In this chapter, you will:

- IPL the new z/VM V6.4 system.
- Set up for migration.
- Run MIGLINK.
IPL the new z/VM system

Step 1. IPL the new z/VM system

Before you begin: You need to complete the migration worksheet (Table 9 on page 102) and review all migration requirements listed in “Step 1. Review and comply with the requirements” on page 99.

1. Log on to the current system user ID you have selected to use for the migration process. Make sure the user ID meets the migration user ID requirements in “Step 1. Review and comply with the requirements” on page 99, substep 2 on page 99.

2. Attach the DASD used to install the new z/VM V6.4 system. Issue the following ATTACH command for each DASD listed on the migration worksheet (Table 9 on page 102):

   ```
   attach dasdaddr *
   DASD dasdaddr ATTACHED TO userid dasdaddr
   :
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

3. IPL the new z/VM V6.4 system.
   a. Reset the virtual machine.

      ```
      system clear
      Storage cleared - system reset.
      ```

   b. Make sure the z/VM system will recognize your terminal as a 3277, 3278, or 3279.

      ```
      terminal commode 3270
      ```

   c. Verify that you have 128 MB of virtual storage. If you have less than 128 MB of virtual storage, issue the DEFINE command to set your virtual storage to 128 MB.

      ```
      query virtual storage
      STORAGE = nnnnM
      define storage 128M
      STORAGE = 128M
      Storage cleared - system reset
      ```

   d. Set the virtual machine mode to ESA.

      ```
      set machine esa
      ```

   e. Query the console to determine the virtual console address (consaddr). This address is required in the next substep.

      ```
      query console
      CONS conssaddr ON LDEV nnnn TERM START
          conssaddr CL T NOCONT NOHOLD COPY 001 READY FORM STDN
          conssaddr TO userid dev DIST nnnn FLASHC 000 DEST OFF
          conssaddr FLASH CHAR MDFY 0 FCB LPP OFF
          conssaddr 3270 NOEOF OPEN nnnn NOKEEP NOMSG NONAME
          conssaddr SUBCHANNEL = nnnn
      ```

   f. Define the console to virtual address 20.

      ```
      define conssaddr 20
      CONS 0020 DEFINED
      ```
IPL the new z/VM system

h. Start the system using FORCE NOAUTOLOG.

   force noautolog

i. Do not set the TOD clock at this time. Enter no at the prompt.

   NOW hh:mm:ss timezone weekday yyyy-mm-dd
   Change TOD clock (yes|no)
   no

   CP logs on the primary system operator user ID (OPERATOR).
IPL the new z/VM system

hh:mm:ss The directory on volume lblres at address nnnn has been brought online.

hh:mm:ss HCPCRC8082I Accounting records are accumulated for userid DISKACNT

j. Disconnect from the OPERATOR user ID.

disconnect
DISCONNECT AT hh:mm:ss timezone weekday mm/dd/yy

Press enter or clear key to continue

k. Log on as MAINT640.

logon maint640

The default password for MAINT640 is WD5JU8QP.
Step 2. Set up for migration

1. Run MIGSETUP to copy migration tools to the 191 disk of your current system user ID. If you receive any error messages during MIGSETUP processing, look up the message in [z/VM: CP Messages and Codes] and take the appropriate action, and run the command again.

   access 493 C
   DMSACC724I 493 replaces C(2CC)
   Ready;

   migsetup
   IUGMSUB392I MIGSETUP EXEC ENDED SUCCESSFULLY
   Ready;

2. Update the SYSTEM NETID file on the MAINT 190 disk. If you have components on your current or new system installed in the Shared File System, you need to update the SYSTEM NETID file on your new system to include the name of your new system. This name must be different from the name of your current system.

3. Shut down the V6.4 system.

   shutdown
   SYSTEM SHUTDOWN STARTED
   HCPWRP963I STARTING SHUTDOWN STEP ...... - ......

   :;
   HCPWRP963I STARTING SHUTDOWN STEP ...... - ......

   HCPWRP962I VM SHUTDOWN COMPLETED IN n SEC
   HCPWRP963I STARTING SHUTDOWN STEP SVADV - DEACTIVATE TERMINATION SAVE AREAS
   HCPWRP961W SYSTEM SHUTDOWN COMPLETE
   HCPGIR450W CP entered; disabled wait PSW 00000000 00000000 00000000 00000000

4. IPL CMS on your current system user ID.

   ipl cms
   z/VM Vn.n.0

   ENTER
   Ready;
Run MIGLINK

Step 3. Run MIGLINK

1. Access the VMSES/E system inventory disk.

   ```
   access 51D d
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

2. Run MIGLINK to establish the appropriate minidisk or SFS environment on your current system. If you receive any error messages during MIGLINK processing, look up the message in [z/VM: CP Messages and Codes](z/VM%3AV6.4%20Installation%20Guide) take the appropriate action, and run the command again.

   ```
   miglink
   (You get the following prompt only if products reside in SFS on your current system)

   IUGMLK8309R A TSAF COLLECTION NEEDS TO BE ESTABLISHED.
   ONLY ONE TSAF COLLECTION CAN BE ACTIVE AT A TIME. IF TSAF IS CURRENTLY RUNNING ON A USERID DIFFERENT THAN 'TSAFVM' YOU NEED TO ENTER THAT USERID.
   ENTER:

   0 TO QUIT
   1 TO USE TSAFVM
   OR
   YOUR TSAF USERID

   {0|1|userid}

   IUGMLK8392I MIGLINK EXEC ENDED SUCCESSFULLY
   Ready;
   ```

**Note:** If you log off your current system user ID at this point, when you log back on, you must attach your new system DASD and run MIGLINK again to establish your environment.
Step 4. IPL the new z/VM system

1. Reset the virtual machine.
   
   ```
   system clear
   Storage cleared - system reset.
   ```

2. Make sure the z/VM system will recognize your terminal as a 3277, 3278, or 3279.
   
   ```
   terminal commode 3270
   ```

3. Verify that you have 128 MB of virtual storage. If you have less than 128 MB of virtual storage, issue the DEFINE command to set your virtual storage to 128 MB.
   
   ```
   query virtual storage
   STORAGE = nnnnM
   define storage 128M
   STORAGE = 128M
   Storage cleared - system reset
   ```

4. Set the virtual machine mode to ESA.
   
   ```
   set machine esa
   ```

5. Query the console to determine the virtual console address (consaddr). This address is required in the next substep.
   
   ```
   query console
   CONS consaddr ON LDEV nnnn TERM START
   consaddr CL T NOCONT NOHOLD COPY 001 READY FORM STDN
   consaddr TO userid dev DIST nnnn FLASHC 000 DEST OFF
   consaddr FLASH CHAR MDY 0 FCB LPP OFF
   consaddr 3270 NOEOF OPEN nnnn NOKEEP NOMSG NONAME
   consaddr SUBCHANNEL = nnnn
   ```

6. Define the console to virtual address 20.
   
   ```
   define consaddr 20
   CONS 0020 DEFINED
   ```

7. IPL the new z/VM system that was loaded to the system residence device (M01RES).
   
   ```
   ipl dasdaddr clear
   ```
   CLEAR is necessary. Do not omit it.
   
   ```
   dasdaddr
   Address of the system residence device (M01RES).
   ```
IPL the new z/VM system

hh:mm:ss z/VM V6.4, SERVICE LEVEL nnnn (64-BIT)

hh:mm:ss SYSTEM NUCLEUS CREATED ON yyyy-mm-dd AT hh:mm:ss, LOADED FROM lblres
hh:mm:ss
hh:mm:ss *******************************************LICENSED MATERIALS - PROPERTY OF IBM*
hh:mm:ss * 5741-A07 (C) COPYRIGHT IBM CORP. 1983, 2016. ALL RIGHTS *
hh:mm:ss * RESERVED. US GOVERNMENT USERS RESTRICTED RIGHTS - USE *
hh:mm:ss * DUPLICATION OR DISCLOSURE RESTRICTED BY GSA ADP SCHEDULE *
hh:mm:ss * CONTRACT WITH IBM CORP. *
hh:mm:ss *
hh:mm:ss * TRADEMARK OF INTERNATIONAL BUSINESS MACHINES *

hh:mm:ss HCPCZCO6718I Using parm disk 1 on volume lblres (device xxxx).
hh:mm:ss HCPCZO6718I Parm disk resides on cylinders xxx through xxx.
hh:mm:ss HCPMLM3016I Management by the Unified Resource Manager is not available for this system
You might receive an informational message, HCPISU951I, about volumes not mounted. If you are not using those volume labels, ignore this message.

Attention: If you received informational message HCPIIS954I, you have volumes with duplicate labels. You must correct this error before continuing.

To correct this error:
1. Make a note of the DASD addresses of the volumes with duplicate labels.
2. At the start prompt, issue SHUTDOWN.
3. Detach or relabel the volumes with duplicate labels that are not to be used.
4. IPL the system again. See substep 8 on page 109

hh:mm:ss Start ((Warm|Force|COLD|CLEAN) (DRAIN) (DISABLE) (NODIRECT) (NOAUTOLOG)) or (SHUTDOWN)

8. Start the system using FORCE DRAIN NOAUTOLOG.

force drain noautolog

Use NOAUTOLOG because you cannot have the servers and all user IDs logged on.

9. Do not set the TOD clock at this time. Enter no at the prompt.

NOW hh:mm:ss timezone weekday yyyy-mm-dd
Change TOD clock (yes|no)
no
CP logs on the primary system operator user ID (OPERATOR).

hh:mm:ss The directory on volume lblres at address nnnn has been brought online.
:

10. Disconnect from the OPERATOR user ID.
11. Log on as MAINT640.

```
logon maint640
```

The default password for MAINT640 is WD5JU8QP.
IPL the new z/VM system
Chapter 12. Migrate

In this chapter, you will:

- Run MIGRATE.
- View the MIGRATE message log.
Step 1. Run MIGRATE

Run MIGRATE to migrate minidisk and shared file data for all preinstalled products.

migrate all 540
Ready;

Note: The MIGRATE command copies two obsolete files from z/VM 540 to the new 640 CP samples disk. These two files should be erased from the MAINT640 2C2 disk (VMPSFS:MAINT640.CPDV:SAMPLE).

- SCSIDISC SAMPEXEC
- RXSCSIFM SAMPMOD

Messages received from MIGRATE are logged in the $VMFMIG $MSGLOG file.

If you receive a return code of zero, skip to Chapter 13, “Place migrated parts into production,” on page 117. Otherwise, continue with “Step 2. View the MIGRATE message log” on page 115.
Step 2. View the MIGRATE message log

View the MIGRATE message log and handle any nonzero return codes. Base your actions on the following table:

<table>
<thead>
<tr>
<th>If you received . . .</th>
<th>Then . . .</th>
</tr>
</thead>
<tbody>
<tr>
<td>Return code 4</td>
<td>1. Issue VMFVIEW MIGRATE. You can ignore any warning messages that appear in the notes below. Take appropriate action based on other warning messages you receive. Messages that start with 'VMF' are documented in <code>/VM: Other Components Messages and Codes</code> and messages that start with 'DTC' are documented in <code>/VM: TCP/IP Messages and Codes</code>. Messages that start with 'VMF' may be viewed by issuing HELP followed by the message number.</td>
</tr>
<tr>
<td></td>
<td>2. Go to <a href="#">Chapter 13, “Place migrated parts into production,” on page 117</a>.</td>
</tr>
<tr>
<td>Return code 6</td>
<td>1. Issue VMFVIEW MIGRATE. You can ignore any warning messages that appear in the notes below. Take appropriate action based on other warning messages you receive. Messages that start with 'VMF' are documented in <code>/VM: Other Components Messages and Codes</code> and messages that start with 'DTC' are documented in <code>/VM: TCP/IP Messages and Codes</code>. Messages that start with 'VMF' may be viewed by issuing HELP followed by the message number.</td>
</tr>
<tr>
<td></td>
<td>2. Use the VMFUPDAT SYSLMOD command to see which customized parts and local modifications you need to rework. Rework the customized parts and local modifications that were identified. For more information, see <code>/VM: VMSES/E Introduction and Reference</code>.</td>
</tr>
<tr>
<td></td>
<td>3. If any pre-installed products reside in SFS on your current system, verify that the SYSTEM NETID file on the MAINT 190 minidisk contains the name of your new system, or has all records commented out.</td>
</tr>
<tr>
<td></td>
<td>4. After you complete the rework, use the VMFUPDAT SYSLMOD command to flag the customized parts and local modification as REWORKED.</td>
</tr>
<tr>
<td></td>
<td>5. Return to <a href="#">“Step 1. Run MIGRATE” on page 114</a> and reissue the MIGRATE ALL command.</td>
</tr>
<tr>
<td>A return code greater than 6</td>
<td>1. Issue VMFVIEW MIGRATE and check for warning and error messages. You can ignore any warning messages in the notes below. Take appropriate action based on other warning messages you receive. Messages that start with 'VMF' are documented in <code>/VM: Other Components Messages and Codes</code> and messages that start with 'DTC' are documented in <code>/VM: TCP/IP Messages and Codes</code>. Messages that start with 'VMF' may be viewed by issuing HELP followed by the message number.</td>
</tr>
<tr>
<td></td>
<td>2. Correct all errors reported in the error messages.</td>
</tr>
<tr>
<td></td>
<td>3. If any pre-installed products reside in SFS on your current system, verify that the SYSTEM NETID file on the MAINT 190 minidisk contains the name of your new system, or has all records commented out.</td>
</tr>
<tr>
<td></td>
<td>4. Return to <a href="#">“Step 1. Run MIGRATE” on page 114</a> and reissue the MIGRATE ALL command.</td>
</tr>
</tbody>
</table>

**Note:** You can ignore the following messages and their associated VMF1966W message:

- DSMLO201W The following names are undefined: ISPLINK ARIPRDI
- DSMLO201W The following names are undefined: DMSDSCSC
- DSMLO201W The following names are undefined: DMSUSRX1 DMSUSRX2
View the MIGRATE message log

- DMSLI0202W Duplicate identifier messages associated with object IOACMAIN MODULE.
- DMSLKD004W Warning messages issued messages associated with objects ILBONBL, ILBONTR, ILBOREC, ILBORNT, ILBOSND, ILBOSNT, and ILBOSSN.
- DMSLI0994W Restrictive RMODE encountered in CSECT CEEM@VOU
- DMSLI0994W Restrictive RMODE encountered in CSECT CEEBLIIA
Chapter 13. Place migrated parts into production

In this chapter, you will:

- Run PUT2PROD, MIGCLEAN, and MIGR51D.
Run PUT2PROD

Step 1. Run PUT2PROD

1. Log on as MAINT640.
   ```
   logon maint640
   |
   Ready; T=n.nn/n.nn hh:mm:ss
   ```
   The default password for MAINT640 is WD5JU8QP.

2. IPL CMS.
   ```
   ipl cms
   |
   z/VM V6.4.0 yyyy-mm-dd hh:mm
   ENTER
   |
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

3. Run PUT2PROD.
   ```
   put2prod
   VMFP2P2760I PUT2PROD processing started
   |
   VMFP2P2760I PUT2PROD processing completed successfully
   |
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

4. Handle a nonzero return code. Base your action on the following table:

<table>
<thead>
<tr>
<th>If you received...</th>
<th>Then...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Return code 4</td>
<td>• Issue VMFVIEW PUT2PROD. You can ignore any warning messages in the</td>
</tr>
<tr>
<td></td>
<td>notes below. Take appropriate action based on other warning messages</td>
</tr>
<tr>
<td></td>
<td>you receive.</td>
</tr>
<tr>
<td>A return code...</td>
<td>1. Issue VMFVIEW PUT2PROD and check for warning and error messages.</td>
</tr>
<tr>
<td>greater than 4</td>
<td>2. You can ignore any warning messages in the notes below. Take</td>
</tr>
<tr>
<td></td>
<td>appropriate action based on other warning messages you receive.</td>
</tr>
<tr>
<td></td>
<td>3. Correct all errors reported in the error messages.</td>
</tr>
<tr>
<td></td>
<td>4. Issue IPL CMS.</td>
</tr>
<tr>
<td></td>
<td>5. Issue PUT2PROD.</td>
</tr>
<tr>
<td></td>
<td>6. If you receive a nonzero return code, repeat substep 4</td>
</tr>
</tbody>
</table>

Note: You can ignore the following:

- DMSDCS1083E Saved segment $SDMY$$ does not exist
- DMSWLGG292W Text data will be loaded at '20000'x in user area; user data may be overwritten.
Step 2. Run PUT2PROD to re-save CMS

1. Log on as MAINT640.

   logon maint640
   :
   Ready; T=n.nn/n.nn hh:mm:ss

   The default password for MAINT640 is WD5JU8QP.

2. IPL CMS.

   ipl cms
   z/VM V6.4.0 yyyy-mm-dd hh:mm

   ENTER
   Ready; T=n.nn/n.nn hh:mm:ss

3. Run PUT2PROD to re-save CMS.

   put2prod savecms
   VMFP2P2760I PUT2PROD processing started
   :
   VMFP2P2760I PUT2PROD processing completed successfully
   Ready; T=n.nn/n.nn hh:mm:ss

4. Handle a nonzero return code. Base your action on the following table:

<table>
<thead>
<tr>
<th>If you received ...</th>
<th>Then ...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Return code 4</td>
<td>• Issue VMFVIEW PUT2PROD. You can ignore any warning messages in the notes below. Take appropriate action based on other warning messages you receive.</td>
</tr>
</tbody>
</table>

   A return code greater than 4
   1. Issue VMFVIEW PUT2PROD and check for warning and error messages.
   2. You can ignore any warning messages in the notes below. Take appropriate action based on other warning messages you receive.
   3. Correct all errors reported in the error messages.
   4. Issue IPL CMS.
   5. Issue PUT2PROD.
   6. If you receive a nonzero return code, repeat substep 4.

Note: You can ignore the following:
• DMSDCS1083E Saved segment $$DMY$$ does not exist
• DMSWLG292W Text data will be loaded at '20000'x in user area; user data may be overwritten.
Shut down the new system

Step 3. Shut down the new system

1. Shut down the system.

    **shutdown**
    SYSTEM SHUTDOWN STARTED

    HCPWRP963I STARTING SHUTDOWN STEP ...... - ......
    :
    HCPWRP963I STARTING SHUTDOWN STEP ...... - ......

    HCPWRP962I VM SHUTDOWN COMPLETED IN nn SEC
    HCPWRP963I STARTING SHUTDOWN STEP SVADV - DEACTIVATE TERMINATION SAVE AREAS
    HCPWRP961W SYSTEM SHUTDOWN COMPLETE
    HCPGIR450W CP entered; disabled wait PSW 00020000 00000000 00000000 0000961

2. IPL CMS on your current system user ID.

    **ipl cms**
    z/VM Vv.r.m   yyyy-mm-dd hh:mm

    ENTER
    Ready;
Step 4. Run MIGCLEAN

Run MIGCLEAN to establish your original minidisk and SFS environment.

If you receive any error messages during MIGCLEAN processing, look up the message in e/VM: CP Messages and Codes take the appropriate action, and run the command again.

migclean
IUGMCLB392I MIGCLEAN EXEC ENDED SUCCESSFULLY
Ready;
Step 5. Access the current system software inventory disk

1. Link to the software inventory disk.

   link maint 51d 51d rr
   Ready; T=n.nn/n.nn hh:mm:ss

   The default owner and disk address are MAINT and 51D. If your software inventory disk has a different user ID or address, substitute that user ID and address for MAINT and 51D respectively.

2. Define the current software inventory disk as address FFF.

   define 51D FFF
   DASD OFFF DEFINED
   Ready; T=n.nn/n.nn hh:mm:ss

   If your software inventory disk has an address other than 51D, substitute that disk address for 51D.
Step 6. IPL the new z/VM system

1. Reset the virtual machine.
   
   system clear
   Storage cleared - system reset.

2. Make sure the z/VM system will recognize your terminal as a 3277, 3278, or 3279.
   
   terminal conmode 3270

3. Verify that you have 128 MB of virtual storage. If you have less than 128 MB of virtual storage, issue the DEFINE command to set your virtual storage to 128 MB.
   
   query virtual storage
   STORAGE = nnnnM

   define storage 128M
   STORAGE = 128M
   Storage cleared - system reset

4. Set the virtual machine mode to ESA.
   
   set machine esa

5. Query the console to determine the virtual console address (consaddr). This address is required in the next substep.
   
   query console
   CONS consaddr ON LDEV nnnn TERM START
   consaddr CL T NOCONT NOHOLD COPY 001 READY FORM STDN
   consaddr TO userid dev DIST nnnn FLASHC 000 DEST OFF
   consaddr FLASH CHAR MDY 0 FCB LPP OFF
   consaddr 3270 NOEOF OPEN nnnn NOKEEP NOMSG NONAME
   consaddr SUBCHANNEL = nnnn

6. Define the console to virtual address 20.
   
   define consaddr 20
   CONS 0020 DEFINED

7. IPL the new z/VM system that was loaded to the system residence device (M01RES).
   
   ipl dasdaddr clear
   CLEAR is necessary. Do not omit it.

   dasdaddr
   Address of the system residence device (M01RES).
IPL the new z/VM system

```
hh:mm:ss z/VM V6 R4.0, SERVICE LEVEL nnnn (64-BIT)

hh:mm:ss SYSTEM NUCLEUS CREATED ON yyyy-mm-dd AT hh:mm:ss, LOADED FROM lblres
hh:mm:ss

****************************************************************

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****************************************************************

hh:mm:ss HCPZCO6718I Using parm disk 1 on volume lblres (device xxxx).
hh:mm:ss HCPZCO6718I Parm disk resides on cylinders xxx through xxx.
hh:mm:ss HCPMLM3016I Management by the Unified Resource Manager is not available for this system

You might receive an informational message, HCPISU951I, about volumes not mounted. If you are not using those volume labels, ignore this message.

Attention: If you received informational message HCPISU954I, you have volumes with duplicate labels. You must correct this error before continuing.

To correct this error:
1. Make a note of the DASD addresses of the volumes with duplicate labels.
2. At the start prompt, issue SHUTDOWN.
3. Detach or relabel the volumes with duplicate labels that are not to be used.
4. IPL the system again. See substep on page 123

```

```

```

hh:mm:ss HCPZCO6718I Using parm disk 1 on volume lblres (device xxxx).

hh:mm:ss Start ((Warm|Force|COLD|CLEAN) (DRain) (DIsable) (NODIRect)

hh:mm:ss (NOAUTOlog)) or (SHUTDOWN)

8. Start the system using FORCE DRAIN.

force drain

9. Do not set the TOD clock at this time. Enter no at the prompt.

NOW hh:mm:ss timezone weekday yyyy-mm-dd
Change TOD clock (yes|no)
no

CP logs on the primary system operator user ID (OPERATOR).

hh:mm:ss The directory on volume ZVMSVS at address nnnn has been brought online.

hh:mm:ss HPCRRC8082I Accounting records are accumulated for userid DISKACNT

```

```

hh:mm:ss The directory on volume ZVMSVS at address nnnn has been brought online.

hh:mm:ss HPCRRC8082I Accounting records are accumulated for userid DISKACNT

10. Disconnect from the OPERATOR user ID.

```

```

```

```

```

```
disconnect
DISCONNECT AT hh:mm:ss timezone weekday mm/dd/yy

Press enter or clear key to continue

ENTER
Step 7. Run MIGR51D

1. Log on as MAINT640.

   logon maint640
   
   logon
   maint640
   
   Ready; T=n.nn/n.nn hh:mm:ss

   The default password for MAINT640 is WD5JU8QP.

2. Create a backup copy of your new system software inventory disk (default is 51D) using your site's normal backup procedures.

3. Attach the software inventory disk (defined on your current system user ID as FFF) from your current system.

   attach FFF *
   Ready; T=n.nn/n.nn hh:mm:ss

4. Access the software inventory FFF minidisk as file mode Z.

   access FFF z
   Ready; T=n.nn/n.nn hh:mm:ss

5. Access the new system 51D minidisk as file mode D.

   access 51D d
   Ready; T=n.nn/n.nn hh:mm:ss

6. Access the 493 minidisk as file mode W.

   access 493 w
   Ready; T=n.nn/n.nn hh:mm:ss

7. Run MIGR51D to update the system software inventory files.

   migr51d
   IUGMIX8478R Please enter filemode letter of the
   Software Inventory Disk (51D) from
   the previous release. Press enter
   to Exit.

   z

   The VM Software Inventory Disk (51D) Product Migration panel is displayed.
### VM Software Inventory Disk (SID) Product Migration ###

Set action code AC to D = **Do Not Migrate** or to M = **Migrate** product. Action code I means product is already installed on new SID and cannot be migrated.

<table>
<thead>
<tr>
<th>AC</th>
<th>Compname</th>
<th>ProdId</th>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>DITTO</td>
<td>5654029C</td>
<td>NONE</td>
<td>DITTO/ESA VM 1.2.0</td>
</tr>
<tr>
<td>D</td>
<td></td>
<td>5735NFSQ</td>
<td>ENABLED</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>CMS</td>
<td>5VMCMS40</td>
<td>BUILT</td>
<td>CMS component for z/VM 5.4.0</td>
</tr>
<tr>
<td>D</td>
<td>CP</td>
<td>5VMCP40</td>
<td>BUILT</td>
<td>CP component for z/VM 5.4.0</td>
</tr>
<tr>
<td>D</td>
<td>TCPIP</td>
<td>5VMTCP40</td>
<td>BUILT</td>
<td>TCP/IP LEVEL 540 - TCP/IP Feature</td>
</tr>
<tr>
<td>I</td>
<td>ICKDSF</td>
<td>5684042J</td>
<td>BUILT</td>
<td>ICKDSF DEVICE SUPPORT FACILITIES R17 for CMS</td>
</tr>
</tbody>
</table>

Page 1 of 1

**Notes:**

1. This Product Migration panel is only a sample. Your panels will not list the same products, action codes, status, and description.
2. Products that are preselected as D (Do Not Migrate) should not be changed.
3. If a product is not supported on the new z/VM release, you should enter D (Do Not Migrate) for that product.
4. Before you delete any product, you must determine whether any product that you intend to migrate is dependent on this product. You can use VMFINFO or VMFSIM SYSDEP to determine product dependencies.

**b.** Press F8 to select action codes for all Software Inventory Migration panels before continuing to the next step.

**c.** Press F5 to process the product migration information and display the Segment Migration panel. Depending on the size of your software inventory files, it may take several minutes to process.
d. Enter an action code for each segment listed. For information about the panel and action codes, press F1.
   This Segment Migration panel is only a sample. Your panels will not list the same segments, action codes, status, and description.

e. Press F8 to select action codes for all Software Inventory Segment Migration panels before continuing to the next step.

   **Note:** As of z/VM V6.3, segments HELPSEG and NLSAMENG have been deleted. You should *not* migrate these segments from your current system.

f. Press F5 to process. Depending on the size of your software inventory files, it may take several minutes to process.

8. Release the software inventory disk for your current system (attached as FFF and accessed as filemode Z).

   ```
   release z
   ```

9. MIGR51D updated the V6.4 VMSES/E system software inventory files on your new 51D minidisk to reflect the licensed products installed on your old system that you chose to migrate. You must now migrate all code, user IDs, minidisks, and segments associated with each licensed product reflected in the new system software inventory files. See the documentation for each licensed product for information on the code, user IDs, minidisks, and segments required.
   If the licensed product segments are built by VMSES/E, you must sign on to MAINT640 and enter the following to update some of the other segment files on the system software inventory disk:

   a. Issue VMFSGMAP.

   ```
   vmfsgmap segbld esasegs segblist
   ```
   At this time, you can make further changes to any segment.

   b. On the first panel, enter:

   ```
   segmerge
   ```

   c. Press F5 to save your changes and exit from VMFSGMAP.
The VMFSGMAP and SEGMERGE commands only need to be done once, from one user ID. At this point, the appropriate files on the system software inventory disk are updated. Now you can use the VMFBLD command to build the licensed product segments from the corresponding licensed product installation user IDs. Follow the information in the licensed product program directories.

For example:

```
vmfbld pff segbld esasegs segblist myseg (serviced)
```

To rebuild the CMS segments, see the “Running stand-alone builds” chapter of z/VM: Service Guide

For example:

```
put2prod segments all
```

**Note:** You need to rebuild all of the segments on the new system to update the SYSTEM SEGID file.

You have now completed the automated migration procedure. Continue on to “Step 8. Additional Information” on page 130 for additional migration information.
Step 8. Additional information

Additional migration information that you should be aware of:

1. In addition to the customizable files that were moved from your current system to your new z/VM V6.4 system, some minidisks were migrated. When a minidisk is migrated, all of the files that exist on the minidisk on your current system that did not exist on the minidisk on your new system are copied to the minidisk on the new system. When these files are migrated, message VMFMGR1319W is included in the migration message log, $VMFMIG $MSGLOG.

The following are general guidelines for disk migration:
   • Local and sample disks are migrated.
   • Help disks are not migrated.
   • Base disks are not migrated.
   • PARM disks (MAINTs CF1, CF2, CF3) are not migrated.
   • Apply and delta disks:
     – If the product on the new system is the same release as the current system (OSASF, ICKDSF), the apply and delta disks are migrated.
     – If the product on the new system is a different release than the current system (CP/DV, CMS/REXX, DIRMAINT, GCS, LE, PERFTK, RACF, RSCS, TCPIP, TSAF/AVS, VMHCD, VMSES), the apply and delta disks are not migrated.
   • DirMaint database disks are not migrated.
   • RACF database disks are not migrated.

2. Additional tasks must be performed after this procedure completes in order to migrate the following:
   • Parm disks
   • User directory
   • Networking and connectivity
   • Segments
   • Spool space
   • Security manager databases
   • Directory manager databases
   • Products and databases not preinstalled on the z/VM installation media
   • PROFILE EXEC (files on server machines such as AUTOLOG1 and AUTOLOG2).

See z/VM: Migration Guide and product-specific Program Directories for additional information on migration.
Note: Some of the preinstalled product and features require additional installation steps. You must complete these steps for the product or feature to be completely installed.

The z/VM installation media was built incorporating the following licensed products and features.

Table 10. Preinstalled Licensed Products and Features

<table>
<thead>
<tr>
<th>Product name</th>
<th>Release level</th>
<th>Program number</th>
<th>Is product or feature installed disabled or enabled?</th>
<th>Do I need to configure before using the product or feature?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directory Maintenance Facility</td>
<td>6.4.0</td>
<td>5741-A07</td>
<td>Disabled</td>
<td>Yes</td>
</tr>
<tr>
<td>EREP</td>
<td>3.5.0</td>
<td>5654-260</td>
<td>Enabled</td>
<td>No</td>
</tr>
<tr>
<td>HCD and HCM for z/VM</td>
<td>6.4.0</td>
<td>5741-A07</td>
<td>Enabled</td>
<td>No</td>
</tr>
<tr>
<td>ICKDSF</td>
<td>1.17.0</td>
<td>5684-042</td>
<td>Enabled</td>
<td>No</td>
</tr>
<tr>
<td>OSA/SF</td>
<td>4.4.0</td>
<td>5741-A07</td>
<td>Enabled</td>
<td>Yes</td>
</tr>
<tr>
<td>Performance Toolkit for VM</td>
<td>6.4.0</td>
<td>5741-A07</td>
<td>Disabled</td>
<td>Yes</td>
</tr>
<tr>
<td>RACF Security Server for z/VM</td>
<td>6.4.0</td>
<td>5741-A07</td>
<td>Disabled</td>
<td>Yes</td>
</tr>
<tr>
<td>RSCS Networking for z/VM</td>
<td>6.4.0</td>
<td>5741-A07</td>
<td>Disabled</td>
<td>Yes</td>
</tr>
<tr>
<td>TCP/IP</td>
<td>6.4.0</td>
<td>5741-A07</td>
<td>Enabled</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Notes:
1. This product or feature is not available for customer use unless you have a license for it. To use this product or feature, you must order it as documented in the appropriate program directory.
2. To use this product or feature, it must be configured. For configuration information, see the appropriate program directory.
3. This product can be customized.

For detailed information about a product or feature, see its own documentation. See the "Bibliography" on page 345.

Directory Maintenance Facility

Directory Maintenance Facility provides support for all the z/VM directory statements. DirMaint also provides additional utilities to help manage minidisk assignments and allocations, and provides a level of security regarding command authorizations and password monitoring.

Installation Instructions: The installation of DirMaint is complete. To use DirMaint, it must be enabled and configured. See section “6.0 Installation Instructions” in Directory Maintenance Facility program directory.
Environmental Record Editing and Printing Program

The Environmental Record Editing and Printing Program (EREP) is a diagnostic application program that runs under the MVS™, VM, and VSE operating systems. The purpose of EREP is to help IBM service representatives maintain your data processing installations.

Installation Instructions: No additional installation instructions are required.

Hardware Configuration Definition and Hardware Configuration Manager for z/VM

Hardware Configuration Definition and Hardware Configuration Manager for z/VM (HCD and HCM for z/VM) provides a comprehensive I/O configuration management environment, similar to that available with the z/OS® operating system.

HCM runs on a Microsoft Windows-based personal computer connected to the z/VM system through a TCP/IP network connection. HCM provides a graphical user interface as well as commands to help you configure your system. You supply the needed I/O configuration information to HCM, which processes the information and passes it to HCD.

HCD runs in a z/VM server virtual machine and performs the work of actually creating and changing the hardware and software aspects of your I/O configuration. While HCM provides the primary user interface to HCD, HCD also provides a backup user interface on your z/VM host for certain I/O configuration tasks, in case HCM is not available.

z/VM's original dynamic I/O configuration capabilities are still valid. These consist of a set of system operator commands for changing the IBM Z server's I/O configuration while the system continues to run, or for managing the hardware I/O configuration of all of the logical partitions in your IBM Z server. You now have the choice of either using these commands or else using HCM and HCD to manage your I/O configuration. Note, however, that the use of HCM and HCD is incompatible with the original dynamic I/O configuration capabilities. You should select one method to use for the duration of any given IPL of your z/VM system.

Installation Instructions: The installation of the HCD host code is complete. To install the workstation code (user interface) and customize HCD, see section “6.0 Installation Instructions” in the Hardware Configuration Definition and Hardware Configuration Manager program directory and follow the installation instructions.

Device Support Facilities (ICKDSF)

Device Support Facilities (ICKDSF) is a program you can use to perform functions needed for the installation, use, and maintenance of IBM DASD. You can also use it to perform service functions, error detection, and media maintenance.

Installation Instructions: No additional installation instructions are required.

Open Systems Adapter Support Facility

Open Systems Adapter Support Facility (OSA/SF) lets you customize the integrated Open Systems Adapter (OSA) hardware feature for the OSA modes, change the settable OSA port parameters, and obtain status about the OSA.

OSA/SF has a Java™-based interface, which is called the OSA/SF Graphical User Interface (OSA/SF GUI).
Through the System Authorization Facility (SAF) interface of the system image on which it is running, OSA/SF lets you use the RACF Security Server for z/VM (RACF), or equivalent, to authorize or deny access to OSA/SF commands.

**Installation Instructions:** The installation of the OSA/SF host code is complete. To install the workstation code (OSA/SF user interface) and configure OSA/SF, see section “6.0 Installation Instructions” in the Open Systems Adapter Support Facility program directory and follow the installation instructions.

---

**Performance Toolkit for VM**

Performance Toolkit for VM provides performance management capabilities for VM systems. It is a performance analysis tool for z/VM systems that can be used to detect and diagnose performance problems, analyze system performance, and provide printed reports that show the utilization and response times of key system components. You can also use Performance Toolkit for VM to improve operator efficiency and productivity.

**Installation Instructions:** The installation of Performance Toolkit for VM is complete. To use Performance Toolkit for VM, it must be enabled and configured. See section “6.0 Installation Instructions” in Performance Toolkit for VM program directory.

---

**RACF Security Server for z/VM**

RACF Security Server for z/VM (RACF) is a product that works together with the existing system features of z/VM to provide improved data security for an installation.

**Installation Instructions:** The installation of RACF is complete. To use RACF, it must be enabled and configured. See section “1.0 Introduction” in Resource Access Control Facility (RACF) Security Server program directory.

RACF database requirements:

- For z/VM non-Single System Image (SSI) installation, the primary and backup RACF databases were defined during the install.
- For z/VM SSI installation, you must manually define the primary and backup RACF databases as two 3390 full-pack minidisks. For SSI, it is required that the RACF database be shared between the members of an SSI cluster. See the Sharing RACF Databases in a z/VM Single System Image Cluster section of the z/VM: RACF Security Server System Programmer’s Guide. See also z/VM: CP Planning and Administration for more information on DASD sharing.

---

**Remote Spooling Communications Subsystem (RSCS) Networking for z/VM**

Remote Spooling Communications Subsystem (RSCS) Networking for z/VM lets users send messages, files and mail to coworkers at other systems on their TCP/IP, SNA, or non-SNA network. They can also use RSCS to print documents and issue commands on other systems.

RSCS uses z/VM spooling facilities to store and retrieve data. RSCS can transfer data to other systems (such as z/VM, z/OS, OS/400®, VSE/ESA, UNIX, Linux on z Systems, and AIX/ESA®) that support Network Job Entry (NJE) protocols. NJE connectivity options include TCP/IP, SNA, ESCON, channel to channel, and Binary Synchronous Communication.

RSCS also supports secure data transfer between z/VM spool and a system that is a workstation that supports Remote Job Entry (RJE) or Multileaving RJE (MRJE) protocols. RJE/MRJE connectivity options include SNA, and Binary Synchronous Communication.
Preinstalled licensed products and features

RSCS provides the full range of all possible print service connectivity options. Instead of LPServe, the RSCS server may be chosen to provide an enhanced level of TCP/IP print support, including LPR and LPD. These services allow for intranet and internet print delivery for a system, and also accept print output from those networks. The ability to print data at a workstation printer in a transparent manner is available to end users regardless of how the printer is accessed.

The enhanced level of TCP/IP print support provided by RSCS (LPR, LPD, UFT, and TN3270E) may be used without obtaining a license for RSCS and enabling RSCS. All other RSCS features can only be used after obtaining a license and enabling RSCS.

Installation Instructions: The installation of RSCS is complete. To use RSCS, it must be enabled and configured. See section “6.0 Installation Instructions” in Remote Spooling Communications Subsystem (RSCS) Networking program directory.

Transmission Control Protocol/Internet Protocol for z/VM

Transmission Control Protocol/Internet Protocol for z/VM (TCP/IP) enables z/VM customers to participate in a multivendor, open networking environment using the TCP/IP protocol suite for communications and interoperability. The applications provided in TCP/IP include the ability to transfer files, send mail, log on a remote host, allow access from any other TCP/IP node in the network, and perform other network client and server functions.

Installation Instructions: The installation of TCP/IP is complete. To use TCP/IP, it must be configured. See section “6.0 Installation” in TCP/IP program directory for more information. If you used the IPWIZARD command to initially configure TCP/IP, additional modifications may be required depending on the needs of your installation.

Congratulations!

You have completed z/VM installation. Your system will need to be tailored and there are several planning and administration guides available to aid you. See “Bibliography” on page 345.

Return to the z/VM System Delivery Offering program directory when you are ready to install other licensed products.
Part 4. Upgrade installation

This part contains the procedures to be followed if you are upgrading either an z/VM V6.2 or z/VM 6.3 system or member of an SSI cluster to z/VM V6.4.

Attention: This procedure can only be used to upgrade from either z/VM V6.2 or z/VM 6.3. If you wish to migrate from z/VM V5.4, you must use Part 2, “Traditional installation,” on page 5 to install a z/VM V6.4 system and then follow the migration procedures in Part 3, “Post traditional system installation,” on page 81, referring to the z/VM: Migration Guide as necessary.

In this part, you will:
• Plan your upgrade installation.
• Complete the upgrade installation worksheets.
• Install the z/VM V6.4 work system.
• Upgrade your current system to V6.4.
Chapter 15. Upgrade installation overview

An upgrade installation is used to upgrade a z/VM V6.2 or z/VM V6.3 system or a member of an SSI cluster to z/VM V6.4.

In a traditional installation, a new z/VM release system is installed on a separate set of volumes, after which the data and users from the current running system are migrated to the newly-installed system running the new release.

In an upgrade installation, a work system is installed as a second-level guest of the system that you want to upgrade. The new level of code from the work system is then moved to the system that is being upgraded.

The system to be upgraded can be a non-SSI system, the only member of a single-member SSI cluster, or any member of a multimember SSI cluster.

In a multimember SSI cluster, you will upgrade one member at a time so that there is minimal impact to the other members. Note that you must complete the upgrade for one member before starting the upgrade of the next member.

Restrictions on using the upgrade installation procedure:

- Upgrading from a mixed-release SSI cluster is not allowed. Before beginning the upgrade of a multimember SSI cluster, all members must be running the same release level.
- After one member of the SSI cluster has been upgraded to the new release, no member can be upgraded to a previous release level. For example, if you have a 3-member SSI with all members running z/VM 6.2.0, after you upgrade one member to z/VM 6.4.0, you cannot then upgrade another member to z/VM 6.3.0.

Furthermore, this procedure cannot be used if any of the following changes were made to the system that is to be upgraded:

- The format of the user directory shipped by IBM was changed by replacing identity/subconfig definitions with user entries.
- IBM-supplied USER or IDENTITY names were changed or deleted.
- IBM-supplied minidisk addresses were changed or deleted.
- IBM-supplied minidisks were moved under different user IDs or moved from the subconfig section to the identity section of the user ID.
- The default values in the VMSESE PROFILE file or the VMFINS DEFAULTS file were changed.

Note: The list of IBM-supplied user IDs can be found in Appendix M, “IBM-supplied user IDs with upgrade restrictions,” on page 285.

An upgrade installation is performed using a 2-stage approach, with two separate sets of changes being defined and then made to the system that is being upgraded. The first set of changes, STAGE1, can be made to the system that is being upgraded without disrupting your production workload, other than restarting the IBM-supplied filepools.

After the STAGE1 changes are made, you must stop all normal production work on the system that is being upgraded or move that workload to another system. In an SSI cluster environment, you can relocate production Linux on z Systems workloads from the system that is being upgraded to other members of your cluster before performing STAGE2 activities.
After you have relocated or stopped your workloads, you should create a backup of the system you are upgrading, using your normal backup procedures. You will then be ready to proceed to STAGE2.

When the STAGE2 changes are complete, you will IPL the upgraded system with the new level of z/VM and restart your normal workloads.

The overall workflow of an upgrade installation is as follows:

- **Plan your upgrade installation** for this system and complete the upgrade installation worksheets.
- **Install a z/VM V6.4 work system** for your upgrade installation. Run INSTPLAN, verify your upgrade installation volumes, and then run INSTALL.
- **Create a backup** of the system that is to be upgraded, following your normal backup procedures.
- **Generate the STAGE1 changes file.** Run INSTUPGR with the STAGE1 operand and the PRIME option to create a file containing the specific STAGE1 changes to be made to the system or member that is being upgraded.
- **Make the STAGE1 changes.** Run INSTUPGR with the STAGE1 operand and the COMMIT option to update the system or member that is being upgraded with the changes identified previously. Note that you have the option to complete these changes manually. The VMPSFS, VMSYS, VMSYSU, and VMSYSR servers will be recycled during the STAGE1 commit process.
- **Finish the STAGE1 upgrade.** Before running STAGE2, you will need to review security manager and user directory considerations. If you have any local modifications to components that are upgraded to the new release, you will also need to rework them.
- **Back up the system** that is being upgraded. At this point, all production work running on the system or member that is being upgraded must be stopped or relocated to another member of your cluster and a backup of the system that you are upgrading must be created.
- **Generate the STAGE2 changes file.** Run INSTUPGR with the STAGE2 operand and the PRIME option to create a file containing the specific STAGE2 changes to be made to the system or member that is being upgraded.
- **Make the STAGE2 changes.** Run INSTUPGR with the STAGE2 operand and the COMMIT option to update the system or member that is being upgraded with the STAGE2 changes identified previously. Note that, as with the STAGE1 changes, you have the option to complete these changes manually.
- **Finish the upgrade of your system.** To complete the upgrade, you will review updates and considerations, IPL your upgraded system or member, migrate LPs, and perform manual updates.
- **Resume your normal production work.**

If you are upgrading a single system or a single-member SSI cluster, you are done.

If you have additional members in an SSI cluster to upgrade, when you are ready, repeat the process outlined previously, starting with **Chapter 16, “Plan your upgrade installation,” on page 139**, for each additional member. z/VM supports running multiple levels of z/VM in one cluster, so you can run the new level of VM on one member until you are satisfied. When you are ready, you can upgrade the next member.

When all members of your cluster have been upgraded to the new level of z/VM, follow the procedure in **Chapter 26, “Remove the obsolete release,” on page 241**.
Chapter 16. Plan your upgrade installation

In this chapter, you will:

- Plan your upgrade installation.
- Complete the upgrade installation worksheets.
Select your upgrade installation source

Step 1. Select your upgrade installation source

1. The z/VM 6.4.0 product was obtained by ordering electronic delivery or by ordering physical DVDs.
   - If your z/VM product was obtained through electronic delivery:
     - You must follow the instructions that accompanied the deliverable to do one of the following before starting your upgrade installation:
       - Create two physical DVDs, one that contains the product and one that contains the RSU.
       - Load the product and the RSU deliverables into the same FTP server directory.
   - If your z/VM product was obtained on physical DVDs:
     Make sure you have the z/VM product DVD and the installation RSU DVD.

2. An upgrade installation can be done from one of the following sources:
   - A physical DVD mounted in a DVD drive connected through an FTP server (referred to as "From a DVD Drive").
   - An FTP server that has access to a directory where the files from the physical DVDs or electronic deliverables have been or will be stored (referred to as "From an FTP Server").
   - A CMS-formatted minidisk (referred to as "From a VM Minidisk") where the files will be uploaded from the physical DVDs or the FTP server. This CMS-formatted minidisk must be accessible by the installation user ID MIGMAINT.

3. Select your upgrade installation source, keeping in mind the following requirements:
   - If installing from a physical DVD mounted in a DVD drive connected through an FTP server:
     - The FTP server must comply with RFC 959 and RFC 1123.
     - The z/VM FTP installation procedure complies with the FTP client protocol standards described in RFC 959 and RFC 1123. Passive FTP data transfers are used in order to minimize the effects of intervening firewall systems, so your FTP server must support the PASV command.
     - The FTP server must have a TCP/IP communication path to the system you are upgrading.
     - The FTP server must be able to access the DVD drive.
   - If installing from an FTP server that has access to a directory where the files from the physical DVDs or electronic deliverables have been stored:
     - The FTP server must comply with RFC 959 and RFC 1123.
     - The z/VM FTP installation procedure complies with the FTP client protocol standards described in RFC 959 and RFC 1123. Passive FTP data transfers are used in order to minimize the effects of intervening firewall systems, so your FTP server must support the PASV command.
     - The FTP server must have a TCP/IP communication path to the system you are upgrading.
     - The FTP server must be able to access the directory where the contents of the DVDs will be stored.
     - The contents of the z/VM product DVD and the installation RSU DVD must be stored in the same directory.
     - There must be at least 4 GB of available space to store the contents of the z/VM product DVD and the installation RSU DVD.
   - If installing from a CMS-formatted minidisk where the contents of the physical DVD or electronic deliverable will be uploaded:
     - The CMS-formatted minidisk must be the equivalent of at least 6000 cylinders of 3390 DASD space.
     - You must be able to write to the CMS-formatted minidisk to load the files.
     - If you are performing multiple upgrades, you can load the image files to the minidisk once and use those image files for all upgrades. The minidisk must be shared across the systems you are upgrading. For each upgrade, you must install a new work system.
     - This CMS-formatted minidisk must be accessible by the installation user ID MIGMAINT.
Step 2. Review the requirements for using the upgrade procedure

Before performing the z/VM V6.4 upgrade procedure, you must review the following information and make sure all requirements are satisfied.

1. Hardware requirements:
   - A processor supported by the release of z/VM that is running first level and by the release of
     z/VM that is being installed second level. For a list of processors supported by z/VM, see z/VM:
     General Information.
   - Access to a local non-SNA 3270 terminal, or equivalent, configured with at least 32 lines.

2. System software requirements:
   - z/VM V6.2 or V6.3 running in the LPAR you are upgrading.
   - You must make sure you have the appropriate licenses for z/VM V6.4 and for all of the optional features that are enabled in your z/VM V6.2 or V6.3 environment before you upgrade your system.
   - You will be required to verify that you have the licenses needed during upgrade installation processing for:
     - Directory Maintenance Facility (DirMaint).
     - Performance Toolkit for z/VM (PERFTK).
     - RSCS Networking for z/VM (RSCS).
     - IBM z/VM Single System Image Feature (SSI).
   - Language Environment (LE): The level of LE on z/VM V6.2 and V6.3 is LE 6.2.0. The LE 6.2.0 APAR VM65718 (PTF UM34668) must be applied to your system before starting the upgrade. PTF UM34668 can be found on the 6306 RSU; however, the PTF is not on a 620 RSU. To verify that the APAR is installed on your system:
     Log on to MAINTvrm and enter the following command:
     SERVICE LE STATUS VM65718
   - DirMaint (DIRM): If upgrading from z/VM V6.2 and you are running DirMaint, the DirMaint APAR VM65297 (PTF UV61200) must be applied to your system before starting the upgrade. This PTF is on the 6205 RSU. To verify that the APAR is installed on your system:
     Log on to MAINTvrm and enter the following command:
     SERVICE DIRM STATUS VM65297
   - RACF/VM: The 640 level of RACF/VM contains a new level of the RACF database template.
     Before you begin your upgrade, you should verify that your existing RACF database does not contain any corruption. The process for doing this can be found on the z/VM Security and Integrity Resources web page (www.vm.ibm.com/security) in a white paper entitled "Validating and Repairing RACF Database Integrity on z/VM".

3. System requirements:
   - If upgrading a multimember SSI:
     - There must be a shared source for the user directory file.
     - There must be a shared SYSTEM CONFIG file for all members of the cluster.

4. MIGMAINT user ID requirements:
   - You must complete the upgrade installation from the MIGMAINT user ID logged on to the system/member you are upgrading.

Note: The default MIGMAINT user ID defined with z/VM V6.2 or V6.3 meets all of the requirements defined in this substep.
The MIGMAINT user ID requirements are:
   - Privilege classes of at least B and G.
   - Authority to issue the DEFINE MDISK command.
Review the requirements for using the upgrade procedure

- The default privilege class for this command is class A and the directory entry for MIGMAINT must include DEVMAINT on the OPTION statement.
- Administrator authority for the VMSYS, VMPSFS, and VMSYSU filepools.
- Access to the INSTPIPE MODULE that was shipped with your current release of z/VM. The module was shipped on the MAINTvrm 4CC minidisk.
- At least 256 MB of virtual storage.
- A 191 read/write minidisk accessed as file mode A.
- A 2222 read/write minidisk, matching the installation DASD type (3390 or FBA) of the system you are upgrading, that is exactly:
  - 10 cylinders (3390).
  - 14400 512-KB blocks (FBA).
- A 24CC read/write minidisk, matching the installation DASD type (3390 or FBA) of the system you are upgrading. This minidisk cannot be defined on a temporary disk and must be exactly:
  - 10 cylinders (3390).
  - 14400 512-KB blocks (FBA).
- A 2CF0 read/write minidisk, matching the installation DASD type (3390 or FBA) of the system you are upgrading. This minidisk cannot be defined on a temporary disk and must be exactly:
  - 120 cylinders (3390).
  - 172800 512-KB blocks (FBA).

5. Conditional requirements for the MIGMAINT user ID:
   - If you will install your work system using a CMS-formatted minidisk (referred to as "From a VM Minidisk"):
     - MIGMAINT will need to be able to access the CMS-formatted minidisk where the installation files are or will be loaded. If you will be loading the files to the minidisk from MIGMAINT, MIGMAINT must have read/write access to the minidisk.
   - If you are using a directory manager program, such as DirMaint:
     - MIGMAINT must be authorized to issue directory manager commands on behalf of other users without the need to supply a password.
     - Refer to your directory manager documentation for additional requirements.
   - If you are using DirMaint, review the upgrade requirements in the Program Directory for Directory Maintenance Facility for z/VM function level 640, Appendix C.
   - If you are using a security manager program, such as RACF:
     - MIGMAINT must be authorized to link to any minidisk in write mode on the system without the need to supply a password (by specifying ATTRIBUTE=OPERATIONS in the RACF profile for MIGMAINT, for example).
     - Refer to your security manager documentation for additional requirements.
   - If the system being upgraded has products loaded to the VMPSFS filepool and you are upgrading a non-SSI, a one-member SSI, or the first member of a multimember SSI:
     - MIGMAINT needs a 2191 read/write minidisk, which:
       - Must be formatted with 4K blocks.
       - Cannot be defined on a temporary disk.
       - Has enough free space to hold all required SFS files from the work system. The amount of space needed on the 2191 minidisk is determined by which products you have installed to the VMPSFS filepool.
       - Calculate the size needed for the 2191 minidisk, using the following table. Total the number of cylinders or FBA blocks needed for all of the products that the system being upgraded has loaded to the filepool.
       - Make a note of the disk size needed.
Review the requirements for using the upgrade procedure

<table>
<thead>
<tr>
<th>Product</th>
<th>3390 cylinders needed</th>
<th>FBA blocks needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>VM</td>
<td>1167</td>
<td>1680480</td>
</tr>
<tr>
<td>OSA</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>PERFTK</td>
<td>26</td>
<td>37440</td>
</tr>
<tr>
<td>VMHCD</td>
<td>417</td>
<td>600480</td>
</tr>
<tr>
<td>RACF</td>
<td>78</td>
<td>112320</td>
</tr>
<tr>
<td>DIRM</td>
<td>32</td>
<td>46080</td>
</tr>
<tr>
<td>RSCS</td>
<td>46</td>
<td>66240</td>
</tr>
<tr>
<td>ICKDSF</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TCP/IP</td>
<td>206</td>
<td>296640</td>
</tr>
</tbody>
</table>

- Using your normal directory update procedures, define a 2191 minidisk for MIGMAINT that is the size in cylinders or FBA blocks noted previously.
Step 3. Review the DASD requirements

1. For upgrade installation purposes, there are three kinds of DASD volumes: COMMON, RELEASE, and MEMBER.
   - COMMON volumes:
     - A set of volumes shared across an entire SSI cluster. The COMMON volumes that were defined when you installed z/VM have default labels of VMCOM1 and VMCOM2. You might have added additional COMMON (shared) volumes to your cluster.
   - RELEASE volumes:
     - A set of shared volumes for each release of z/VM on your system or in your cluster.
     - Each release of z/VM has its own set of volumes.
     - The default labels for RELEASE volumes are vrmRL1, vrmRL2 and vrmRL3, where vrm is the release level for a specific set of volumes (620, 630, or 640, for example).
     - When upgrading to a new release, a new set of RELEASE volumes will be added to your system or SSI cluster.
   - MEMBER volumes:
     - One set of system volumes for each member, some of which are shared with other members in an SSI cluster.
     - This set of volumes consists of:
       - A system residence volume.
         - The default volume label is M0mRES, where m is the number of the member in the member list on the SSI configuration statement (M01RES for member 1, for example). This volume contains member-specific data such as the warm start and checkpoint areas, the object directory, and member-specific minidisks, and is not shared in an SSI cluster.
       - If the system residence volume is not large enough to contain all of the system/member specific minidisks, more MEMBER volumes are required.
         - The default volume labels are M0mW0n, where m is the number of the member and n is the number of the volume (M01W01 and M01W02, for example). These volumes are not shared in an SSI cluster.
       - Volumes that contain paging space:
         - The CP-owned volumes for paging space are also member-specific and nonshared.
         - The default volume labels are M0mPnn (M01P01 for member 1 and M02P01 for member 2, for example).
       - Volumes that contain spool space:
         - The spool volumes owned by each member are shared with the other members.
         - The default volume labels are M0mSnn (M01S01 for member 1 and M02S01 for member 2, for example).
2. Upgrade installation requires DASD volumes to install a work system. During the upgrade of a non-SSI, a one-member SSI, or the first member of a multimember SSI, the new RELEASE volumes created on the work system will be added to the system that is being upgraded. All DASD volumes that are used to install the work system, except for these RELEASE volumes, will no longer be needed after the upgrade is complete.
3. When upgrading the first member of a multimember SSI, the DASD volumes that will be used as the release volumes for your work system should be volumes that can be attached to all members of your cluster. After the upgrade of the first member of a cluster is complete, the release volumes become permanent volumes in your cluster and should not be reused.
   - If any members of your cluster are running as a second-level guest, you should use MDISK statements with the DEVNO option in the user directory definitions to attach the DASD volumes to all members of your cluster in write mode at the end of your upgrade. See z/VM: CP Planning and Administration for more information about the MDISK statement in the user directory.
4. DASD volumes needed to install work systems:
   - For each system you are upgrading, you will need DASD volumes to install a work system. The DASD type (3390 or FBA) must match the installation DASD type of the system you are upgrading.
   - The number of FBA DASD volumes needed to install the work system:
     - If volume size is equal to or greater than 9.7 GB:
       - Five volumes are needed.
       - One volume is the permanent release volume.
       - The other 4 volumes are temporary.
     - If volume size is less than 9.7 GB:
       - Six volumes are needed.
       - One volume is the permanent release volume.
       - The other 5 volumes are temporary.
     - Note that z/VM installation supports only emulated FBA on SCSI volumes. Real FBA volumes are not supported.
   - The number of 3390 DASD volumes needed for each work system:
     - For non-SSI or one-member SSI
       - 3390 Mod 3
         - Eleven volumes are needed if all products were loaded to minidisk.
         - Three volumes are the permanent release volumes.
         - The other 8 volumes are temporary.
     - Note: If products were loaded to SFS, you might need fewer volumes. The exact number of volumes needed will be calculated in “Upgrade installation worksheets” on page 159.
       - 3390 Mod 9
         - Six volumes are needed.
         - One volume is the permanent release volume.
         - The other 5 volumes are temporary.
       - 3390 Mod 27
         - Five volumes are needed.
         - One volume is the permanent release volume.
         - The other 4 volumes are temporary.
     - For multimember SSI - reuse some work system volumes:
       When upgrading a multimember SSI, most of the DASD volumes used to install the work system for the first system upgraded can be reused. The following numbers reflect reuse of the volumes.
       - 3390 Mod 3
         - Fourteen volumes are needed if all products were loaded to minidisk.
         - Three volumes are the permanent release volumes.
         - The other 11 volumes are temporary.
       - Note: If products were loaded to SFS, you might need fewer volumes.
       - 3390 Mod 9
         - Seven volumes are needed.
         - One volume is the permanent release volume.
Review the DASD requirements

- The other 6 volumes are temporary.
- 3390 Mod 27
- Six volumes are needed.
- One volume is the permanent release volume.
- The other 5 volumes are temporary.

5. DASD space needed on the system being upgraded:

- DASD space is also required for new and changed minidisks that do not reside on the RELEASE volumes. This space must be defined on volumes that are attached to the system being upgraded.
- On each system you are upgrading, you will need space on one or more MEMBER volumes. These volumes should be attached to the system you are upgrading before you begin your upgrade. Part of this space includes a large amount of contiguous free space, as follows:
  - For each 3390 system you are upgrading, for part of the MEMBER volume space, you will need one MEMBER volume on the system being upgraded that contains at least 6677 cylinders of contiguous free space.
  - For each FBA system you are upgrading, for part of the MEMBER volume space, you will need one MEMBER volume on the system being upgraded that contains at least 9614880 FB-512 blocks of contiguous free space.
- When upgrading a non-SSI, a one-member SSI, or the first member of a multimember SSI, space is also needed on a COMMON volume. This volume should be attached to the system you are upgrading before you begin your upgrade.
- The total space needed on the MEMBER and COMMON volumes that belong to the system being upgraded will be calculated in “Upgrade installation worksheets” on page 159.
Step 4. Update the system before you start the upgrade process

Before performing the z/VM V6.4 upgrade installation, you must review the following information and make any required updates.

1. Review the following topics at [z/VM Installation Resources](www.vm.ibm.com/install) for current information affecting installation:
   - Important z/VM Installation News
   - z/VM Installation Tips
   - Preventative Service Planning (PSP) bucket for z/VM 640 installation

2. The IDENTIFY command must return the system name that matches the system you are upgrading. The IDENTIFY command gets the system name from the SYSTEM NETID file, if the SYSTEM NETID file contains a system name; otherwise, it uses the system name in the SYSTEM CONFIG file.

3. Verify that the VMSES/E control files contain correct system information. The system name returned by the IDENTIFY command must match the system name contained in the following VMSES/E files found on the system to be upgraded:
   - VM SYSSUF file, found on the MAINTvrm 51D minidisk
     - In the VM SYSSUF file, verify that the system name (or one of the system names in a multimember SSI) on each :PRODLEV tag matches the system name returned by the IDENTIFY command. If the names do not match or the name is missing on any of the :PRODLEV tags for any of the components, contact IBM service for assistance in correcting this information.
   - VM SYSPINV file, found on the PMAINT 41D minidisk
     - In the VM SYSPINV file, verify that the system name (or one of the system names in a multimember SSI) on each :SYSTEM tag matches the system name returned by the IDENTIFY command. If the names do not match or the name is missing on any of the :SYSTEM tags for any of the components, contact IBM service for assistance in correcting this information.

4. Complete any SERVICE processing, PUT2PROD processing, or both that has been started for this system before upgrading. If upgrading a multimember SSI, complete all SERVICE and PUT2PROD processing that has been started for all members of the SSI cluster. Do not start any new service until the upgrade is complete.

5. If upgrading a non-SSI, a one-member SSI, or the first member of a multimember SSI, the upgrade installation will add the following user IDs to the system. If you have any of these user IDs already defined on your system, you must rename them:
   - MAINT640
   - 6VMPTK40
   - 6VMRAC40
   - 6VMRSC40
   - 6VMTCP40
   - 6VMDIR40
   - 6VMHC40
   - OPNCLOUD
   - DTCVSW3
   - DTCVSW4

6. If upgrading a non-SSI, a one-member SSI, or the first member of a multimember SSI, and your system being upgraded has products loaded to the VMPSFS filepool:
   - The VMPSFS filepool needs free space to hold the new release files.
     - Determine how much space is available in storage group 1 and storage group 2 for the VMPSFS filepool, by doing the following:
       - QUERY FILEPOOL STORGRP VMPSFS
       - Storage group 1
Update the system before you start the upgrade process

- Make sure storage group 1 for VMPSFS has enough free space to hold the additional index records for the new data that is being added to VMPSFS. If you are using more than 40% of the space in storage group 1, you should add an additional 50-cylinder minidisk (for FBA, 72000 512 blocks) to storage group 1.

- Storage group 2
  - The amount of free space needed in storage group 2 is determined by which products you have installed to the VMPSFS filepool. To calculate the amount of free space needed in the VMPSFS filepool, use the following table. Total the 4K blocks needed for all of the products that the system being upgraded has loaded to the filepool.
  - Make a note of the number of free 4K blocks needed in storage group 2.

<table>
<thead>
<tr>
<th>Product</th>
<th>4K blocks needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>VM</td>
<td>320000</td>
</tr>
<tr>
<td>OSA</td>
<td>0</td>
</tr>
<tr>
<td>PERFTK</td>
<td>22000</td>
</tr>
<tr>
<td>VMHCD</td>
<td>90000</td>
</tr>
<tr>
<td>RACF</td>
<td>42000</td>
</tr>
<tr>
<td>DIRM</td>
<td>17000</td>
</tr>
<tr>
<td>RSCS</td>
<td>16000</td>
</tr>
<tr>
<td>ICKDSF</td>
<td>0</td>
</tr>
<tr>
<td>TCPIP</td>
<td>65000</td>
</tr>
</tbody>
</table>

- If more space is needed in storage group 2, follow the procedures in z/VM: CMS File Pool Planning, Administration, and Operation to add additional space to the VMPSFS filepool.

7. Complete any directory manager tasks.
   - If you are not using a directory manager program:
     - INSTUPGR will remove sequence numbers from the directory, if they exist.
   - If you are using a directory manager program:
     - Check with your software vendor to determine whether your directory manager program provides the upgrade installation exit required for upgrade installation.
     - DirMaint supplies an installation upgrade exit that is shipped with the z/VM product. No installation of the exit program is needed.
     - CA VM:Director supplies an installation upgrade exit. Refer to the product documentation for CA VM:Director for information about installing the upgrade exit.
     - If your directory manager program supplies an installation upgrade exit, refer to the program's documentation for program-specific requirements to use the exit provided.
     - For installation upgrade requirements related to DirMaint, review Appendix C of the Program Directory for Directory Maintenance Facility for z/VM function level 640.
     - For installation upgrade requirements related to CA VM:Director, refer to the Administrators section of the CA VM:Director wiki.
     - If your directory manager program does not supply an installation upgrade exit, you will need to perform one of the following tasks:
       a. Make the required directory changes yourself during STAGE1 and STAGE2 commit processing.
Update the system before you start the upgrade process

b. Suspend your directory manager temporarily and create a CP user directory file that the upgrade procedure can update with the xedit option.

- Directory changes must be made available (or put online) to all systems immediately.
- If your directory manager has minidisk password checking enabled, you might need to disable it during the upgrade because user IDs will be added to the directory that might have minidisk passwords that are considered trivial.
- If you are using DirMaint as your directory manager, you must have DATAMOV* servers configured and available.
- If upgrading a non-SSI, a one-member SSI, or the first member of a multimember SSI:
  - The DASD volumes you will use for the release volumes when installing the work system must be included in the control files that define the DASD pool available to the directory manager. If possible, this should be done before you begin your upgrade. The default labels for these volumes are:
    - 640RL1
    - 640RL2
    - 640RL3
  - The appropriate directory manager control files must be configured so that the directory manager will ignore fullpack minidisk definitions for user IDs MAINT, PMAINT, MAINT620, MAINT630, MAINT640, SYSDUMP1, SYSDMP-1, SYSDMP-2, SYSDMP-3, and SYSDMP-4.

8. If you are using an external security manager (ESM) program (such as RACF):
   - Make sure the MIGMAINT user ID is authorized to perform security authorizations on behalf of other users.
   - If you are managing SFS with your security manager, MIGMAINT must be authorized to perform all SFS administration functions.
   - If your external security manager has minidisk password checking enabled, you might need to disable it during the upgrade because user IDs will be added to the directory that might have minidisk passwords that are considered trivial.
Complete upgrade installation worksheet 1

**Step 5. Complete upgrade installation worksheet 1**

1. Print or copy the upgrade installation worksheets (Table 13 on page 160 through Table 17 on page 161).

2. If you are installing from a physical DVD or an FTP server directory, record the path information required to access the DVD drive or FTP directory on upgrade installation worksheet 1 (Table 13 on page 160):
   - a. The IP address or host name of the FTP server.
   - b. The user ID and password of the FTP server.
   - c. The DVD or FTP directory path name for the FTP server.

3. If you are installing from a VM minidisk, on upgrade installation worksheet 1 (Table 13 on page 160), record the VM user ID and address of the VM minidisk where contents of the z/VM product DVD and the installation RSU DVD will be uploaded.
Step 6. Complete upgrade installation worksheet 2

1. Determine the file name, file type, and location of the system configuration file for the system that is being upgraded.

   Note: The default file name and location of the system configuration file are:
   - Name: SYSTEM CONFIG
   - User ID: PMAINT
   - Minidisk: CF0

   Record the file name and file type of your system configuration file on upgrade installation worksheet 2 (Table 14 on page 160).

   Record the user ID that owns the minidisk and the minidisk address where the file is located on upgrade installation worksheet 2 (Table 14 on page 160).

2. Determine how the upgrade installation procedure will update the CP user directory.

   a. If you do not use a directory manager program to update your CP user directory and instead edit your CP user directory file manually (XEDIT):
      - Record YES on the "Do you edit your CP directory file manually?" line on upgrade installation worksheet 2 (Table 14 on page 160) and skip to substep 3.

   b. If you use a directory manager program that supplies an installation upgrade exit:
      - Record NO on the "Do you edit your CP directory file manually?" line on upgrade installation worksheet 2 (Table 14 on page 160).

   c. If you use a directory manager program that does not supply an installation upgrade exit, you will need to perform one of the following tasks:
      1) Use your directory manager to make the directory changes yourself during commit processing.
         - Record NO on the "Do you edit your CP directory file manually?" line on upgrade installation worksheet 2 (Table 14 on page 160).
      2) Create a CP user directory file that can be updated with the xedit option.
         - Record YES in the "Do you edit your CP directory file manually?" line on upgrade installation worksheet 2 (Table 14 on page 160).
         - To create a CP user directory file:
            - Disable the directory manager program so that no updates can be made to the directory.
            - Use your directory manager procedure to create a CMS file that contains the directory (such as USER DIRECT) on a minidisk that is available to MIGMAINT in write mode (such as PMAINT 2CC).
            - The directory file (such as USER DIRECT) must have all of the subconfigs directly following the IDENTITY sections and before any other user or identity starts.
            - No updates can be made to the directory until upgrade is complete.
            - After the upgrade is completed, use your directory manager procedure to replace the updated directory in your directory manager database.

3. If you recorded YES on the "Do you edit your CP directory file manually?" line on upgrade installation worksheet 2 (Table 14 on page 160):

   - Determine the file name and file type of your user directory file, the minidisk address where it is located, and the user ID that owns the minidisk.

   Note: The default file name and location of the user directory file are:
   - Name: USER DIRECT
   - User ID: PMAINT
   - Minidisk: 2CC
Complete upgrade installation worksheet 2

- Record the CP directory file information on upgrade installation worksheet 2 (Table 14 on page 160).

4. Determine whether you are running a security manager other than RACF on your system. Record YES or NO on upgrade installation worksheet 2 (Table 14 on page 160).

5. Select the DASD type you will use to install your z/VM work system.
   - The DASD type (3390 or FBA) must match the installation DASD type of the system you are upgrading.

6. Select the DASD model or size you will use to install your z/VM work system.
   - The DASD model and size do not have to match the size of the installation DASD on the system you are upgrading.
     - If you are using 3390, on the "3390 DASD Model" line:
       - Record Mod 3 if your DASD contains 3339 - 10016 cylinders.
       - Record Mod 9 if your DASD contains 10017 - 32759 cylinders.
       - Record Mod 27 if your DASD contains 32760 or more cylinders.
     - If you are using FBA (SCSI):
       - Record the size on the "SCSI volume size" line. The size of the volumes must be at least 6.0 GB.

Note: All FBA volumes must be at least the size recorded on the "SCSI volume size" line.
Step 7. Complete upgrade installation worksheet 3

If you are installing your z/VM work system to FBA DASD, skip to “Step 8. Complete upgrade installation worksheet 4” on page 155.

If you are installing your z/VM work system to 3390 DASD, determine the number of volumes required to install a single work system and record that information on upgrade installation worksheet 3 (Table 15 on page 160):

1. If you choose:
   - 3390 Model 3:
     - If the system being upgraded has all products loaded to minidisk, you will need 11 volumes.
     - If the system being upgraded has all products loaded to the filepool, you will need 9 volumes.
     - You will not need:
       - RELVOL2 xxxRL2
       - RELVOL3 xxxRL3
     - If the system being upgraded has some products loaded to minidisk and some products loaded to the filepool, you will need 9 to 11 volumes. Using the following table, total the cylinders for all of the products that are loaded to the filepool.
       - If the number of cylinders for products loaded to the filepool total 1110 - 4417 cylinders, you will need 10 volumes. You will not need:
         - RELVOL3 xxxRL3
       - If the products you selected total 4418 or more cylinders, you will need 9 volumes. You will not need:
         - RELVOL2 xxxRL2
         - RELVOL3 xxxRL3

<table>
<thead>
<tr>
<th>Product</th>
<th>Cylinders</th>
</tr>
</thead>
<tbody>
<tr>
<td>VM</td>
<td>2129</td>
</tr>
<tr>
<td>OSA</td>
<td>0</td>
</tr>
<tr>
<td>PERFTK</td>
<td>121</td>
</tr>
<tr>
<td>VMHCD</td>
<td>1379</td>
</tr>
<tr>
<td>RACF</td>
<td>182</td>
</tr>
<tr>
<td>DIRM</td>
<td>0</td>
</tr>
<tr>
<td>RSCS</td>
<td>94</td>
</tr>
<tr>
<td>ICKDSF</td>
<td>0</td>
</tr>
<tr>
<td>TCPIP</td>
<td>749</td>
</tr>
</tbody>
</table>

   - 3390 Model 9:
     - You will need the following 6 volumes:
       - COMMON IBMC1
       - RELVOL xxxRL1
       - RES IBMRES
       - SPOOL IBMSS1
       - PAGE IBMPO1
       - MEMBER IBMWK1
   - 3390 Model 27:
Complete upgrade installation worksheet 3

- You will need the following 5 volumes:

  COMMON IBMCM1
  RELVOL xxxRL1
  RES IBMRES
  SPOOL IBMS01
  PAGE IBMP01

2. Record the address for each 3390 volume required in the Address column on the upgrade installation worksheet 3. If you are changing any of the default installation labels, record the new labels in the New Label column. Disregard any spaces in the worksheet for volumes that you do not need. Note that you must not use any of IBM's default volume labels for a volume other than the volume for which it is originally defined.

  - Volume labels must be 1 to 6 alphanumeric characters.

Notes:

a. If you are upgrading a non-SSI, a one-member SSI, or the first member of a multimember SSI, the volumes where the new release code is installed on your z/VM work system (default labels 640RL1, 640RL2, and 640RL3) will be added to the system that is being upgraded. You should choose labels for these volumes that adhere to any local policies for volume labels for your organization. All other volumes used for the work system (COMMON, RES, SPOOL, PAGE, and MEMBER) can be returned to your DASD pool after the upgrade installation of this system is complete.

b. In a multimember SSI cluster, only the first member upgraded to V6.4 will add the release volumes to the system that is being upgraded. For subsequent members, you need to specify DASD addresses for the release volumes that are not the release volumes you used for your first member. These new DASDs will be formatted and used to install a work system, but they will not be added to the system that is being upgraded. The default labels displayed on the INSTPLAN panel will be IBMRL1, IBMRL2, and IBMRL3.

c. In a multimember SSI cluster, when upgrading the second, third or fourth member, the release volumes used in the first member upgrade should be attached to all members of your SSI (including the system you are now upgrading) before the upgrade is started.
Step 8. Complete upgrade installation worksheet 4

If you are installing your z/VM work system to 3390 DASD, skip to “Step 9. Complete upgrade installation worksheet 5” on page 156.

If you are installing your work system to FBA (SCSI) volumes, follow these steps.

1. Determine the number of volumes required to install a single work system.
   • If the DASD size of your FBA volumes is equal to or greater than 9.7 GB:
     – You will need 5 volumes. You will not need the IBMWK1 volume.
   • If the DASD size of your FBA volumes is less than 9.7 GB:
     – You will need 6 volumes.

2. On upgrade installation worksheet 4 (Table 16 on page 161), record the address for each volume in the Address column. If you are changing any of the default installation labels, record the new labels in the New Label column. Note that you must not use any of IBM’s default volume labels for a volume other than the volume for which it is originally defined.
   • Volume labels must be 1 to 6 alphanumeric characters.
   • For z/VM installation on FBA: note that z/VM installation supports only emulated FBA on SCSI volumes. Real FBA volumes are not supported.

   Note: The volume where the new release code is installed on your z/VM work system (default label 640RL1) will be added to the system that is being upgraded. You should choose a label for this volume that adheres to any local policies for volume labels for your organization. All other volumes used for the work system (COMMON, RES, SPOOL, PAGE, and MEMBER) can be returned to your DASD pool after the upgrade installation of this system is complete.

3. If you are using FBA (SCSI) disks and they are already defined, you need only the addresses of the volumes and can continue to the next substep. If they are not already defined, you need to know the WWPN and LUN address for each disk, as well as the valid FCP address (or addresses) or the channel path (CHPID) to which they belong. Record each LUN and its corresponding WWPN on upgrade installation worksheet 4 (Table 16 on page 161). Also make a note of the valid FCP address (or addresses) or CHPID.
Step 9. Complete upgrade installation worksheet 5

1. Additional space needs to be allocated on the system being upgraded for new and changed minidisks that do not reside on the RELEASE volumes. This space needs to be on volumes that already belong to the system being upgraded, not on the volumes being used to install the work system.

Some of the space must be defined on volumes that are designated as MEMBER volumes for the system you are upgrading and some of the space must be defined on volumes that are designated as COMMON volumes.

- A MEMBER volume is one that is assigned to and is usually accessible to just one member of an SSI cluster (such as the MEMBER volume with default labels M01W01 and M01W02). On a non-SSI system, these volumes might also be referred to as SYSTEM volumes.
- A COMMON volume is one that is not assigned to any specific member and is accessible by all members of an SSI cluster (such as the COMMON volume with default label VMCOM1 and VMCOM2).
- If the system you are upgrading is not a member of an SSI cluster, you should still allocate this new space on volumes that would be considered MEMBER volumes and COMMON volumes in an SSI cluster to minimize rework in case you decide in the future to convert your non-SSI system to a single member SSI cluster.

2. Space that will be needed on MEMBER volumes is listed in Table 11 on page 157. You must allocate the space for these minidisks on the same type of DASD you used when you installed your z/VM system.

- Table 11 on page 157 lists the user IDs that own the minidisks, the product associated with each user ID, and the minimum amount of space needed on a MEMBER volume.
- The amount of space needed is dependent on where the associated product is installed (on minidisks or in the VMPSFS filepool) on the system being upgraded.
- Determine where each product was loaded and record an M (for minidisks) or an F (for filepool) in the Location column in upgrade installation worksheet 5 (Table 17 on page 161).
- Use Table 11 on page 157 to determine the amount of space needed for each user ID and record the space needed on upgrade installation worksheet 5 (Table 17 on page 161) in the Minimum column.

Determine which MEMBER volumes assigned to the system you are upgrading have sufficient contiguous space available to define each user ID’s minidisks. All of the user IDs do not need to be on the same MEMBER volume, but all of the space for each user ID must be on one volume and must be contiguous.

Note: If there is not enough free space on any of the MEMBER volumes on the system being upgraded, you should add a new MEMBER volume to your system. See z/VM: CP Planning and Administration for more information about adding additional MEMBER volumes to your system.

- On upgrade installation worksheet 5 (Table 17 on page 161), for each user ID, record the label of the MEMBER volume where that user ID’s minidisks should be defined.
  - If you edit your CP user directory file manually, that is, you recorded YES on upgrade installation worksheet 2 (Table 14 on page 160), also record the start and end cylinders or block extents where the user ID’s minidisks are to be defined.
    - The lowest value for the START cylinder extent is 1.
    - The lowest value for the START block extent is 1200.
  - If you use a directory manager product, that is, you recorded NO on upgrade installation worksheet 2 (Table 14 on page 160), the directory manager will define the minidisks on these volumes.
    - You must make sure all member volumes you are using are included in the control files that define the DASD pool for your directory manager product.
    - Each volume must have enough contiguous space to define the minidisks assigned to that volume.
Complete upgrade installation worksheet 5

Table 11. Minimum space requirements for MEMBER volumes

<table>
<thead>
<tr>
<th>MEMBER volumes installing on:</th>
<th>Minimum space needed:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3390 (cylinders)</td>
</tr>
<tr>
<td>User ID</td>
<td>Product/ component</td>
</tr>
<tr>
<td>DTCVSW3²</td>
<td>TCPIP</td>
</tr>
<tr>
<td>DTCVSW4²</td>
<td>TCPIP</td>
</tr>
<tr>
<td>TCPMAINT²</td>
<td>TCPIP</td>
</tr>
<tr>
<td>PERFVM²</td>
<td>PERFTK</td>
</tr>
<tr>
<td>OPNCL0UD²</td>
<td>VM</td>
</tr>
<tr>
<td>VSMGUARD³</td>
<td>VM</td>
</tr>
<tr>
<td>VSMWORK1¹</td>
<td>VM</td>
</tr>
<tr>
<td>VSMWORK2¹</td>
<td>VM</td>
</tr>
<tr>
<td>VSMWORK3¹</td>
<td>VM</td>
</tr>
</tbody>
</table>

1 V6.2 to V6.4 upgrade only
2 V6.2 to V6.4 and V6.3 to V6.4 upgrades

3. If you are upgrading a member of an SSI cluster and this is not the first member to be upgraded, you do not need to allocate any additional space on COMMON volumes.
   • Make sure the common volume you used for previous upgrades is available to this member.
   • Skip the next substep and continue to Chapter 17, “Set up for your upgrade installation,” on page 163.

4. If you are upgrading a non-SSI, a one-member SSI, or the first member of a multimember SSI, space that will be needed on COMMON volumes is listed in Table 12 on page 158. You must allocate the space for these minidisks on the same type of DASD you used when you installed your z/VM system.
   • Table 12 on page 158 lists the user IDs that own the minidisks, the product associated with each user ID, and the minimum amount of space needed on a COMMON volume.
   • The amount of space needed is dependent on where the associated product is installed (on minidisks or in the VMPSFS filepool) on the system being upgraded.
   • Determine where each product was loaded and record an M (for minidisks) or an F (for filepool) in the Location column in upgrade installation worksheet 5 (Table 17 on page 161).
   • Use Table 12 on page 158 to determine the amount of space needed for each user ID and record the space needed on upgrade installation worksheet 5 (Table 17 on page 161) in the Minimum column.
   • Determine which COMMON volumes assigned to the system you are upgrading have sufficient contiguous space available to define each user ID’s minidisks. All of the user IDs do not need to be on the same COMMON volume, but all of the space for each user ID must be on one volume and must be contiguous.

Note: If there is not enough free space on any of COMMON volumes on the system being upgraded, you should add a new COMMON volume to your system. See z/VM: CP Planning and Administration about adding additional COMMON volumes to your system.
   • On upgrade installation worksheet 5 (Table 17 on page 161) for each user ID, record the label of the COMMON volume where that user ID’s minidisks should be defined.
     - If you edit your CP user directory file manually, that is, you recorded YES on upgrade installation worksheet 2 (Table 14 on page 160), also record the start and end cylinders or block extents where the user ID’s minidisks are to be defined.
       - The lowest value for the START cylinder extent is 1.
       - The lowest value for the START block extent is 1200.
If you use a directory manager product, that is, you recorded NO on upgrade installation worksheet 2 (Table 14 on page 160), the directory manager will define the minidisks on these volumes.

- You must make sure all COMMON volumes you are using are included in the control files that define the DASD pool for your directory manager product.
- Each volume must have enough contiguous space to define the minidisks assigned to that volume.

Table 12. Minimum space requirements for COMMON volumes

<table>
<thead>
<tr>
<th>COMMON volumes installing on:</th>
<th>Minimum space needed:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3390 (cylinders)</td>
</tr>
<tr>
<td></td>
<td>FBA (512K blocks)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>User ID</th>
<th>Product/ component</th>
<th>Product in filepool</th>
<th>Product on minidisk</th>
<th>Product in filepool</th>
<th>Product on minidisk</th>
</tr>
</thead>
<tbody>
<tr>
<td>6VMDIR40</td>
<td>DirMaint</td>
<td>69</td>
<td>172</td>
<td>99360</td>
<td>247680</td>
</tr>
<tr>
<td>5684042J</td>
<td>ICKDSF</td>
<td>0</td>
<td>40</td>
<td>0</td>
<td>57600</td>
</tr>
</tbody>
</table>

Note: Needed for V6.2 to V6.4 and V6.3 to V6.4 upgrades

What to do next

Go to Chapter 17, “Set up for your upgrade installation,” on page 163.
Upgrade installation worksheets
## Upgrade installation worksheets

### Table 13. Upgrade Installation Worksheet 1

| IP address or host name:            | ____________________________ |
| FTP server user ID and password:    | ____________________________ |
| DVD/FTP directory path name:        | ____________________________ |
| VM user ID and address of VM minidisk to upload DVD: | ____________________________ |

### Table 14. Upgrade Installation Worksheet 2

<table>
<thead>
<tr>
<th>Current System Information:</th>
</tr>
</thead>
<tbody>
<tr>
<td>System configuration file:</td>
</tr>
<tr>
<td>Name:</td>
</tr>
<tr>
<td>User ID:</td>
</tr>
<tr>
<td>Do you edit your CP directory file manually?</td>
</tr>
<tr>
<td>If YES, then CP directory file:</td>
</tr>
<tr>
<td>Name:</td>
</tr>
<tr>
<td>User ID:</td>
</tr>
<tr>
<td>Are you using a security manager other than RACF?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3390 DASD model:</th>
</tr>
</thead>
</table>

| SCSI volume size: |    |

### Table 15. Upgrade Installation Worksheet 3 (3390 Only)

<table>
<thead>
<tr>
<th>Installation Volumes for z/VM Work System (3390):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume Type</td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>COMMON</td>
</tr>
<tr>
<td>COMMON2</td>
</tr>
<tr>
<td>RELVOL</td>
</tr>
<tr>
<td>RELVOL2</td>
</tr>
<tr>
<td>RELVOL3</td>
</tr>
<tr>
<td>RES</td>
</tr>
<tr>
<td>SPOOL</td>
</tr>
<tr>
<td>PAGE</td>
</tr>
<tr>
<td>MEMBER</td>
</tr>
<tr>
<td>MEMBER</td>
</tr>
<tr>
<td>MEMBER</td>
</tr>
</tbody>
</table>

**Notes:**
- *xxx* will be 640 for the first member that is upgraded and will be IBM for the second, third, and fourth members.
- You must *not* use any of IBM's default volume labels for a volume other than the volume for which it is originally defined.
### Table 16. Upgrade Installation Worksheet 4 (FBA Only)

**Installation Volumes for z/VM Work System (FBA):**

<table>
<thead>
<tr>
<th>Volume Type</th>
<th>Default Label</th>
<th>New Label</th>
<th>Address</th>
<th>FCP Address</th>
<th>WWPN</th>
<th>LUN</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMMON</td>
<td>IBMCM1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RELVOL</td>
<td>640RL1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RES</td>
<td>IBMRES</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPOOL</td>
<td>IBMS01</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAGE</td>
<td>IBMP01</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MEMBER</td>
<td>IBMWK1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Channel path (CHPID):
_____________________________________________

Valid FCP addresses:  
_____________________________________________

Note: You must not use any of IBM's default volume labels for a volume other than the volume for which it is originally defined.

### Table 17. Upgrade Installation Worksheet 5

**Additional Space Needed on Current System:**

Space is needed in your existing environment to create minidisks for the following user IDs:

**MEMBER volume(s):**

<table>
<thead>
<tr>
<th>User ID</th>
<th>Product</th>
<th>Location (M/F)</th>
<th>Minimum</th>
<th>Label</th>
<th>Start</th>
<th>End</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTCVSW3²</td>
<td>TCPIP</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DTCVSW4²</td>
<td>TCPIP</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>TCPMAINT²</td>
<td>TCPIP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PERFSVM²</td>
<td>PERFTK</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OPNCL0UD²</td>
<td>VM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VSMGUARD¹</td>
<td>VM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VSMWORK1¹</td>
<td>VM</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>VSMWORK2¹</td>
<td>VM</td>
<td></td>
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</tr>
<tr>
<td>VSMWORK3¹</td>
<td>VM</td>
<td></td>
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</table>

**COMMON volume(s):**

<table>
<thead>
<tr>
<th>User ID</th>
<th>Product</th>
<th>Location (M/F)</th>
<th>Minimum</th>
<th>Label</th>
<th>Start</th>
<th>End</th>
</tr>
</thead>
<tbody>
<tr>
<td>6VMDIR40²</td>
<td>DirMaint</td>
<td></td>
<td></td>
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<tr>
<td>5684042J²</td>
<td>ICKDSF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

¹ V6.2 to V6.4 upgrade only  
² V6.2 to V6.4 and V6.3 to V6.4 upgrades
Upgrade installation worksheets
Chapter 17. Set up for your upgrade installation

In this chapter, you will:

- Set up the environment for an upgrade installation.

Choose your next step based on which source you will use to perform your installation.

<table>
<thead>
<tr>
<th>If you chose to install from a...</th>
<th>Then see...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical DVD</td>
<td>“Step 1. Set up to install from a DVD drive” on page 164</td>
</tr>
<tr>
<td>FTP server directory</td>
<td>“Step 2. Set up to install from an FTP server directory” on page 168</td>
</tr>
<tr>
<td>VM minidisk</td>
<td>“Step 3. Set up to install from a VM minidisk” on page 172</td>
</tr>
</tbody>
</table>
Set up to install from a DVD drive

Step 1. Set up to install from a DVD drive

Before you begin: You should have completed the upgrade installation worksheets 1 (Table 13 on page 160) through 5 (Table 17 on page 161). If you have not done so, return to Chapter 16, “Plan your upgrade installation,” on page 139.

1. Load the z/VM product DVD in the DVD drive of the FTP server you are using for installation. Wait until the light on the DVD drive goes out or stops blinking to continue.

2. Log on to the MIGMAINT user ID on the system being upgraded. Make sure the user ID meets the MIGMAINT user ID requirements.

3. Spool the console to make sure it is empty, started, and spooled to the reader.

   ```
   spool console close start *
   RDR FILE filenum SENT FROM userid CON WAS nnnn RECS nnnn CPY nnn T NOHOLD NOKEEP
   Ready;
   ```

4. Verify you have a 2222 read/write minidisk with exactly 10 cylinders if installing to 3390 or 14400 512-KB blocks if installing to FBA.

   ```
   query v 2222
   DASD 2222 3390 xxxxxx R/W 10 CYL ON DASD nnnn SUBCHANNEL = nnnn
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

5. Access the minidisk (diskaddr) that contains the INSTPIPE MODULE as file mode C. Starting with z/VM V6.2, the INSTPIPE MODULE is shipped on the MAINTvrm 4CC disk.

   ```
   access diskaddr c
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

6. Copy the files needed to run DVDPRIME from the DVD to the 2222 minidisk.

   a. Run INSTPIPE.

      ```
      instpipe
      Ready; T=n.nn/n.nn hh:mm:ss
      ```

   b. Copy the files from the DVD to the 2222 minidisk.

      Note: The information for host, userid, password, and ftpdir was recorded in upgrade installation worksheet 1 (Table 13 on page 160).

      ```
      pipe ftpget -h host -u userid -p password -d ftpdir/CPDVD -v BEF -DVDEOF -f ddd222* |UNPACK| restcmd 2222
      ```
host
IP address or FTP host name. An IP address is in dotted-decimal form for your IP version 4 interface. For example:
129.42.16.99

A host name must begin with a letter, and may contain only alphanumeric characters (A-Z,a-z,0-9) or hyphens (-). For example:
MyOrg-VM01

userid
User ID used to log on to the FTP server. Must be 40 or less alphanumeric characters.

password
Password for the user ID used to log on to the FTP server. Must be 40 or less alphanumeric characters.

ftpdir
Path to the DVD drive with /CPDVD appended to the end of the path. The maximum length is 40 characters. For example:
mydvddrive/CPDVD
cpdvd
e:/cpdvd
vmftpdir/CPDVD

ddd
CKD for 3390 or FBA for FBA. They must be entered in uppercase.

restcmd
ECKDREST for 3390 or MDREST for FBA.

Note: In the above PIPE command you may use a different stage separator by including the stagesep keyword. For example:
pipe ( stagesep ! ) ftptck -h host -u userid -p password -d ftpdir/CPDVD -v BEF -DVDEOF -f
{FBA222+|CKD222*} 1UNPACK! restcmd 2222

{FBA222+|CKD222*}
DMSRKS14O8W File TCP/IP DATA * not found
{MDREST|ECKDREST}: WROTE nnn {BLOCKS|TRACKS} ON 2222, RC=0
Ready; T=n.nn/n.nn hh:nn:ss

You might not receive this message.

7. IPL CMS to remove the old INSTPIPE MODULE from storage.

ipl cms

8. Access the 2222 minidisk as file mode C.

access 2222 c
Ready; T=n.nn/n.nn hh:mm:ss
Set up to install from a DVD drive

9. Verify that the first occurrence of the INSTPIPE MODULE is on the minidisk accessed as file mode C. Remove or rename all other copies.

```
listfile instpipe module *
INSTPIPE MODULE C1
Ready; T=n.nn/n.nn hh:mm:ss
```

10. Run DVDPRIME with the dasdtype you are using to install.

```
dvdprime dasdtype (dvd)
```

*** NOW EXECUTING DVDPRIME EXEC ON date AT time **

11. Complete the DVDPRIME panel by filling in the information for your FTP server.

Note: The information for HOSTNAME OR IP ADDRESS, FTP USERID, FTP PASSWORD, and DVD PATHNAME was recorded in upgrade installation worksheet 1 (Table 13 on page 160).

*** DV D PRIME PANEL ***

Enter information in empty fields and press F5 to process.

HOSTNAME OR IP ADDRESS: ____________________________
FTP USERID: ______________________________________
FTP PASSWORD: ________________________________
DVD PATHNAME: ________________________________
PORT NUMBER: 21______________________________
F1 = HELP  F3/F12 = QUIT  F5 = Process  ENTER = Refresh

HOSTNAME OR IP ADDRESS:
This field should be filled in with the IP ADDRESS or HOSTNAME of your FTP server. A host name must begin with a letter, and may contain only alphanumeric characters (A-Z,a-z,0-9) or hyphens (-). For example: MyOrg-VM01

Specify an IP address in dotted-decimal form for your IP version 4 interface. For example: 129.42.16.99

FTP USERID:
User ID used to log on to the FTP server. Must be 40 or less alphanumeric characters.

FTP PASSWORD:
Password used to log on to the FTP server. Must be 40 or less alphanumeric characters.

DVD PATHNAME:
Enter the path to the DVD drive according to the conventions used by your server and append CPDVD to the end of your path. This should be the same path name used on the ftpget command in substep 6 on page 164. The maximum length is 40 characters. For example:

mydvddrive/CPDVD
cpdvd
e:/cpdvd
vmftpdir/CPDVD
PORT NUMBER:

The FTP server's port number. The default port number is 21.

12. Press F5 to process.

IUGDVP8440I NOW LOADING 24CC DISK
{FBA222*|CKD222*}
DMSRXS140BW File TCPIP DATA * not found You might not receive this message.

{MDREST|ECKDREST}: WROTE nnnn {BLOCKS|TRACKS} ON 24CC, RC=0

IUGDVP8440I NOW LOADING 2CF0 DISK
{FBACF0*|CKDCF0*}
DMSRXS140BW File TCPIP DATA * not found You might not receive this message.

{MDREST|ECKDREST}: WROTE nnnn {BLOCKS|TRACKS} ON 2CF0, RC=0

IUGDVP8392I DVDPRIME EXEC ENDED SUCCESSFULLY
Ready; T=n.nn/n.nn hh:mm:ss

What to do next

Go to Chapter 18, “Install a z/VM V6.4 work system for your upgrade installation,” on page 181.
Step 2. Set up to install from an FTP server directory

Before you begin: You should have completed the upgrade installation worksheets 1 (Table 13 on page 160) through 5 (Table 17 on page 161). If you have not done so, return to Chapter 16, “Plan your upgrade installation,” on page 139.

The RSU that is shipped as part of the z/VM product will be installed during the installation process. Do not attempt to skip installing the RSU during upgrade. If additional service is required, install the additional service after installation of your system is complete.

1. Upload the contents of each DVD to the directory. After the contents of the z/VM product DVD have been uploaded, upload the contents of the installation RSU DVD to the same directory, overwriting any duplicate files.
   a. Create a new directory on the FTP server. The maximum length of the directory path name is 40 characters. The FTP server will need at least 4 GB of free space.
   b. Load the contents of the z/VM product DVD and the installation RSU DVD to the directory. When copying the files, make sure the case is preserved.

2. Log on to the MIGMAINT user ID on the system being upgraded. Make sure the user ID meets the MIGMAINT user ID requirements.

3. Spool the console to make sure it is empty, started, and spooled to the reader.

   spool console close start *
   RDR FILE filenum SENT FROM userid CON WAS nnnn RECS nnnn CPY nnn T NOHOLD NOKEEP
   Ready;

4. Verify you have a 2222 read/write minidisk with exactly 10 cylinders if installing to 3390 or 14400 512-KB blocks if installing to FBA.

   query v 2222
   DASD 2222 3390 xxxx R/W 10 CYL ON DASD nnnn SUBCHANNEL = nnnn
   Ready; T=n.nn/n.nn hh:mm:ss

5. Access the minidisk (diskaddr) that contains the INSTPIPE MODULE as file mode C. Starting with z/VM V6.2, the INSTPIPE MODULE is shipped on the MAINTvrm 4CC disk.

   access diskaddr c
   Ready; T=n.nn/n.nn hh:mm:ss

6. Copy the files needed to run DVDPRIME to the 2222 minidisk from the FTP server.
   a. Run INSTPIPE.

      instpipe
      Ready; T=n.nn/n.nn hh:mm:ss

   b. Copy the files from the FTP server to the 2222 minidisk.

   Note: The information for host, userid, password, and ftpdir was recorded in upgrade installation worksheet 1 (Table 13 on page 160).

   pipe ftpget -h host -u userid -p password -d ftpdir
   -v BEF -DVDEOF -f ddu222* | UNPACK| restcmd 2222
Set up to install from an FTP server directory

**host**
IP address or FTP host name. An IP address is in dotted-decimal form for your IP version 4 interface. For example:
129.42.16.99

A host name must begin with a letter, and may contain only alphanumeric characters (A-Z,a-z,0-9) or hyphens (-). For example:
MyOrg-VM01

**userid**
User ID used to log on to the FTP server. Must be 40 or less alphanumeric characters.

**password**
Password for the user ID used to log on to the FTP server. Must be 40 or less alphanumeric characters.

**ftpdir**
Path to the FTP server directory where you loaded the contents of the DVD in substep 1 on page 168. The maximum length is 40 characters.

**ddd**
CKD for 3390 or FBA for FBA. These must be entered in uppercase.

**restcmd**
ECKDREST for 3390 or MDREST for FBA.

**Note:** In the above PIPE command you may use a different stage separator by including the `stagesep` keyword. For example:

```
pipe ( stagesep ! ) ftpget -h host -u userid -p password -d ftmdir -v BEF -DVDEOF -f ddd2220
```

7. IPL CMS to remove the old INSTPIPE MODULE from storage.

```
ipl cms
```

```
 ENTER
```

8. Access the 2222 minidisk as file mode C.

```
access 2222 c
```

```
Ready; T=n.nn/n.nn hh:mm:ss
```

9. Verify that the first occurrence of the INSTPIPE MODULE is on the minidisk accessed as file mode C. Remove or rename all other copies.
Set up to install from an FTP server directory

```
listfile instpipe module *
INSTPIPE MODULE C1
Ready; T=n.nn/n.nn hh:mm:ss
```

10. Run DVDPRIME with the `dasdtype` you are using to install.

```
dvdprime dasdtype (server
```

```
dasdtype
```

```
IUGDVP8327I ** NOW EXECUTING DVDPRIME EXEC ON date AT time **
```

11. Complete the DVDPRIME panel by filling in the information for your FTP server.

   **Note:** The information for HOSTNAME OR IP ADDRESS, FTP USERID, FTP PASSWORD, and DVD PATHNAME was recorded in upgrade installation worksheet 1 [Table 13 on page 160].

---

***** DVDPRIME PANEL ***

Enter information in empty fields and press F5 to process.

HOSTNAME OR IP ADDRESS: __________________________________________

FTP USERID: __________________________________________

FTP PASSWORD: __________________________________________

DVD PATHNAME: __________________________________________

PORT NUMBER: 21________________________________________

---

F1 = HELP     F3/F12 = QUIT     F5 = Process     ENTER = Refresh

---

**HOSTNAME OR IP ADDRESS:**

   This field should be filled in with the IP ADDRESS or HOSTNAME of your FTP server. A host name must begin with a letter, and may contain only alphanumeric characters (A-Z,a-z,0-9) or hyphens (-). For example: **MyOrg-VM01**

   Specify an IP address in dotted-decimal form for your IP version 4 interface. For example: **129.42.16.99**

**FTP USERID:**

   User ID used to log on to the FTP server. Must be 40 or less alphanumeric characters.

**FTP PASSWORD:**

   Password used to log on to the FTP server. Must be 40 or less alphanumeric characters.

**DVD PATHNAME:**

   Enter the path to the FTP server directory according to the conventions used by your server. The maximum length is 40 characters. For example:
   
   mydvddrive/ftpdir
e:/dirname
   vmftpdir

**PORT NUMBER:**

   The FTP server’s port number. The default port number is 21.

12. Press F5 to process.
Set up to install from an FTP server directory

IUGDVP8440I NOW LOADING 24CC DISK
{FBA222*|CKD222*}
DMSRXS140BW File TCPIP DATA * not found You might not receive this message.

{MDREST|ECKDREST}: WROTE nnnn (BLOCKS|TRACKS) ON 24CC, RC=0
IUGDVP8440I NOW LOADING 2CF0 DISK
{FBACF0*|CKDCF0*}
DMSRXS140BW File TCPIP DATA * not found You might not receive this message.

{MDREST|ECKDREST}: WROTE nnnn (BLOCKS|TRACKS) ON 2CF0, RC=0
IUGDVP8392I DVOPRIME EXEC ENDED SUCCESSFULLY
Ready; T=n.nn/n.nn hh:mm:ss

What to do next

Go to Chapter 18, “Install a z/VM V6.4 work system for your upgrade installation,” on page 181.
Step 3. Set up to install from a VM minidisk

Before you begin: You should have completed the upgrade installation worksheets 1 (Table 13 on page 160) through 5 (Table 17 on page 161). If you have not done so, return to Chapter 16, “Plan your upgrade installation,” on page 139.

The RSU that is shipped as part of the z/VM product will be installed during the installation process. Do not attempt to skip installing the RSU during upgrade. If additional service is required, install the additional service after installation of your system is complete.

1. Log on to the MIGMAINT user ID on the system being upgraded. Make sure the user ID meets the MIGMAINT user ID requirements.

2. Link to the VM minidisk where you will load the files from the DVDs. The VM minidisk needs to have the equivalent of at least 6000 cylinders of available 3390 DASD space. The minidisk must not contain any other files with filetype IMAGE. You must link the minidisk in write mode.

   **Note:** The information for userid and diskaddr was recorded in upgrade installation worksheet 1 (Table 13 on page 160).

   ```plaintext
   link userid diskaddr diskaddr MR
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

3. Access the VM minidisk as file mode W.

   ```plaintext
   access diskaddr w
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

4. If the z/VM product and RSU files have already been loaded to the minidisk you are using, skip to substep 16 on page 177.

5. Link to the 592 TCP/IP client code minidisk.

   ```plaintext
   link tcpmaint 592 592 rr
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

6. Access the 592 TCP/IP client code minidisk as file mode Z.

   ```plaintext
   access 592 z
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

7. Set the terminal to alert you one second after CP issues the `MORE...` status and to clear one second after the alert.

   ```plaintext
   terminal more 1 1
   Ready;
   ```

8. Copy the contents of the z/VM product DVD to the VM minidisk accessed as file mode W.

   **Note:** If you have an FTP server with access to a DVD drive, continue with this substep. If you do not have an FTP server with access to a DVD drive, you can use the upload function of your terminal emulator to copy the contents of the z/VM product DVD to the minidisk. See Appendix J, “Using a terminal emulator to upload files from a DVD,” on page 271. After uploading the files using your terminal emulator, continue with substep 15 on page 177.

   a. Load the z/VM product DVD in the DVD drive of the FTP server you are using for installation. Wait until the light on the DVD drive goes out or stops blinking before continuing.
b. Start an FTP session.

   *ftp*
   VM TCP/IP FTP Level nnn

   *Note:* The information for host, userid, password, and ftpdir was recorded in upgrade installation worksheet 1 (Table 13 on page 160).

   OPEN (name of foreign host):
   host
   Connecting to host
   220 FTP Server ready...
   USER (identify yourself to the host):
   userid

   >>>USER userid
   331 User name okay, need password.
   Password:
   password

   >>>PASS ********
   230 User logged in, proceed

c. Connect to the FTP server. Enter the FTP server IP address or host name (host), the user ID used to log on to the FTP server (userid), and the password for the user ID used to log on to the FTP server (password).

   *Note:* The information for host, userid, password, and ftpdir was recorded in upgrade installation worksheet 1 (Table 13 on page 160).

   OPEN (name of foreign host):
   host
   Connecting to host
   220 FTP Server ready...
   USER (identify yourself to the host):
   userid

   >>>USER userid
   331 User name okay, need password.
   Password:
   password

   >>>PASS ********
   230 User logged in, proceed

d. Change the remote directory to the FTP path of the DVD drive (ftpdir) with /CPDVD appended to the end of the path. For example, e:/CPDVD.

   Command:
   cd ftpdir/CPDVD

   >>>CWD ftpdir/CPDVD
   250 Directory changed to ftpdir/CPDVD

e. Change the local directory to W.

   Command:
   lcd w

   Local directory mode is 'W'

f. Set the file transfer mode to binary, the record format to fixed, and the record length to 1028.

   Command:
   binary f 1028

   >>>TYPE i
   200 Type set to I.
   Command:

   g. Copy all required files from the z/VM product DVD.

   mget ddd*

   *This value must be entered in uppercase - CKD for 3390 or FBA for FBA (SCSI).*
Set up to install from a VM minidisk

```plaintext
>>>TYPE a
200 Type set to A
>>>PORT host
200 PORT Command successful.
>>>NLST ddd
150 Opening ASCII mode data connection for /bin/ls.
226 Transfer complete.
>>>TYPE i
200 Type set to I.
>>>PORT host
200 PORT Command successful.
>>>RETR dddnnnnn
150 Opening BINARY mode data connection for dddnnnnn (nnnnnnn Bytes).
nnnnnnn bytes transferred.
226 Transfer complete.

nnnnnnn bytes transferred in nn.nn seconds. Transfer rate nnn.nn Kbytes/sec.

:
```

h. When all files have been transferred, quit the FTP session.

Command:
quit

```plaintext
>>>QUIT
221 Goodbye!
Ready;
```

9. Verify that all of the files copied from the z/VM product DVD have a fixed (F) file format and a logical record length (LRECL) of 1028.

If the file format or logical record length of any file is incorrect, then the files were copied incorrectly. Erase all of the files from the minidisk and copy the contents of the z/VM product DVD again, using the correct parameters. Repeat substep 8 on page 172.

```
filelist * $default w

<table>
<thead>
<tr>
<th>Cmd</th>
<th>Filename</th>
<th>Filetype</th>
<th>Fm</th>
<th>Format</th>
<th>Lrecl</th>
<th>Records</th>
<th>Blocks</th>
<th>Date</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>xxx22200</td>
<td>$DEFAULT W1 F</td>
<td>1028</td>
<td>nnnn</td>
<td>nnn</td>
<td>dddd</td>
<td>ttttt</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

:
```

10. Verify that all of the files were copied from the z/VM product DVD.

```
filelist * $default w

userid FILELIST W0 V 169 Trunc=169 Size=nnnn Line=1 Col=1 Alt=0

<table>
<thead>
<tr>
<th>Cmd</th>
<th>Filename</th>
<th>Filetype</th>
<th>Fm</th>
<th>Format</th>
<th>Lrecl</th>
<th>Records</th>
<th>Blocks</th>
<th>Date</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>xxx22200</td>
<td>$DEFAULT W1 F</td>
<td>1028</td>
<td>nnnn</td>
<td>nnn</td>
<td>dddd</td>
<td>ttttt</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

:
```

In the Size=nnnn field, nnnn is the number of $DEFAULT files on the minidisk. The DVD contains the 640PROD DVDIMAGE file, which lists the number of image files that should have been copied.

Verify that the numbers are the same. If the numbers are not the same, there are files missing. In this case, you can do one of the following:

a. Copy the missing files.

1) Determine which files are missing. The 640PROD DVDIMAGE file contains a list of all of the files that should have been copied.
2) Copy each of the missing files from the z/VM product DVD by repeating substep 8 on page 172 replacing:

\texttt{mget ddd=} (replace with:

\texttt{get filename filename.$default}

b. Copy the contents of the z/VM product DVD again by repeating substep 8 on page 172.

e. If you used your terminal emulator to upload the contents of the z/VM installation RSU DVD, skip to substep 15 on page 177. Otherwise, copy the contents of the z/VM installation RSU DVD to the same VM minidisk used for the z/VM product DVD.

a. Load the z/VM installation RSU DVD in the DVD drive of the FTP server you are using for installation. Wait until the light on the DVD drive goes out or stops blinking before continuing.

b. Start an FTP session:

\texttt{ftp VM TCP/IP FTP Level nnn}

c. Connect to the FTP server. Enter the FTP server's IP address or host name (host), the user ID used to log on to the FTP server (userid), and the password for the user ID used to log on to the FTP server (password).

\textbf{Note:} The information for host, userid, password, and ftpdir was recorded in upgrade installation worksheet 1 (Table 13 on page 160).

OPEN (name of foreign host):

\begin{verbatim}
Connecting to host 220 FTP Server ready... USER (identify yourself to the host): userid

>>>USER userid 331 User name okay, need password. Password: password

>>>PASS ******** 230 User logged in, proceed

d. Change the remote directory to the FTP path of the DVD drive (ftpdir) with /CPDVD appended to the end of the path (e:/CPDVD, for example).

Command:

\texttt{cd ftpdir/CPDVD}

>>>CWD ftpdir/CPDVD 250 Directory changed to ftpdir/CPDVD

e. Change the local directory to W.

Command:

\texttt{lcd w}

Local directory mode is 'W'

f. Set the file transfer mode to \texttt{binary}, the record format to \texttt{fixed}, and the record length to 1028.

Command:

\texttt{binary f 1028}

>>>TYPE i 200 Type set to I.

Command:

g. Copy all required files from the z/VM installation RSU DVD.
Set up to install from a VM minidisk

mget ddd* (replace  

This value must be entered in uppercase - CKD for 3390 or FBA for FBA (SCSI).

>>>TYPE a
200 Type set to A
>>>PORT host
200 PORT Command successful.
>>>NLST ddd*
150 Opening ASCII mode data connection for /bin/ls.
226 Transfer complete.
>>>TYPE i
200 Type set to I.
>>>PORT host
200 PORT Command successful.
>>>RETR dddnnnnn
150 Opening BINARY mode data connection for dddnnnnn (nnnnnnn Bytes).
nnnnnn bytes transferred.
226 Transfer complete.

nnnnnn bytes transferred in nn.nnn seconds. Transfer rate nnn.nn Kbytes/sec.

:

h. When all files have been transferred, quit the FTP session.

Command:
quit

>>>QUIT
221 Goodbye!
Ready;

12. Verify that all of the files copied from the z/VM installation RSU DVD have a fixed (F) file format and a logical record length (LRECL) of 1028.

If the file format or logical record length of any file is incorrect, the files were copied incorrectly. Erase all of the new $DEFAULT files from the minidisk and copy the contents of the z/VM installation RSU DVD again, using the correct parameters. Repeat substep 11 on page 175.

filelist ddd500* $default w

- CKD for 3390 or FBA for FBA.

<table>
<thead>
<tr>
<th>Cmd</th>
<th>Filename</th>
<th>Filetype</th>
<th>Fm</th>
<th>Format</th>
<th>Lrecl</th>
<th>Records</th>
<th>Blocks</th>
<th>Date</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>xxx50000 $DEFAULT W1 F</td>
<td>1028</td>
<td>nnnn</td>
<td>nnn</td>
<td>dddd</td>
<td>ttttt</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

13. Verify that all of the files were copied from the z/VM installation RSU DVD.

filelist ddd500* $default w

- CKD for 3390 or FBA for FBA.

| userid | FILELIST W0 V 169 Trunc=169 Size=nnnn Line=1 Col=1 Alt=0 |
|--------|------------------------|----------------|--------|------|-------|------|-------|
| Cmd | Filename | Filetype | Fm | Format | Lrecl | Records | Blocks | Date | Time |
|     | xxx22200 $DEFAULT W1 F | 1028 | nnnn | nnn | dddd | ttttt |
|     |

In the Size=nnnn field, nnnn is the number of $DEFAULT files from the RSU DVD on the minidisk. The DVD contains the 64CKDRSU and 64FBARSU DVDIMAGE files, which list the number of image
files that should have been copied for each DASD type.
Verify that the numbers are the same. If the numbers are not the same, there are files missing. In this case, you can do one of the following:

a. Copy the missing files.
   1) Determine which files are missing. The 64dddRSU DVDIMAGE file contains a list of all of the files that should have been copied.
   2) Copy each of the missing files from the z/VM installation RSU DVD by repeating substep [11 on page 175] replacing:
      mget ddd* (replace
      with:
      get filename filename.$default

b. Copy the contents of the z/VM installation RSU DVD again by repeating substep [11 on page 175].

14. The FTP MGET command copied the files with a file type of $DEFAULT. The file type needs to be renamed to IMAGE.

   rename * $default w = image =
   Ready;

15. Set the terminal to alert you 50 seconds after CP issues the MORE... status and to clear 10 seconds after the alert.

   terminal more 50 10
   Ready;

16. Spool the console to make sure it is empty, started, and spooled to the reader.

   spool console close start *
   RDR FILE filenum SENT FROM userid CON WAS nnnn RECS nnnn CPY nnn T NOHOLD NOKEEP
   Ready;

17. Verify you have a 2222 read/write minidisk of exactly 10 cylinders if installing to 3390 or 14400 512-KB blocks if installing to FBA.

   query v 2222
   DASD 2222 3390 xxxx xx 10 CYL ON DASD nnnn SUBCHANNEL = nnnn
   Ready; T=n.nn/n.nn hh:mm:ss

18. Verify that INSTPIPE MODULE exists in your search order.

   listfile instpipe module *
   INSTPIPE MODULE fm

   If you receive:
   DMSLST002E file not found

   access the disk that contains the INSTPIPE MODULE.

   Note: The INSTPIPE MODULE was shipped on the MAINTvrm 4CC disk.

19. Copy the files needed to run DVDPRIME to the 2222 minidisk.

    a. Run INSTPIPE.

       instpipe
       Ready; T=n.nn/n.nn hh:mm:ss

    b. Decode, unpack, and write the files needed to run DVDPRIME to the 2222 minidisk.
Set up to install from a VM minidisk

```
pipe dvddecod ddd222 image w |UNPACK| restcmd 2222
```

This value must be entered in uppercase - CKD for 3390 or FBA for FBA.

```
restcmd
ECKDREST for 3390 or MDREST for FBA.
```

Note: In the above PIPE command you may use a different stage separator by including the `stagesep` keyword. For example:

```
pipe ( stagesep ! ) dvddecod ddd222 image w |UNPACK| restcmd 2222
```

20. IPL CMS to remove the old INSTPIPE MODULE from storage.

```
  ipl cms
  :  
  | ENTER
```

21. Access the minidisk that contains the image files as file mode W.

```
access diskaddr w
```

```
diskaddr
Address of the minidisk where the image files were copied.
```

22. Access the 2222 minidisk as file mode C.

```
access 2222 c
```

23. Verify that the first occurrence of the INSTPIPE MODULE is on the minidisk accessed as file mode C. Remove or rename all other copies.

```
listfile instpipe module *
INSTPIPE MODULE C1
```

24. Run DVDPRIME with the `dasdtype` you are using to install.

```
dvdprime dasdtype (disk
```

- **dasdtype**
  - 3390 or FBA.

```
IUDGVP8327I ** NOW EXECUTING DVDPRIME EXEC ON date AT time **
IUDGVP8440I NOW LOADING 24CC DISK
DMSRXS1408W File TCPIP DATA * not found
{MDREST|ECKDREST}: WROTE nnnn (BLOCKS|TRACKS) ON 24CC, RC=0
IUDGVP8440I NOW LOADING 2CF0 DISK
DMSRXS1408W File TCPIP DATA * not found
{MDREST|ECKDREST}: WROTE nnnn (BLOCKS|TRACKS) ON 2CF0, RC=0
IUDGVP8392I DVDPRIME EXEC ENDED SUCCESSFULLY
```

You might not receive this message.
What to do next

Go to Chapter 18, “Install a z/VM V6.4 work system for your upgrade installation,” on page 181.
Chapter 18. Install a z/VM V6.4 work system for your upgrade installation

In this chapter, you will:

• Run INSTPLAN.
• Verify your upgrade installation volumes.
• Run INSTALL.
Step 1. Run INSTPLAN

Before you begin: You should have completed the upgrade installation worksheets 1 (Table 13 on page 160) through 5 (Table 17 on page 161). If you have not done so, return to Chapter 16, “Plan your upgrade installation,” on page 139.

1. From the MIGMAINT userid, verify that the installation tools minidisk, 24CC, is accessed as (C):

   `query disk c`

   
   ```
   LABEL VDEV M ...
   MNT4CC 24CC C ...
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

2. If you are installing to FBA (SCSI) volumes, see upgrade installation worksheet 4 (Table 16 on page 161) and query each address to verify it is not already defined for a different device (see example below). If the address is already in use, either detach the device or choose a different `dasdaddr` and verify that address does not exist.

   For each address:

   ```
   query voladdr
   HCPQVD040E Device voladdr does not exist
   Ready(00040);
   ```

   Record any changed addresses in the Address column in upgrade installation worksheet 4 (Table 16 on page 161).

3. Run INSTPLAN with the DVD operand, and the UPGRADE option.

   `instplan dvd (upgrade)`

   The installation planning panels are displayed.

   **Figure 14. z/VM Upgrade - Existing Environment Information Panel**

   The Existing Environment Information panel is displayed. Review this information to verify that this is the system you are intending to upgrade.
a. The system type is either SSI or Non-SSI. If the system being that is upgraded is a member of an SSI cluster, System Type is SSI and the other fields displayed are Member Name, which contains the name of the member being upgraded, and Cluster Name, which contains the name of the SSI cluster.

If the system that is being upgraded is not a member of an SSI cluster, System Type is Non-SSI and the other field displayed is System Name, which contains the name of the system being upgraded.

b. If the system that is being upgraded is a member of an SSI cluster, the Members in this Cluster fields are displayed. For each member in the cluster, the slot number, member name, and current release level of that member are displayed.

c. The Common Service Filepool Name field contains the name of the common service filepool, as defined to the system being upgraded. This is either the IBM default name VMPSFS or the name you selected in ICOMDIR NAMES to map your filepool name to the filepool nickname VMPSFS.

d. The Current z/VM Product Information fields display the z/VM pre-installed products and where they are installed (filepool or minidisk). It also indicates which products are enabled or disabled. A blank in this field indicates that enabled/disabled does not apply to that product.

e. Press F5 to continue if this is the system you intend to upgrade.

F5

4. The License Validation panel will be displayed if you have priced components or features enabled on your current system. If you do, a list of the features that are enabled on the system you intend to upgrade will be displayed. Upgrade installation will enable these same features on the new level of z/VM. Confirm that you have all the necessary licenses for each pre-installed component and feature that is enabled on your system. If you do not have any IBM pre-installed products or features enabled on your system, the license validation panel will not be displayed and you should skip to substep 5 on page 184.

---

*** z/VM UPGRADE - LICENSE VALIDATION ***

Upgrade Installation will automatically enable the same features for your new system that are enabled on your current system. The features that are enabled on your current system are listed below. The new features must be appropriately licensed for all machines that will run your new system.

If you have ordered these features and accept the licensing terms and conditions, press F5 to acknowledge your agreement and acceptance of the terms and conditions. If you are accepting these terms on behalf of another person or company or other legal entity, you represent and warrant that you have full authority to bind that person, company, or legal entity to these conditions.

If you do not agree to these terms, or you do not have licenses for all the features listed below, press F3 to cancel the installation.

SSI Feature: ENABLED
DirMaint: ENABLED
PERFTK: ENABLED
RACF: ENABLED
RSCS: ENABLED

F1 = HELP  F3/12 = QUIT  F5 = I Agree

Figure 15. z/VM Upgrade - License Validation Panel

a. This panel shows which z/VM components and features are enabled on the system that is being upgraded. You must verify that you have appropriate licenses for each of these components and features for the release to which you are upgrading.

b. Press F5 to agree that you have appropriate licenses on the new release of z/VM.

F5
Run INSTPLAN

If you do not have all the required licenses, press F3 or F12 to exit. Rerun the upgrade procedure once you have obtained the necessary licenses.

5. Complete the User Supplied Environment Information panel using the information you entered in Upgrade Planning Worksheet 2 (Table 14 on page 160).

---

*** z/VM UPGRADE - USER SUPPLIED ENVIRONMENT INFORMATION ***

Select a System DASD size.

- 3390 Mod 3
- 3390 Mod 9
- 3390 Mod 27

If you changed the name or location of your system configuration file, change the values below.

System Configuration Name: SYSTEM CONFIG  UserID: PMAINT  Addr: CF0

Do you edit your CP directory file manually?

- YES  User Directory Name: USER  DIRECT  UserID: PMAINT  Addr: 2CC
- NO

RACF is disabled for the system you are upgrading.

Are you using a different security manager?

- YES
- NO

F1 = HELP  F3/F12 = QUIT  F5 = Process  ENTER = Refresh

---

Figure 16. z/VM Upgrade - User Supplied Environment Information Panel

a. The Select a System DASD size field will display only the installation DASD type for the system you are upgrading.

If your IBM installed minidisks reside on 3390 volumes: You may select either 3390 Mod 3, 3390 Mod 9, or 3390 Mod 27. Place any nonblank character in front of the DASD model where the new upgrade work system will be loaded. Only one DASD model can be selected.

If your IBM installed minidisks reside on FBA volumes: FBA DASD with the default minimum DASD size of 6.0 gigabytes will be displayed. Place any nonblank character in front of the FBA DASD field. If you are using FBA DASD with a size larger than the default minimum, change the size field.

b. The System Configuration Name fields are preloaded with the default filename, filetype, and location of the file as shipped by IBM. If the system you are upgrading changed any of these values, enter the actual filename, filetype and/or location of your system configuration file.

c. If you make changes to the user definitions on your system by directly editing the CP user directory file, place a nonblank character in front of YES. If you have changed the defaults shipped by IBM, update the filename, filetype and/or location of your user directory with the actual file information. Otherwise, enter a nonblank character in front of NO.

d. If the RACF/VM Security Server is enabled on the system you are upgrading, this panel will not display any information related to the security manager. If you are using any security manager other than RACF, place a nonblank character in front of YES. If you are not using a security manager, place a nonblank character in front of NO.

e. Press F5 to process your selections.

F5

6. Complete the Installation Volume Definition panel using the information you entered on Upgrade Installation Worksheet 3 for 3390 (Table 15 on page 160) or Upgrade Installation Worksheet 4 for FBA (Table 16 on page 161).
If you do not want to use a default volume label, then enter a new label in the LABEL field. See upgrade installation worksheet 3 (Table 15 on page 160) or upgrade installation worksheet 4 (Table 16 on page 161) for the labels you selected during planning.

Fill in the volume addresses in the ADDRESS fields. See upgrade installation worksheet 3 (Table 15 on page 160) or upgrade installation worksheet 4 (Table 16 on page 161) for the addresses you selected during planning.

Fill in the FORMAT (Y/N) column with Y to let the installation program format your installation volumes or N to not format your installation volumes. Specify N only if you have already CP formatted your volumes for this installation using ICKDSF or CPFMTXA. If you specify N, the volumes will be labeled but not formatted.

Press F5 to process your selections.

7. Complete the Additional Space Requirements panel.

Note: If you are upgrading from V6.3 to V6.4, you will not see all of these user IDs shown.
a. Using Upgrade Installation Worksheet 5 (Table 17 on page 161), fill in:
   - The labels of the volumes where the space for each user ID will be allocated.
b. If you edit your CP user directory file manually, using upgrade installation worksheet 5 (Table 17 on page 161), fill in:
   - The starting cylinder or block where the minidisks for this user ID will be defined.
   - The ending cylinder or block where the minidisks for this user ID will be defined.
   - The space available between the START and END values must be equal to or larger than the value displayed in the MINIMUM column.
c. Press F5 to process.

F5

8. A summary of your upgrade information is displayed. The output you see may be different due to your planning choices and your current system environment. Review the output displayed to verify your planning choices. If any of the information displayed is not correct, rerun the INSTPLAN command and supply corrected information.

Notes:

a. You may not see message IUGPU8418W.
b. If you are upgrading from V6.3 to V6.4, you will not see all of these user IDs shown.
IUGPUX8475I  SYSTEM UPGRADE INFORMATION
EXISTING MEMBER INFORMATION:
  SYSTEM TYPE:  SSI  SYSTEM/MEMBER NAME:  name  CLUSTER NAME:  name
  COMMON SERVICE FILEPOOL:  fpname
z/VM PRODUCTS/FEATURES ENABLED:
  SSI  PERFTK  RSCS  RACF  DIRMAINT
ADDITIONAL SPACE REQUIREMENTS:

<table>
<thead>
<tr>
<th>MEMBER VOLUME</th>
<th>USER ID</th>
<th>MIN</th>
<th>LABEL</th>
<th>START</th>
<th>END</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTCVS3W3</td>
<td>nnnn</td>
<td></td>
<td>label</td>
<td>nnnn</td>
<td>nnnn</td>
</tr>
<tr>
<td>DTCVS4W4</td>
<td>nnnn</td>
<td></td>
<td>label</td>
<td>nnnn</td>
<td>nnnn</td>
</tr>
<tr>
<td>TCPMAINT</td>
<td>nnnn</td>
<td></td>
<td>label</td>
<td>nnnn</td>
<td>nnnn</td>
</tr>
<tr>
<td>PERF SVM</td>
<td>nnnn</td>
<td></td>
<td>label</td>
<td>nnnn</td>
<td>nnnn</td>
</tr>
<tr>
<td>OPN CLOUD</td>
<td>nnnn</td>
<td></td>
<td>label</td>
<td>nnnn</td>
<td>nnnn</td>
</tr>
<tr>
<td>VSMGUARD</td>
<td>nnnn</td>
<td></td>
<td>label</td>
<td>nnnn</td>
<td>nnnn</td>
</tr>
<tr>
<td>VSM WORK 1</td>
<td>nnnn</td>
<td></td>
<td>label</td>
<td>nnnn</td>
<td>nnnn</td>
</tr>
<tr>
<td>VSM WORK 2</td>
<td>nnnn</td>
<td></td>
<td>label</td>
<td>nnnn</td>
<td>nnnn</td>
</tr>
<tr>
<td>VSM WORK 3</td>
<td>nnnn</td>
<td></td>
<td>label</td>
<td>nnnn</td>
<td>nnnn</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COMMON VOLUME</th>
<th>USER ID</th>
<th>MIN</th>
<th>LABEL</th>
<th>START</th>
<th>END</th>
</tr>
</thead>
<tbody>
<tr>
<td>6VMDIR40</td>
<td>nnnn</td>
<td></td>
<td>label</td>
<td>nnnn</td>
<td>nnnn</td>
</tr>
<tr>
<td>5684042J</td>
<td>nnnn</td>
<td></td>
<td>label</td>
<td>nnnn</td>
<td>nnnn</td>
</tr>
</tbody>
</table>

WORK SYSTEM INFORMATION:
  DASD TYPE SELECTED:  type model
  FORMAT VOLUMES:  y/n
  VOLUME LABELS AND ADDRESSES:
    lbcm1   addr
    lbcm2   addr
    lbrl1   addr
    lbrl2   addr
    lbrl3   addr
    lbrres  addr
    lbsp1   addr
    lbpag   addr
    tblwk1  addr
    tblwk2  addr
    tblwk3  addr

IUGPUX8418W  Not enough space available in filepool fpname
  Your existing fpname filepool has nnnnnnnn blocks available.
  You need nnnnnnnn blocks in storage group 2 to load the new filespaces.
  You must increase your filepool by nnnnnn blocks before running INSTUPGR

IUGINP8392I  INSTPLAN EXEC ENDED SUCCESSFULLY
Ready;  T=n.nn/n.nn hh:mm:ss

9. Verify that the information listed in the response from the INSTPLAN command matches the system you are upgrading and the information listed on your upgrade installation worksheets.
Step 2. Verify your upgrade installation volumes

1. Log on to the MIGMAINT user ID on the system being upgraded.
2. If you are installing to 3390, skip to substep 8 on page 189.
3. If the SCSI volumes you are installing to are defined as minidisks on your installation user ID, skip to substep 8 on page 189.
4. If the SCSI volumes you are installing to have already been defined, either in the SYSTEM CONFIG or by using the SET EDEVICE command, skip to substep 7. If not yet defined, continue with the next substep.
5. To define the SCSI volumes, you need to know which FCP addresses are valid for your SCSI volumes. If you know the FCP address or the range of addresses associated with your SCSI volume addresses, skip this substep.
   If only the channel path id is known, issue the Query CHPID command to display all FCP addresses associated with the path. For example, if the channel path is X'66', issue:
   
   ```
   query chpid 66
   Path 66 online to devices 517C 5319 5500 8100 8101 8102 8103 8104
   Path 66 online to devices 8105 8106 8107 8108 8109 810A 810B 810C
   Path 66 online to devices 8110 8110E 8110F 8111 8112 8113 8114
   Path 66 online to devices 8115 8116 8117 8118 8119 811A 811B 811C
   Path 66 online to devices 811D 811E 811F
   ```
6. To define the SCSI volumes, use the information recorded in upgrade installation worksheet 4 (Table 16 on page 161). See z/VM: CP Planning and Administration for information on defining SCSI disks. The following information will provide each SCSI volume with a basic definition.
   For each SCSI volume:
   a. Select and record a free FCP address for each edevice. You should use one FCP device for the 640RES and a different (or multiple different) FCPs for the other volumes.
      
      ```
      query fcp free
      ```
      
      Choose a device from the output. Record a FCP address for each edevice in the FCP Address column in upgrade installation worksheet 4 (Table 16 on page 161).
   b. Define the device address.
      
      ```
      set edevice dasdaddr type fba attr scsi fcp_dev fcpn wwwn www lun 111
      ```
      
      `dasdaddr`
      
      The edevice address from traditional installation worksheet 5 (Table 7 on page 19).
      
      `fcpn`
      
      FCP address (you should use one FCP device for the 640RES and a different, or multiple different, FCPs for the other disks).
      
      `www`
      
      World Wide port number.
      
      `lli`
      
      LUN address.
7. Vary on any SCSI volumes not already online. Repeat this substep for each volume.
   
   ```
   vary on dasdaddr
   ```
8. Attach each DASD volume listed on upgrade installation worksheet 3 (Table 15 on page 160) or upgrade installation worksheet 4 (Table 16 on page 161) that is not already attached. Enter the following ATTACH command for each volume:

`attach dasdaddr *`  
DASD dasdaddr ATTACHED TO userid dasdaddr  
`userid`  
Ready; T=n.nn/n.nn hh:mm:ss

`Dasdaddr`  
Address of the DASD volume.  
`userid`  
First-level user ID logged on to previously.

**Attention:** Issue the QUERY DASD ATTACH * command to verify there are no DASD attached to your user ID with the same label as those being used for installation. You must detach any duplicate-labeled DASD from your user ID to prevent bringing them online.
Step 3. Run INSTALL

1. From the MIGMAINT userid, access the 24CC minidisk as file mode C.

   access 24cc c
   Ready; T=n.nn/n.nn hh:mm:ss

2. Run INSTALL to install your new V6.4 work system for your upgrade installation.

   Note: You must not disconnect your MIGMAINT user ID. The installation procedure will IPL the z/VM system a number of times and these will fail if MIGMAINT is running disconnected.

   install

   At this point, messages related to activities performed by installation, such as formatting and allocation DASD, restoring data, IPLing the system, and running SERVICE and PUT2PROD will be displayed.
   If you receive one of the following messages:
   IUGILB8300E FILE ddd50000 IMAGE W NOT FOUND
   IUGILB8342E THE COMMAND 'PIPE DVDDECOD ddd500 FAILED WITH RC=rc'

   make sure you load the installation RSU DVD to your installation minidisk or FTP server before restarting.
   If you are installing from a physical DVD, you will receive the following prompt:

   HCPIRU8484R PLEASE PLACE THE INSTALLATION RSU DVD IN THE DRIVE, THEN TYPE GO TO CONTINUE OR TYPE EXIT TO QUIT.

   Place the installation RSU DVD in the DVD drive and wait until the light on the DVD drive goes out or stops blinking, then enter go.
   Do not attempt to skip installing the RSU during upgrade.
   If you enter exit, your installation will not be complete. You must rerun the INSTALL command and enter go to load the RSU files before you can continue to the next step.
   If the installation fails while loading the installation RSU DVD, issue INSTALL to try again.

   HCPIRU8440I NOW LOADING MAINTvrm 500 DISK
   HCPIRU8341I LOAD OF INSTALLATION RSU COMPLETED SUCCESSFULLY

   When the INSTALL exec completes, there will be one additional IPL, the system will come back up logged on to MAINT640, and the following will be displayed:
**THE INSTALLATION OF YOUR UPGRADE WORK SYSTEM IS COMPLETE.**
**THIS SYSTEM WILL BE SHUTDOWN AND YOU WILL BE RETURNED TO MIGMAINT ON THE SYSTEM YOU ARE UPGRAADING.**
**ONCE THE SYSTEM SHUTDOWN IS COMPLETE:**
**IPL CMS ON MIGMAINT**
**CONTINUE WITH THE INSTRUCTIONS IN THE INSTALLATION GUIDE.**

**WHAT TO DO NEXT**

Go to Chapter 19, “Generate the STAGE1 changes file,” on page 193.
Chapter 19. Generate the STAGE1 changes file

In this chapter, you will:

- Create a backup copy of the system being upgraded.
- Run INSTUPGR to create the STAGE1 changes file.
Create a backup copy of the system being upgraded

Step 1. Create a backup copy of the system being upgraded

Before you begin to upgrade your system, you should create a backup copy of the system to be upgraded following your normal backup procedures.

If updates are made to the system being upgraded that cannot be backed out, this backup can be used to restore the system to the state it was in before the installation upgrade STAGE1 procedure started.
Step 2. Generate the STAGE1 table

1. Make sure any user IDs that have write links to the system inventory and service disks, such as PMAINT, MAINT, MAINT620, MAINT630, MAINT640, and product installation IDs 6VMxxx20, 6VMxxx30, and 6VMxxx40, are logged off the system you are upgrading and all other members of your cluster before logging onto MIGMAINT.

2. Log on to the MIGMAINT user ID on the system being upgraded. Make sure the user ID meets the MIGMAINT user ID requirements.

3. Access the 24CC minidisk as file mode C.

```
access 24cc c
Ready; T=n.nn/n.nn hh:mm:ss
```

4. Run INSTUPGR to generate the $STAGE1$ $TABLE$ file, which will list the STAGE1 changes needed to upgrade your system.

```
instrupr stage1 (prime
IUGUPG8392I INSTUPGR ended successfully
Ready; T=n.nn/n.nn hh:mm:ss
```

5. If INSTUPGR completes with warnings, they will be displayed on the screen and also logged in the file $STAGE1$ $WRNFILE on the MIGMAINT 2CF0 disk (accessed as filemode E). Review the warnings and resolve any issues before continuing to Chapter 20, “Update your current system with the STAGE1 changes,” on page 197.

6. If any errors occur, review the error messages in file INSTUPGR $CONSLOG on the MIGMAINT 2CF0 minidisk (accessed as filemode E), correct the condition that is causing the error, and then go back to substep 4.

What to do next

Go to Chapter 20, “Update your current system with the STAGE1 changes,” on page 197.

Note: During the next step, the IBM-supplied filepools are restarted.
Generate the STAGE1 table
Chapter 20. Update your current system with the STAGE1 changes

In this chapter, you will:

• Make the changes to your current system identified in the $STAGE1$ $TABLE$. 
**Step 1. Choose your update option**

In the previous step a file named $STAGE1$ $TABLE$ was generated on the MIGMAINT 2CF0 disk by the INSTUPGR command. This table contains a list of actions to be taken on your current system in order to complete the first stage of your system upgrade. Each entry in the table consists of one or more comment lines that describe an action to be taken and then one or more lines with more detailed information so that a program or a person could read the information and perform the action on a specific system.

There are three ways to complete these actions:

1. Run the INSTUPGR command with operand STAGE1 and option COMMIT. The programs supplied by IBM will read the $STAGE1$ $TABLE$ and perform all the actions listed. If you are using a directory manager program on your system and that program has provided an exit to work with the IBM upgrade code, that exit will be called to perform directory functions. If you edit your CP user directory manually, INSTUPGR will make the necessary changes to your CP user directory file, using the information you provided when you ran the INSTPLAN command. In either case, INSTUPGR will generate a file that will allow you to back out the changes made to this point. If you edit your CP user directory manually, backout will consist of restoring the user directory that existed before running INSTUPGR STAGE1 (COMMIT). Any changes made to the user directory by your normal procedures after STAGE1 (COMMIT begins would be lost. You need to document any changes made by your normal procedures so they can be restored after backout.

2. Manually update your system with the changes listed in the $STAGE1$ $TABLE$. You can perform all of the changes listed in the table and edit the table to mark them as complete. Note that some changes are dependent on earlier entries being complete. You must complete all entries in the order they appear in the table.

   **Note:** If you choose this option, no backout file is created. If you decide not to use the upgrade installation procedure after you have made changes to your system, you will need to remove the changes manually.

3. Use a combination of options 1 and 2. If you prefer, you can make some of the required changes manually and allow the INSTUPGR program to make the rest. Note that some changes are dependent on earlier entries being complete. You must complete all entries in the order they appear in the table and you must complete all the entries that precede the changes you select to make manually. To use this method, make the changes you wish to make yourself first and update the $STAGE1$ $TABLE$ to mark just those changes as complete. Then run the INSTUPGR command with operand STAGE1 and option COMMIT. The INSTUPGR program will make any changes to your system that you have not marked as completed and it will update the $STAGE1$ $TABLE$ and all other required status tables. It will also generate a backout file. This backout file will only contain records for the changes that were made by the INSTUPGR program. If you decide not to use the upgrade installation procedure after you have made changes to your system, you will need to remove the changes you made manually.

No matter which option you choose, the changes listed in the $STAGE1$ $TABLE$ file must be completed before moving on to STAGE2.

To use the INSTUPGR command to make your system changes, follow "Step 2. Use the INSTUPGR command to make your STAGE1 system changes" on page 199.

To make some of the changes to your system manually, follow "Step 3. Make some of the STAGE1 changes to your system manually" on page 200.

To make all of the changes to your system manually, follow "Step 4. Make all of the STAGE1 changes to your system manually" on page 201.
Use the INSTUPGR command to make your STAGE1 system changes

Step 2. Use the INSTUPGR command to make your STAGE1 system changes

1. Log on to the MIGMAINT user ID on the system being upgraded. Make sure the user ID meets the MIGMAINT user ID requirements.

2. Access the 24CC minidisk as file mode C.
   
   access 24cc c
   Ready; T=n.nn/n.nn hh:mm:ss

3. Run INSTUPGR to upgrade your system with STAGE1 changes defined in the $STAGE1$ $TABLE$ file.

   instupgr stage1 (commit
   Now processing line 10 of nnn
   Now processing line 20 of nnn
   :
   IUGUPG8392I INSTUPGR ended successfully
   Ready; T=n.nn/n.nn hh:mm:ss

4. If any errors occur, review the error messages in file INSTUPGR SCONSLOG on the MIGMAINT 2CF0 minidisk (accessed as filemode E), correct the condition that is causing the error, and then go back to substep 3.

   Note: For some error conditions, you may need to remove the changes that have been made on your system up to this point. If this is the case, see Appendix P, “Removing changes made by STAGE1 (optional),” on page 317.

What to do next

Go to Chapter 21, “Finish the STAGE1 upgrade,” on page 203.
Step 3. Make some of the STAGE1 changes to your system manually

1. Log on to the MIGMAINT user ID on the system being upgraded. Make sure the user ID meets the MIGMAINT user ID requirements.

2. Access the 24CC minidisk as file mode C.

   access 24cc c
   Ready; T=n.nn/n.nn hh:mm:ss

3. Access the 2CF0 minidisk as file mode E.

   access 2cf0 e
   Ready; T=n.nn/n.nn hh:mm:ss

4. Review the entries in the $STAGE1$ $TABLE$ to determine which changes you want to perform yourself.

   Some changes are dependent on earlier entries being complete. You must complete all entries in the order they appear in the table, so you must also manually complete all the entries that precede the changes you select to make manually.

   For each entry in the $STAGE1$ $TABLE$ that you selected to manually update on your system:
   
a. See Appendix N, “$STAGE1$ $TABLE$ entry definitions,” on page 287 for a description of the changes required for that entry.
   
b. Make the changes to your system. You should document the changes you made, for potential backout purposes.
   
c. Once an entry has been completed, update the entry in the $STAGE1$ $TABLE$ with a dash (-) in the first column to indicate that the entry has been completed.

5. Once you have completed all of the changes you selected and you have updated the $STAGE1$ $TABLE$, go to “Step 2. Use the INSTUPGR command to make your STAGE1 system changes” on page 199 to complete the rest of the entries.

Note: If you decide not to use the upgrade installation to upgrade this system, you should refer to Appendix P, “Removing changes made by STAGE1 (optional),” on page 317 for information on removing the changes made up to this point.
Step 4. Make all of the STAGE1 changes to your system manually

1. Log on to the MIGMAINT user ID on the system being upgraded. Make sure the user ID meets the MIGMAINT user ID requirements.

2. Access the 24CC minidisk as file mode C.

   ```
   access 24cc c
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

3. Access the 2CF0 minidisk as file mode E.

   ```
   access 2cf0 e
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

4. Review the entries in the $STAGE1$ TABLE.
   Some changes are dependent on earlier entries being complete. You must complete all entries in the order they appear in the table.
   For each entry in the $STAGE1$ TABLE:
   a. See Appendix N, “$STAGE1$ TABLE entry definitions,” on page 287 for a description of the changes required for that entry.
   b. Make the changes to your system. You should document the changes you made, for potential backout purposes.
   c. Once an entry has been completed, update the entry in the $STAGE1$ TABLE with a dash (-) in the first column to indicate that the entry has been completed.

5. Once all the changes are complete and you have updated the $STAGE1$ TABLE, run the INSTUPGR command to update the appropriate status tables so that you can proceed with the second stage of your upgrade installation.

   ```
   instupgr stagel (commit done
   IUGUPG8392I INSTUPGR ended successfully
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

Note: If you decide not to use the upgrade installation to upgrade this system, you should refer to Appendix P, “Removing changes made by STAGE1 (optional),” on page 317 for information on removing the changes made up to this point.

What to do next

Go to Chapter 21, “Finish the STAGE1 upgrade,” on page 203.
Chapter 21. Finish the STAGE1 upgrade

In this chapter, you will:

- Review external security manager (ESM) considerations.
- Review directory considerations.
- Rework your local modifications.
Step 1. Review external security manager (ESM) considerations

If you are not running an external security manager (ESM), skip to “Step 2. Review directory considerations” on page 210.

If you are upgrading a multimember SSI cluster and this is not the first member to be upgraded to z/VM V6.4, skip this step and go to “Step 2. Review directory considerations” on page 210.

Refer to the documentation for your security manager to perform the following steps, as necessary:

1. Make sure the MAINT640 user ID is authorized to:
   - Link to any minidisk on the system without the need to supply a password.
   - Perform security authorizations on behalf of other users.
   - Perform all SFS administration functions, if you are managing SFS with your security manager.

2. If you are upgrading from z/VM V6.2 or V6.3 to z/VM V6.4 and you are using an ESM to manage logon authorizations:
   - The following user IDs were added to the user directory with the default password. Make sure your ESM will allow these user IDs to be logged on:
     
     MAINT640  
     6VMDIR40  
     6VMPTK40  
     6VMRAC40  
     6VMRSC40  
     6VMTCP40  
     6VMHCD40  
     DTCVSW3  
     DTCVSW4
   
   - The following user IDs were added to the user directory with the AUTOONLY password. Make sure your ESM will allow this user ID to be autologged:
     
     OPNCLLOUD

3. If you are using an ESM to manage disk access:
   - The following component user IDs were added for the new release:
     - The user IDs for the new release need to have the same disk authorizations as the corresponding user IDs for the old release.
     - User IDs that are currently authorized to access resources owned by the user IDs from the old release must now be authorized for the same resources as the user IDs for the new release.
     - If you are using RACF, you can use the RACF command RLIST for each user ID and minidisk from the old release to determine the current disk authorization.

<table>
<thead>
<tr>
<th>New release</th>
<th>Old release</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAINT640</td>
<td>MAINT6x0</td>
</tr>
<tr>
<td>6VMDIR40</td>
<td>6VMDIRx0</td>
</tr>
<tr>
<td>6VMPTK40</td>
<td>6VMPTKx0</td>
</tr>
<tr>
<td>6VMRAC40</td>
<td>6VMRACx0</td>
</tr>
<tr>
<td>6VMRSC40</td>
<td>6VMRSCx0</td>
</tr>
<tr>
<td>6VMTCP40</td>
<td>6VMTCPx0</td>
</tr>
<tr>
<td>6VMHCD40</td>
<td>6VMHCDx0</td>
</tr>
</tbody>
</table>

- If you are upgrading from z/VM V6.2 or V6.3 to z/VM V6.4, the following new user IDs were added and need the following link authorizations:
### Review external security manager (ESM) considerations

<table>
<thead>
<tr>
<th>User ID</th>
<th>Link authorization</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPNCLOUD</td>
<td>MAINT 190 RR&lt;br&gt;MAINT 19E RR&lt;br&gt;MAINT 193 RR&lt;br&gt;MAINT640 400 RR</td>
</tr>
<tr>
<td>DTCVSW3</td>
<td>6VMTCP40 491 RR&lt;br&gt;6VMTCP40 492 RR&lt;br&gt;TCPMAINT 591 RR&lt;br&gt;TCPMAINT 592 RR&lt;br&gt;TCPMAINT 198 RR</td>
</tr>
<tr>
<td>DTCVSW4</td>
<td>6VMTCP40 491 RR&lt;br&gt;6VMTCP40 492 RR&lt;br&gt;TCPMAINT 591 RR&lt;br&gt;TCPMAINT 592 RR&lt;br&gt;TCPMAINT 198 RR</td>
</tr>
</tbody>
</table>

- If you are upgrading from z/VM V6.2 to z/VM V6.4, current users need authorizations for the following links that were added for this release:

<table>
<thead>
<tr>
<th>User ID</th>
<th>Link authorization</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIRMAINT</td>
<td>TCPMAINT 592 RR</td>
</tr>
<tr>
<td>MAINT</td>
<td>MAINT640 400 RR</td>
</tr>
<tr>
<td>LOHHCOST</td>
<td>MAINT640 400 RR&lt;br&gt;MAINT 193 RR</td>
</tr>
<tr>
<td>SYSADMIN</td>
<td>PM Maint 551 RR</td>
</tr>
</tbody>
</table>

- If you are upgrading from z/VM V6.2 or z/VM V6.3 to z/VM V6.4, current users need authorizations for the following links that were added for this release:

<table>
<thead>
<tr>
<th>User ID</th>
<th>Link authorization</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAINT</td>
<td>MAINT640 400 RR</td>
</tr>
<tr>
<td>MAINT</td>
<td>MAINT640 5E6 RR</td>
</tr>
<tr>
<td>BLDSEG</td>
<td>MAINT 5E6 RR</td>
</tr>
<tr>
<td>RACFSMF</td>
<td>RACFVM 301 MR</td>
</tr>
<tr>
<td>RACFSMF</td>
<td>RACFVM 302 MR</td>
</tr>
</tbody>
</table>

4. The following user IDs have links that were changed during the upgrade installation. These user IDs need to be authorized to link to the new disks for the link mode indicated:

<table>
<thead>
<tr>
<th>User ID</th>
<th>Old link (with mode)</th>
<th>New link (with mode)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RACMAINT</td>
<td>6VMRACx0 191 RR&lt;br&gt;6VMRACx0 29E RR&lt;br&gt;6VMRACx0 505 MR&lt;br&gt;6VMRACx0 590 MR</td>
<td>6VMRAC40 191 RR&lt;br&gt;6VMRAC40 29E RR&lt;br&gt;6VMRAC40 505 MR&lt;br&gt;6VMRAC40 590 MR</td>
</tr>
<tr>
<td>TCPMAINT</td>
<td>6VMTCPx0 491 RR&lt;br&gt;6VMTCPx0 492 RR</td>
<td>6VMTCP40 491 RR&lt;br&gt;6VMTCP40 492 RR</td>
</tr>
<tr>
<td>DIRMAINT</td>
<td>6VMDIRx0 11F MR&lt;br&gt;6VMDIRx0 41F MR&lt;br&gt;6VMDIRx0 491 MR&lt;br&gt;6VMDIRx0 492 MR</td>
<td>6VMDIR40 11F MR&lt;br&gt;6VMDIR40 41F MR&lt;br&gt;6VMDIR40 491 MR&lt;br&gt;6VMDIR40 492 MR</td>
</tr>
</tbody>
</table>
Review external security manager (ESM) considerations

<table>
<thead>
<tr>
<th>User ID</th>
<th>Old link (with mode)</th>
<th>New link (with mode)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAINT</td>
<td>MAINT6x0 201 RR</td>
<td>MAINT640 201 RR</td>
</tr>
<tr>
<td></td>
<td>MAINT6x0 490 RR</td>
<td>MAINT640 490 RR</td>
</tr>
<tr>
<td></td>
<td>MAINT6x0 493 RR</td>
<td>MAINT640 493 RR</td>
</tr>
<tr>
<td></td>
<td>MAINT6x0 5E5 RR</td>
<td>MAINT640 5E5 RR</td>
</tr>
<tr>
<td></td>
<td>MAINT6x0 51D RR</td>
<td>MAINT640 51D RR</td>
</tr>
<tr>
<td></td>
<td>MAINT6x0 890 RR</td>
<td>MAINT640 890 RR</td>
</tr>
</tbody>
</table>

If z/VM or Performance Toolkit was loaded to filepool, the links in the following table do not exist. If z/VM or Performance Toolkit was loaded to minidisk, the user IDs listed need authorization to the new disks:

<table>
<thead>
<tr>
<th>User ID</th>
<th>Old link (with mode)</th>
<th>New link (with mode)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAINT</td>
<td>MAINT6x0 194 RR</td>
<td>MAINT640 194 RR</td>
</tr>
<tr>
<td></td>
<td>MAINT6x0 2A2 RR</td>
<td>MAINT640 2A2 RR</td>
</tr>
<tr>
<td></td>
<td>MAINT6x0 2A4 RR</td>
<td>MAINT640 2A4 RR</td>
</tr>
<tr>
<td></td>
<td>MAINT6x0 2A6 RR</td>
<td>MAINT640 2A6 RR</td>
</tr>
<tr>
<td></td>
<td>MAINT6x0 2C4 RR</td>
<td>MAINT640 2C4 RR</td>
</tr>
<tr>
<td></td>
<td>MAINT6x0 2D2 RR</td>
<td>MAINT640 2D2 RR</td>
</tr>
<tr>
<td>PERFSVM</td>
<td>6VMPTkx0 200 RR</td>
<td>6VMPTK40 200 RR</td>
</tr>
<tr>
<td></td>
<td>6VMPTkx0 29D RR</td>
<td>6VMPTK40 29D RR</td>
</tr>
</tbody>
</table>

5. The following user IDs have links to a disk that is actually owned by a different user ID (an indirect resource). The user IDs listed in the table need to be authorized to link to the indirect resource for the link mode indicated:

Table 18. Links to indirect resources, Part 1 of 3

<table>
<thead>
<tr>
<th>User ID</th>
<th>Directory link (with mode)</th>
<th>Indirect resource (with mode)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EREP</td>
<td>MAINT 201 RR</td>
<td>MAINT640 201 RR</td>
</tr>
<tr>
<td>LOHCOST</td>
<td>MAINT 400 RR</td>
<td>MAINT640 400 RR</td>
</tr>
<tr>
<td>MIGMAINT</td>
<td>MAINT 5E5 RR</td>
<td>MAINT640 5E5 RR</td>
</tr>
<tr>
<td></td>
<td>MAINT 51D MR</td>
<td>MAINT640 51D MR</td>
</tr>
<tr>
<td>4OSASF40</td>
<td>MAINT 5E5 RR</td>
<td>MAINT640 5E5 RR</td>
</tr>
<tr>
<td></td>
<td>MAINT 51D MR</td>
<td>MAINT640 51D MR</td>
</tr>
<tr>
<td></td>
<td>TCPMAINT 492 RR</td>
<td>6VMTCP40 492 RR</td>
</tr>
<tr>
<td>5684042J</td>
<td>MAINT 5E5 RR</td>
<td>MAINT640 5E5 RR</td>
</tr>
<tr>
<td></td>
<td>MAINT 51D MR</td>
<td>MAINT640 51D MR</td>
</tr>
<tr>
<td></td>
<td>TCPMAINT 492 RR</td>
<td>6VMTCP40 492 RR</td>
</tr>
<tr>
<td>PERSMAPI</td>
<td>PERFSVM 200 RR</td>
<td>6VMPTK40 200 RR¹</td>
</tr>
<tr>
<td></td>
<td>PERFSVM 29D RR</td>
<td>6VMPTK40 29D RR¹</td>
</tr>
<tr>
<td>IBMUSER</td>
<td>RACMAINT 29E RR</td>
<td>6VMRAC40 29E RR</td>
</tr>
<tr>
<td></td>
<td>RACMAINT 305 RR</td>
<td>6VMRAC40 505 RR</td>
</tr>
<tr>
<td></td>
<td>RACMAINT 192 RR</td>
<td>6VMRAC40 191 RR</td>
</tr>
</tbody>
</table>

¹ If PERFTK was loaded to filepool, this disk does not exist. No authorization is necessary.

Table 19. Links to indirect resources, Part 2 of 3

<table>
<thead>
<tr>
<th>User ID</th>
<th>Directory link (with mode)</th>
<th>Indirect resource (with mode)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATAMOVE</td>
<td>DIRMMAINT 191 RR</td>
<td>6VMDIR40 491 RR</td>
</tr>
<tr>
<td></td>
<td>DIRMMAINT 192 RR</td>
<td>6VMDIR40 492 RR</td>
</tr>
<tr>
<td></td>
<td>DIRMMAINT 11F RR</td>
<td>6VMDIR40 11F RR</td>
</tr>
<tr>
<td></td>
<td>DIRMMAINT 21F RR</td>
<td>6VMDIR40 41F RR</td>
</tr>
<tr>
<td>User ID</td>
<td>Directory link (with mode)</td>
<td>Indirect resource (with mode)</td>
</tr>
<tr>
<td>----------</td>
<td>----------------------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>DATAMOV2</td>
<td>DIRMAINT 191 RR</td>
<td>6VMDIR40 491 RR</td>
</tr>
<tr>
<td></td>
<td>DIRMAINT 192 RR</td>
<td>6VMDIR40 492 RR</td>
</tr>
<tr>
<td></td>
<td>DIRMAINT 11F RR</td>
<td>6VMDIR40 11F RR</td>
</tr>
<tr>
<td></td>
<td>DIRMAINT 21F RR</td>
<td>6VMDIR40 41F RR</td>
</tr>
<tr>
<td>DATAMOV3</td>
<td>DIRMAINT 191 RR</td>
<td>6VMDIR40 491 RR</td>
</tr>
<tr>
<td></td>
<td>DIRMAINT 192 RR</td>
<td>6VMDIR40 492 RR</td>
</tr>
<tr>
<td></td>
<td>DIRMAINT 11F RR</td>
<td>6VMDIR40 11F RR</td>
</tr>
<tr>
<td></td>
<td>DIRMAINT 21F RR</td>
<td>6VMDIR40 41F RR</td>
</tr>
<tr>
<td>DATAMOV4</td>
<td>DIRMAINT 191 RR</td>
<td>6VMDIR40 491 RR</td>
</tr>
<tr>
<td></td>
<td>DIRMAINT 192 RR</td>
<td>6VMDIR40 492 RR</td>
</tr>
<tr>
<td></td>
<td>DIRMAINT 11F RR</td>
<td>6VMDIR40 11F RR</td>
</tr>
<tr>
<td></td>
<td>DIRMAINT 21F RR</td>
<td>6VMDIR40 41F RR</td>
</tr>
<tr>
<td>DIRMSAT</td>
<td>DIRMAINT 191 RR</td>
<td>6VMDIR40 491 RR</td>
</tr>
<tr>
<td></td>
<td>DIRMAINT 192 RR</td>
<td>6VMDIR40 492 RR</td>
</tr>
<tr>
<td></td>
<td>DIRMAINT 11F RR</td>
<td>6VMDIR40 11F RR</td>
</tr>
<tr>
<td></td>
<td>DIRMAINT 21F RR</td>
<td>6VMDIR40 41F RR</td>
</tr>
<tr>
<td>DIRMSAT2</td>
<td>DIRMAINT 191 RR</td>
<td>6VMDIR40 491 RR</td>
</tr>
<tr>
<td></td>
<td>DIRMAINT 192 RR</td>
<td>6VMDIR40 492 RR</td>
</tr>
<tr>
<td></td>
<td>DIRMAINT 11F RR</td>
<td>6VMDIR40 11F RR</td>
</tr>
<tr>
<td></td>
<td>DIRMAINT 21F RR</td>
<td>6VMDIR40 41F RR</td>
</tr>
<tr>
<td>DIRMSAT3</td>
<td>DIRMAINT 191 RR</td>
<td>6VMDIR40 491 RR</td>
</tr>
<tr>
<td></td>
<td>DIRMAINT 192 RR</td>
<td>6VMDIR40 492 RR</td>
</tr>
<tr>
<td></td>
<td>DIRMAINT 11F RR</td>
<td>6VMDIR40 11F RR</td>
</tr>
<tr>
<td></td>
<td>DIRMAINT 21F RR</td>
<td>6VMDIR40 41F RR</td>
</tr>
<tr>
<td>DIRMSAT4</td>
<td>DIRMAINT 191 RR</td>
<td>6VMDIR40 491 RR</td>
</tr>
<tr>
<td></td>
<td>DIRMAINT 192 RR</td>
<td>6VMDIR40 492 RR</td>
</tr>
<tr>
<td></td>
<td>DIRMAINT 11F RR</td>
<td>6VMDIR40 11F RR</td>
</tr>
<tr>
<td></td>
<td>DIRMAINT 21F RR</td>
<td>6VMDIR40 41F RR</td>
</tr>
<tr>
<td>TCPPIP</td>
<td>TCPMAINT 491 RR</td>
<td>6VMTCP40 491 RR</td>
</tr>
<tr>
<td></td>
<td>TCPMAINT 492 RR</td>
<td>6VMTCP40 492 RR</td>
</tr>
<tr>
<td>DTCVSW1</td>
<td>TCPMAINT 491 RR</td>
<td>6VMTCP40 491 RR</td>
</tr>
<tr>
<td></td>
<td>TCPMAINT 492 RR</td>
<td>6VMTCP40 492 RR</td>
</tr>
<tr>
<td>DTCVSW2</td>
<td>TCPMAINT 491 RR</td>
<td>6VMTCP40 491 RR</td>
</tr>
<tr>
<td></td>
<td>TCPMAINT 492 RR</td>
<td>6VMTCP40 492 RR</td>
</tr>
<tr>
<td>DTCVSW3</td>
<td>TCPMAINT 491 RR</td>
<td>6VMTCP40 491 RR</td>
</tr>
<tr>
<td></td>
<td>TCPMAINT 492 RR</td>
<td>6VMTCP40 492 RR</td>
</tr>
<tr>
<td>DTCVSW4</td>
<td>TCPMAINT 491 RR</td>
<td>6VMTCP40 491 RR</td>
</tr>
<tr>
<td></td>
<td>TCPMAINT 492 RR</td>
<td>6VMTCP40 492 RR</td>
</tr>
<tr>
<td>FTPSERVE</td>
<td>TCPMAINT 491 RR</td>
<td>6VMTCP40 491 RR</td>
</tr>
<tr>
<td></td>
<td>TCPMAINT 492 RR</td>
<td>6VMTCP40 492 RR</td>
</tr>
<tr>
<td>IMAP</td>
<td>TCPMAINT 491 RR</td>
<td>6VMTCP40 491 RR</td>
</tr>
<tr>
<td></td>
<td>TCPMAINT 492 RR</td>
<td>6VMTCP40 492 RR</td>
</tr>
<tr>
<td>IMAPAUTH</td>
<td>TCPMAINT 491 RR</td>
<td>6VMTCP40 491 RR</td>
</tr>
<tr>
<td></td>
<td>TCPMAINT 492 RR</td>
<td>6VMTCP40 492 RR</td>
</tr>
<tr>
<td>LDAPSRV</td>
<td>TCPMAINT 491 RR</td>
<td>6VMTCP40 491 RR</td>
</tr>
<tr>
<td></td>
<td>TCPMAINT 492 RR</td>
<td>6VMTCP40 492 RR</td>
</tr>
<tr>
<td>MROUTE</td>
<td>TCPMAINT 491 RR</td>
<td>6VMTCP40 491 RR</td>
</tr>
<tr>
<td></td>
<td>TCPMAINT 492 RR</td>
<td>6VMTCP40 492 RR</td>
</tr>
</tbody>
</table>
Review external security manager (ESM) considerations

Table 20. Links to indirect resources, Part 3 of 3

<table>
<thead>
<tr>
<th>User ID</th>
<th>Directory link (with mode)</th>
<th>Indirect resource (with mode)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PORTMAP</td>
<td>TCPMAINT 491 RR</td>
<td>6VMTCP40 491 RR</td>
</tr>
<tr>
<td></td>
<td>TCPMAINT 492 RR</td>
<td>6VMTCP40 492 RR</td>
</tr>
<tr>
<td>REXEC</td>
<td>TCPMAINT 491 RR</td>
<td>6VMTCP40 491 RR</td>
</tr>
<tr>
<td></td>
<td>TCPMAINT 492 RR</td>
<td>6VMTCP40 492 RR</td>
</tr>
<tr>
<td>RXAGENT1</td>
<td>TCPMAINT 491 RR</td>
<td>6VMTCP40 491 RR</td>
</tr>
<tr>
<td></td>
<td>TCPMAINT 492 RR</td>
<td>6VMTCP40 492 RR</td>
</tr>
<tr>
<td>SMTP</td>
<td>TCPMAINT 491 RR</td>
<td>6VMTCP40 491 RR</td>
</tr>
<tr>
<td></td>
<td>TCPMAINT 492 RR</td>
<td>6VMTCP40 492 RR</td>
</tr>
<tr>
<td>SNMPD</td>
<td>TCPMAINT 491 RR</td>
<td>6VMTCP40 491 RR</td>
</tr>
<tr>
<td></td>
<td>TCPMAINT 492 RR</td>
<td>6VMTCP40 492 RR</td>
</tr>
<tr>
<td>SNMPQE</td>
<td>TCPMAINT 491 RR</td>
<td>6VMTCP40 491 RR</td>
</tr>
<tr>
<td></td>
<td>TCPMAINT 492 RR</td>
<td>6VMTCP40 492 RR</td>
</tr>
<tr>
<td>SNMPSUBA</td>
<td>TCPMAINT 491 RR</td>
<td>6VMTCP40 491 RR</td>
</tr>
<tr>
<td></td>
<td>TCPMAINT 492 RR</td>
<td>6VMTCP40 492 RR</td>
</tr>
<tr>
<td>UFTD</td>
<td>TCPMAINT 491 RR</td>
<td>6VMTCP40 491 RR</td>
</tr>
<tr>
<td></td>
<td>TCPMAINT 492 RR</td>
<td>6VMTCP40 492 RR</td>
</tr>
<tr>
<td>VMNFS</td>
<td>TCPMAINT 491 RR</td>
<td>6VMTCP40 491 RR</td>
</tr>
<tr>
<td></td>
<td>TCPMAINT 492 RR</td>
<td>6VMTCP40 492 RR</td>
</tr>
<tr>
<td>GSKADMIN</td>
<td>TCPMAINT 491 RR</td>
<td>6VMTCP40 491 RR</td>
</tr>
<tr>
<td></td>
<td>TCPMAINT 492 RR</td>
<td>6VMTCP40 492 RR</td>
</tr>
<tr>
<td>SSLDCSSM</td>
<td>TCPMAINT 491 RR</td>
<td>6VMTCP40 491 RR</td>
</tr>
<tr>
<td></td>
<td>TCPMAINT 492 RR</td>
<td>6VMTCP40 492 RR</td>
</tr>
<tr>
<td>DTCSMAPI</td>
<td>TCPMAINT 491 RR</td>
<td>6VMTCP40 491 RR</td>
</tr>
<tr>
<td></td>
<td>TCPMAINT 492 RR</td>
<td>6VMTCP40 492 RR</td>
</tr>
</tbody>
</table>

6. If you configured RACF, you should have given the following user IDs operation authority. If you have defined operation authority for these IDs, no additional authorizations are needed for these disks and you can go to the next substep.

Table 21. Links to indirect resources

<table>
<thead>
<tr>
<th>User ID</th>
<th>Directory link (with mode)</th>
<th>Indirect resource (with mode)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLDNUC</td>
<td>MAINT 490 MW</td>
<td>MAINT640 490 MW</td>
</tr>
<tr>
<td></td>
<td>MAINT 890 MW</td>
<td>MAINT640 890 MW</td>
</tr>
<tr>
<td>BLDSEG</td>
<td>MAINT 194 MR</td>
<td>MAINT640 194 MR</td>
</tr>
<tr>
<td></td>
<td>MAINT 2A2 MR</td>
<td>MAINT640 2A2 MR</td>
</tr>
<tr>
<td></td>
<td>MAINT 2A4 MR</td>
<td>MAINT640 2A4 MR</td>
</tr>
<tr>
<td></td>
<td>MAINT 2A6 MR</td>
<td>MAINT640 2A6 MR</td>
</tr>
<tr>
<td></td>
<td>MAINT 2C4 MR</td>
<td>MAINT640 2C4 MR</td>
</tr>
<tr>
<td></td>
<td>MAINT 202 MR</td>
<td>MAINT640 202 MR</td>
</tr>
<tr>
<td></td>
<td>MAINT 5E5 RR</td>
<td>MAINT640 5E5 RR</td>
</tr>
<tr>
<td></td>
<td>MAINT 5E6 RR</td>
<td>MAINT640 5E6 RR</td>
</tr>
<tr>
<td></td>
<td>MAINT 51D MR</td>
<td>MAINT640 51D MR</td>
</tr>
<tr>
<td>BLDRAACF</td>
<td>RACMAINT 490 MW</td>
<td>6VMRAC40 590 MM</td>
</tr>
<tr>
<td></td>
<td>RACMAINT 305 RR</td>
<td>6VMRAC40 505 RR</td>
</tr>
</tbody>
</table>

1 If z/VM was loaded to filepool, this disk does not exist. No authorization is necessary.

7. If you are using an ESM to manage your shared filepool administrator authorizations, give ADMIN authority for the following filepools to the user IDs listed:
Review external security manager (ESM) considerations

<table>
<thead>
<tr>
<th>File pool</th>
<th>User IDs</th>
</tr>
</thead>
<tbody>
<tr>
<td>VMPSFS</td>
<td>MAINT640² VSMGUARD¹ VSMWORK1¹ VSMWORK2¹ VMSWORK3¹</td>
</tr>
<tr>
<td>VMSYS</td>
<td>MAINT640² VSMWORK1¹ VSMWORK2¹ VMSWORK3¹ 6VMTCP40²</td>
</tr>
<tr>
<td>VMSYSR</td>
<td>MAINT640²</td>
</tr>
<tr>
<td>VMSYSU</td>
<td>MAINT640²</td>
</tr>
</tbody>
</table>

¹ V6.2 to V6.4 upgrade only
² V6.2 to V6.4 and V6.3 to V6.4 upgrades

8. If you are upgrading from z/VM V6.2 or V6.3 to z/VM V6.4 and you are using an ESM to manage command authorizations, the new user IDs should be authorized for appropriate VM commands following your normal site procedures:

<table>
<thead>
<tr>
<th>User ID</th>
<th>Authorization</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAINT640</td>
<td>Same as MAINT6x0</td>
</tr>
<tr>
<td>6VMDIR40</td>
<td>Same as 6VMDIRx0</td>
</tr>
<tr>
<td>6VMPTK40</td>
<td>Same as 6VMPTKx0</td>
</tr>
<tr>
<td>6VMRAC40</td>
<td>Same as 6VMRACx0</td>
</tr>
<tr>
<td>6VMRSC40</td>
<td>Same as 6VMRSCx0</td>
</tr>
<tr>
<td>6VMTCP40</td>
<td>Same as 6VMTCPx0</td>
</tr>
<tr>
<td>6VMHCD40</td>
<td>Same as 6VMHCDx0</td>
</tr>
<tr>
<td>OPNCLCoud</td>
<td>Class G</td>
</tr>
<tr>
<td>DTCVSW3</td>
<td>Class G</td>
</tr>
<tr>
<td>DTCVSW4</td>
<td>Class G</td>
</tr>
</tbody>
</table>

9. If you are upgrading from z/VM V6.2 or V6.3 to z/VM V6.4 and you are using an ESM to manage any other system resources, review the user directory entries for the following new user IDs to identify any other security authorization that may be required for your environment:

MAINT640
6VMDIR40
6VMPTK40
6VMRAC40
6VMRSC40
6VMTCP40
6VMHCD40
OPNCLCoud
DTCVSW3
DTCVSW4
Step 2. Review directory considerations

1. If you are upgrading a member of a multimember SSI cluster, the user directory needs to be brought online for all members of the cluster.
   a. If you indicated that you xedit your directory and allowed INSTUPGR to make the directory changes, you need to run DIRECTXA on all other members of the cluster.
   b. If you used DirMaint as your directory manager to make upgrade changes, the directory was already brought online for all members.
   c. If you used a different directory manager or made the directory updates manually, you need to make sure the directory is brought online for all other members of the cluster.

2. If you are upgrading a non-SSI system, a one member SSI cluster, or the first member of a multimember SSI cluster and DirMaint is enabled as your directory manager, copy any configured files from 6VMDIRx0's minidisks to the new 6VMDIR40's disks and then recycle DirMaint.
   a. Copy only the configured files from:
      • 6VMDIRx0 491 to 6VMDIR40 491
      • 6VMDIRx0 492 to 6VMDIR40 492
      • 6VMDIRx0 11F to 6VMDIR40 11F
      • 6VMDIRx0 41F to 6VMDIR40 41F
   b. Also copy the DVHPROFA DIRMSAT*, DVHPROFA DATAMOV*, and DVHPROFM DATADVH files, if they exist, from 6VMDIRx0 491 and 492 to 6VMDIR40 491 and 492.
   c. Update configuration files, such as AUTHFOR CONTROL and DVHNNAMES DATADVH, with the new user IDs that were added for z/VM V6.4, as appropriate:
      MAINT640
      6VMDIR40
   d. If you are using an ESM, user IDs AUTOLOG1 and AUTOLOG2 need access the the 6VMDIR40 11F minidisk. Make sure these user IDs have been given read authority to the 11F minidisk.
   e. Recycle all of the DirMaint servers:
      1) Attach the new release volume (or volumes) from your work system to all of the other members of your SSI.
      2) Determine which member the user ID DIRMAINT is logged on to.
      3) From that member, log off DIRMAINT.
      4) From that member, XAUTOLOG DIRMAINT.
      Repeat these three steps for DIRMSAT, DIRMSAT2, DIRMSAT3, DIRMSAT4, DATAMOVE, DATAMOV2, DATAMOV3, and DATAMOV4, as necessary.
      Your DirMaint servers are now running the upgraded release level of DirMaint.

3. Log off MIGMAINT.
Step 3. Rework your local modifications

1. If you are upgrading a multimember SSI cluster and this is not the first member to be upgraded to z/VM V6.4, skip this step and go to Chapter 22, “Stop your production workload and back up your system,” on page 213.

2. If your system has local modifications to any components that are upgraded with the new release, the local modification files were copied over to the new release service disks and the VM SYSLMOD table was updated to allow those local modifications to be applied to the new release. You need to review your local modifications and either rework them for the new release or else remove them. You must then update the VM SYSLMOD table with the status of each local modification listed. This must be completed before continuing to the second stage of your upgrade installation.

3. Log on to the maintenance userid for your new release, MAINT640.

   logon maint640
   :
   Ready; T=n.nn/n.nn hh:mm:ss

   The default password for MAINT640 is WD5JU8QP.

4. Determine if you have any local modifications by using the VMFUPDAT SYSLMOD command. If there are no local modifications that require rework, you’ll see one of the responses shown here:

   vmfupdat syslmod
   
   VMFUTL2767I Reading VMFINS DEFAULTS B for additional options
   VMFUPX2309I There are no local modifications that require rework
   Ready; T=n.nn/n.nn hh:mm:ss

   OR:

   VMFUTL2767I Reading VMFINS DEFAULTS B for additional options
   DMSCPY002E INPUT file VM SYSLMOD D not found
   VMFUPX0002E File VM SYSLMOD D not found
   Ready (00028); T=n.nn/n.nn hh:mm:ss

   If you receive one of these responses (meaning there are no local modifications that require rework), skip to substep 7 on page 212.

   If there are local modifications that require rework, you’ll see this panel:
Rework your local modifications

Review the information displayed on this panel and make a note of any parts with local modifications that you need to rework. Also make a note of any local modifications that should be removed. Press F3 or F12 to exit.

Note: The “Part Fta” displayed is an abbreviation for the generated object file type.

5. Use the LOCALMOD command to rework any local modifications. See the z/VM: Service Guide for instructions on using LOCALMOD for rework. If any local modifications need to be removed, use the VMFREM command. See the z/VM: VMSES/E Introduction and Reference for details on the VMFREM EXEC.

Note: Do not run the SERVICE or PUT2PROD commands. The parts will be rebuilt during a later step.

6. Once all local modifications have been reworked or removed, update the status in the VM SYSLMOD table by once again invoking the VMFUPDAT SYSLMOD command.

```
vmfupdat syslmod
```

Mark each part according to the instructions on the panel (as shown in Figure 19). When all parts are marked, press F5 to process the status updates.

7. Log off MAINT640.

What to do next

Go to Chapter 22, “Stop your production workload and back up your system,” on page 213.
Chapter 22. Stop your production workload and back up your system

In this chapter, you will:

- Stop your production workload and back up your system.

You are now ready to run the second stage of upgrade. In STAGE2, the new release code will be moved into production. You should shut down all your production workloads on the system you are upgrading (stop application servers, have end users log off, and so on) or move your production workload to another system or to another member of your SSI cluster. You must not shut down your shared file system servers, and you must not shut down your directory manager or security manager servers, if you are running these products. You should then create a backup copy of your entire current system following your normal backup procedures.

Because backing out STAGE2 requires that you restore the backup copy of your system, you should not make any directory or security changes on your system or any member of your SSI cluster after you create your backup.

Note: After you have created your backup, do not restart your production workloads on the member you are upgrading until you have completed your upgrade.

What to do next

Go to Chapter 23, “Generate the STAGE2 changes file,” on page 215.
Chapter 23. Generate the STAGE2 changes file

In this chapter, you will:

• Run INSTUPGR to create the STAGE2 changes file.
Step 1. Generate the STAGE2 table

1. Make sure any user IDs that have write links to the system inventory and service disks, such as MAINT, MAINT620, MAINT630, MAINT640, and product installation IDs 6VMxxx20, 6VMxxx30, and 6VMxxx40 are logged off of the system you are upgrading and all other members of your cluster before logging onto MIGMAINT.

2. Log on to the MIGMAINT user ID on the system being upgraded. Make sure the user ID meets the MIGMAINT user ID requirements. You must log off of MIGMAINT after STAGE1 processing is complete and log back on to MIGMAINT before running STAGE2 processing.

3. Access the 24CC minidisk as file mode C:
   
   access 24cc c
   Ready; T=n.nn/n.nn hh:mm:ss

4. Run INSTUPGR to generate the $STAGE2$ TABLE file, which will list the STAGE2 changes needed to upgrade your system. If you have not logged off non-essential user IDs, you will receive message IUGUPG8541 regarding users you might want to log off. Follow the instructions provided in the message.

   instupgr stage2 (prime)
   IUG2FC8535I Creating temporary work copy of MAINT 190 minidisk
   z/VM DASD DUMP/RESTORE PROGRAM
   COPYING MNT190
   COPYING DATA 01/06/13 AT 20.33.21 GMT FROM MNT190 TO MNT190
   INPUT {CYLINDER|BLOCK} EXTENTS OUTPUT {CYLINDER|BLOCK} EXTENTS
   START STOP START STOP
   0 nnnn 0 nnnn

   END OF COPY
   END OF JOB
   IUGUPG8392I INSTUPGR ended successfully
   Ready; T=n.nn/n.nn hh:mm:ss

5. If INSTUPGR completes with warnings, they will be displayed on the screen and also logged in the file $STAGE2$ $WRNFILE on MIGMAINT’s 2CF0 disk (accessed as filemode E). Review the warnings and resolve any issues before continuing to Chapter 24, “Update your current system with the STAGE2 changes,” on page 219.

   Note: If you receive any of the following warnings, they can be ignored.
* The following files found on your MAINT 193 minidisk
* were not listed in the VM PARTCAT for prodid 6VMCPRx0%CP, but
* will be overwritten during COMMIT processing.

  CPMODULE
* 
* The following files found on your MAINT 193 minidisk
* were not listed in the VM PARTCAT for prodid 6VMCPRx0%CP, but
* will be overwritten during COMMIT processing.

  GCSNUC MAP
* 
* The following files found on your MAINT 190 minidisk
* were not listed in the VM PARTCAT for prodid 6VMCMSx0%CMS, but
* will be overwritten during COMMIT processing.

  NOTICES FILE
* 
IUG2CE8554W Product 6VMHCD20 file CBDSOPRF SAMPPROF not found on BASE
resource(s):
IUG2CE8554W 6VMHCD20 2B2 (VMPSFS:6VMHCD20.VMHCD.OBJECT)
IUG2CE8553W System-level changes for part CBDSOPRF SAMPPROF cannot be 
evaluated
* 

If you are upgrading a member of a multimember SSI cluster and this is not the first member, you may get warning messages regarding the DirMaint help files. You can ignore these messages.

6. If any errors occur, review the error messages in file INSTUPGR $CONSLOG on MIGMAINT’s 2CF0 minidisk (accessed as filemode E), correct the condition that is causing the error, and then go back to substep 4 on page 216.

**What to do next**

Go to Chapter 24, “Update your current system with the STAGE2 changes,” on page 219.
Chapter 24. Update your current system with the STAGE2 changes

In this chapter, you will:

• Make the changes to your current system identified in the $STAGE2$ $TABLES$. 

Step 1. Choose your update option

In the previous step a file named $STAGE2$ TABLE$ was generated on MIGMAINT’s 2CF0 disk by the INSTUPGR command. This table contains a list of actions to be taken on your current system in order to complete the second stage of your system upgrade. Each entry in the table consists of one or more comment lines that describe an action to be taken and then one or more lines with more detailed information so that a program or a person could read the information and perform the action on a specific system.

There are three ways to complete these actions:

- Run the INSTUPGR command with operand STAGE2 and option COMMIT. The programs supplied by IBM will read the $STAGE2$ TABLE$ and perform all the actions listed. If you are using a directory manager program on your system and that program has provided an exit to work with the IBM upgrade code, that exit will be called to perform directory functions. If you edit your CP user directory manually, INSTUPGR will make the necessary changes to your CP user directory file, using the information you provided when you ran the INSTPLAN command.

- Manually update your system with the changes listed in the $STAGE2$ TABLE$. You can perform all of the changes listed in the table and edit the table to mark them as complete. Note that some changes are dependent on earlier entries being complete. You must complete all entries in the order they appear in the table.

- Use a combination of the above two options. If you prefer, you can make some of the required changes manually and allow the INSTUPGR program to make the rest. Note that some changes are dependent on earlier entries being complete. You must complete all entries in the order they appear in the table and you must complete all the entries that precede the changes you select to make manually. To use this method, make the changes you wish to make yourself first and update the $STAGE2$ TABLE$ to mark just those changes as complete. Then run the INSTUPGR command with operand STAGE2 and option COMMIT. The INSTUPGR program will make any changes to your system that you have not marked as completed and it will update the $STAGE2$ TABLE$ and all other required status tables.

No matter which option you choose, the changes listed in the $STAGE2$ TABLE$ file must be completed before moving on to Chapter 25, “Finish your upgrade installation,” on page 225.

To use the INSTUPGR command to make your system changes, follow “Step 2. Use the INSTUPGR command to make your STAGE2 system changes” on page 221.

To make some of the changes to your system manually, follow “Step 3. Make some of the STAGE2 changes to your system manually” on page 223.

To make all of the changes to your system manually, follow “Step 4. Make all of the STAGE2 changes to your system manually” on page 224.
Use the INSTUPGR command to make your STAGE2 system changes

Step 2. Use the INSTUPGR command to make your STAGE2 system changes

1. Log on to the MIGMAINT user ID on the system being upgraded. Make sure the user ID meets the
   MIGMAINT user ID requirements.
2. Access the 24CC minidisk as file mode C.
   ```
   access 24cc c
   Ready; T=n.nn/n.nn hh:mm:ss
   ```
3. Run INSTUPGR to upgrade your system with STAGE2 changes defined in the $STAGE2$ $TABLE$ file. If you have not logged off non-essential user IDs, you will receive message IUGUPG8541 regarding users you might want to log off. Follow the instructions provided in the message.
   ```
   instupgr stage2 (commit
   Now processing line 10 of nnn
   Now processing line 20 of nnn
   :
   IUGUPG8529I The 190 disk on the current system has been upgraded.
   IUGUPG8529I You must IPL the 190 disk to reaccess the new files,
   IUGUPG8529I To complete commit processing:
   IUGUPG8529I IPL 190
   IUGUPG8529I ACCESS 24CC C
   IUGUPG8529I and then re-issue:
   IUGUPG8529I INSTUPGR STAGE2 (COMMIT
   Ready; T=n.nn/n.nn hh:mm:ss
   ```
4. If any errors occur, review the error messages in file INSTUPGR $CONSLOG on MIGMAINT’s 2CF0 minidisk (accessed as filemode E), correct the condition that is causing the error, and then go back to substep 3.

   **Note:** Do not run SERVICE RESTART.
5. IPL the 190 disk to reaccess the files on your updated 190 disk. You might receive messages DMSWSP327I and DMSDCS1083E, related to segments. These messages can be ignored.
   ```
   ipl 190
   :
   Ready; T=n.nn/n.nn hh:mm:ss
   ```
6. Access the 24CC minidisk as filemode C.
   ```
   acc 24cc c
   Ready; T=n.nn/n.nn hh:mm:ss
   ```
7. Reissue INSTUPGR to finish upgrading your system with STAGE2 changes defined in the $STAGE2$ $TABLE$ file.
   ```
   instupgr stage2 (commit
   Now processing line 10 of nnn
   Now processing line 20 of nnn
   :
   IUGUPG8392I INSTUPGR ended successfully
   Ready; T=n.nn/n.nn hh:mm:ss
   ```
Use the INSTUPGR command to make your STAGE2 system changes

8. If any errors occur, review the error messages in file INSTUPGR $CONSLOG on MIGMAINT’s 2CF0 minidisk (accessed as filemode E), correct the condition that is causing the error, and then go back to substep 7 on page 221.

What to do next

Go to Chapter 25, “Finish your upgrade installation,” on page 225.
Step 3. Make some of the STAGE2 changes to your system manually

1. Log on to the MIGMAINT user ID on the system being upgraded. Make sure the user ID meets the MIGMAINT user ID requirements.

2. Access the 24CC minidisk as file mode C.

   access 24cc c
   Ready; T=n.nn/n.nn hh:mm:ss

3. Access the 2CF0 minidisk as file mode E.

   access 2cf0 e
   Ready; T=n.nn/n.nn hh:mm:ss

4. Review the entries in the $STAGE2$ $TABLE$ to determine which changes you want to perform yourself.

   Some changes are dependent on earlier entries being complete. You must complete all entries in the order they appear in the table, so you must also manually complete all the entries that precede the changes you select to make manually.

   For each entry in the $STAGE2$ $TABLE$ that you selected to manually update on your system:
   a. See Appendix O, “$STAGE2$ $TABLE$ entry definitions,” on page 303 for a description of the changes required for that entry.
   b. Make the changes to your system.
   c. Once an entry has been completed, update the entry in the $STAGE2$ $TABLE$ with a dash (-) in the first column to indicate that the entry has been completed.

5. Once you have completed all of the changes you selected and you have updated the $STAGE2$ $TABLE$, go to “Step 2. Use the INSTUPGR command to make your STAGE2 system changes” on page 221 to complete the rest of the entries.
Step 4. Make all of the STAGE2 changes to your system manually

1. Log on to the MIGMAINT user ID on the system being upgraded. Make sure the user ID meets the MIGMAINT user ID requirements.
2. Access the 24CC minidisk as file mode C.
   
   access 24cc c
   Ready; T=n.nn/n.nn hh:mm:ss

3. Access the 2CF0 minidisk as file mode E.

   access 2cf0 e
   Ready; T=n.nn/n.nn hh:mm:ss

4. Review the entries in the $STAGE2$ $TABLE$.
   Some changes are dependent on earlier entries being complete. You must complete all entries in the order they appear in the table.
   For each entry in the $STAGE2$ $TABLE$:
   a. See Appendix O, “$STAGE2$ $TABLE$ entry definitions,” on page 303 for a description of the changes required for that entry.
   b. Make the changes to your system.
   c. Once the entry has been completed, update the entry in the $STAGE2$ $TABLE$ with a dash (-) in the first column to indicate that the entry has been completed.
5. Once all the changes are complete and you have updated the $STAGE2$ $TABLE$, run the INSTUPGR command to update the appropriate status tables.

   instupgr stage2 (commit done
   IUGUPG8392I INSTUPGR ended successfully
   Ready; T=n.nn/n.nn hh:mm:ss

What to do next

Go to Chapter 25, “Finish your upgrade installation,” on page 225.
Chapter 25. Finish your upgrade installation

In this chapter, you will:

- Review directory considerations.
- Review SYSTEM CONFIG changes.
- Review sysname $WRNFILE messages.
- Delete obsolete saved segments.
- Shut down and re-IPL.
- Migrate LPs.
- Review post upgrade installation tasks.
Step 1. Review directory considerations

1. If you are upgrading a member of a multimember SSI cluster, the user directory needs to be brought online for all members of the cluster.
   
a. If you indicated that you edit your directory and allowed INSTUPGR to make the directory changes, you need to run DIRECTXA on all other members of the cluster.
   
b. If you used DirMaint as your directory manager to make upgrade changes, the directory was already brought online for all members.
   
c. If you used a different directory manager or made the directory updates manually, you need to make sure the directory is brought online for all other members of the cluster.

2. If you disabled minidisk password checking before starting the upgrade installation, you should verify that the disks added to the directory have minidisk passwords that adhere to your password guidelines, then re-enable minidisk password checking.

New user IDs with disks:
   - MAINT640
   - 6VMDIR40
   - 6VMPTK40
   - 6VMRAC40
   - 6VMRSC40
   - 6VMTCP40
   - 6VMHCD40
   - OPN CLOUD
   - DTCVSW3
   - DTCVSW4

New disks added to current user IDs:
   - VSMGUARD A91
   - VSMWORK1 A91
   - VSMWORK2 A91
   - VSMWORK3 A91

1 V6.2 to V6.4 upgrade only
2 V6.2 to V6.4 and V6.3 to V6.4 upgrades

3. The following minidisks were changed during INSTUPGR STAGE2 processing:
   - TCPMAINT 591
   - TCPMAINT 592
   - PERFSVM 201
   - 5684042J 2D2

Verify that the security authorizations for these minidisks are still correct.
Step 2. Review SYSTEM CONFIG changes

If you are upgrading member 2, 3, or 4 of a multimember SSI, skip to “Step 3. Review sysname SWRFILE messages” on page 229. Otherwise, continue with this step.

1. Access the disk where your SYSTEM CONFIG file resides. The default is PMAINT’s CF0 disk.
2. Review the changes made to the SYSTEM CONFIG file to verify that they meet the conventions for your site.

Changes were added to the end of the file and start with the block comment:

```
/****************************************************************************
/* UPGRADE STATEMENTS for 640 */
/* Any statements that follow this comment have been */
/* added by the UPGRADE process. Do not add or remove */
/* statements beyond this comment. Doing so will */
/* negate your ability to use the upgrade backout */
/* automation or functions. */
/****************************************************************************
```

Each statement added is delineated by the comments:

```
/* UPGRn Statement was added by INSTUPGR STAGE1 (COMMIT */
...*/
/* UPGRn END *)
```

There are three types of statements that may have been added:
- The addition of the release volumes to the User_Volume_List:

```
User_Volume_List   640RL1
```

- An edevice statement, if your system is installed in FBA DASD. If the device details could be determined, a real edevice statement was added:

```
edevice 4076 type fba attr SCSI fcp_dev 4F60,
wwpn 5005076306134411 lun 401140760000000
```

If the details could not be determined, a comment was added:

```
/* edevice 4087 is not an emulated device */
```

Review the edevice statements to verify they are correct for your DASD.

- A PRODUCT statement was added for the new release products and features. The state of the new products and features is the same as the state of the equivalent product or feature from your old release. For example, if Performance Toolkit was not enabled on z/VM V6.3, it will not be enabled on z/VM V6.4:

```
PRODUCT PRODID 6VMPTK40 STATE DISABLED DESCRIPTION
'00/00/00.00:00:00.UPGRADE PERFORMANCE TOOLKIT FOR VM'
```

3. When you have reviewed the upgrade statements that were added to the SYSTEM CONFIG file, you can leave the statements where they are or you can move them up, to match your organization of the file. After you have moved the statements, you can delete the following comments:
Review SYSTEM CONFIG changes

/****************************
/* UPGRADE STATEMENTS for 640 */
/* Any statements that follow this comment have been */
/* added by the UPGRADE process. Do not add or remove*/
/* statements beyond this comment. Doing so will */
/* negate your ability to use the upgrade backout */
/* automation or functions. */
/****************************

/* UPGRn Statement was added by INSTUPGR STAGE1 (COMMIT */
/* UPGRn END */
Step 3. Review sysname $WRNFILE messages

Note: If the PARTNOTIFY keyword entries were done manually, you were instructed to make a note of the messages received, to be addressed after the upgrade was complete. This is the point at which you should make any necessary changes.

1. Log on to the MIGMAINT user ID on the system being upgraded.
2. Access the 2CF0 minidisk as file mode E.

   access 2cf0 e
   Ready; T=n.nn/n.nn hh:mm:ss

3. Review the sysname $WRNFILE file on the 2CF0 disk (where sysname is the system name of the system you are upgrading).

   The sysname $WRNFILE file might contain the following messages:

   IUG1EX8301W
   Device details could not be determined to add an edevice statement to the SYSTEM CONFIG file. Review the statement in the SYSTEM CONFIG file and, if needed, add the real edevice statement details.

   IUG1EX8528W
   An APAR exists to a part that resides on the PMAINT 551 disk on your current system that is not included in the part on the new release. After the upgrade installation is complete, apply the APAR to the new release, if required.

   IUG2EX8536W
   A customizable file was not copied because the target disk could not be obtained in write mode. Access the source and target disks and copy the file.

   IUG2EX8555W
   A customizable file that was changed on your current system from the IBM default has been updated by IBM on the new release. Review the current and new files and merge your current file with the new file updated by IBM.

Notes:

a. If you received message IUG2EX8555W for AUTOLOG1 SAMPPROF and your system is running RACF, you might need to merge the new file into the PROFILE EXEC for AUTOLOG2.

b. If you received message IUG2EX8536W for the PROFILE SAMPLE exec for RACF and your system is running RACF, you will move the new PROFILE SAMPLE to the RACFVM 191 disk in “Step 5. Shut down and IPL your upgraded system” on page 231. You can ignore this message.

4. If the sysname $WRNFILE contains any of these messages, review the actions described in z/VM: CP Messages and Codes and decide if you need to make any additional changes to your upgraded system before moving to the next step.
Step 4. Delete obsolete saved segments

In z/VM V6.3, three segments previously shipped with z/VM were deleted. If you are upgrading a V6.2 system, these segments need to be deleted from the system as they contain obsolete information.

1. Purge the HELPSEG segment.

   ```
   purge nss name helpseg
   0001 FILE  PURGED
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

2. Purge the NLSAMENG segment.

   ```
   purge nss name nlsameng
   0001 FILE  PURGED
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

3. Purge the AMENG segment.

   ```
   purge nls name ameng
   0001 FILE  PURGED
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

Note: If you received the following messages, the NSS will be purged when the system is IPLed in the next step:

   ```
   NO FILES PURGED
   0001 FILE   PENDING PURGE
   ```
Step 5. Shut down and IPL your upgraded system

1. If you are not running with a security manager:
   a. Shut down this system or member.
   b. IPL the upgraded system or member.
   c. Go to “Step 6. Migrate LPs” on page 234.

2. If you are running with a security manager other than RACF/VM:
   a. Consult the documentation for your security manager to see if there are any special requirements before IPLing.
   b. Shut down this system or member.
   c. IPL the upgraded system or member.
   d. Go to “Step 6. Migrate LPs” on page 234.

3. If you are running with the RACF/VM security manager, note that the test disks for RACF/VM were updated with the new level of code. To complete the upgrade of RACF/VM, you will need to perform the following steps:
   a. Log on to the RACMAINT user ID on the system you are upgrading.
   b. Make sure the PROFILE EXEC on the A-disk is the version that was shipped with the new release of VM. The new PROFILE EXEC will be dated July 2016 or later and will contain this comment line:
      D - Remove access to 190 disk
      If the file PROFILE EXC$$001 exists on the A-disk, you should:
      1) Erase or rename the current PROFILE EXEC.
      2) Rename PROFILE EXC$$001 to PROFILE EXEC.
   c. Log off RACMAINT.
   d. Log on to an authorized user (such as MAINT or OPERATOR) and force RACFVM.
   e. Use the XAUTOLOG command to log on to the test RACF/VM server, RACMAINT:
      XAUTOLOG RACMAINT
   f. If you are upgrading the first LPAR that is sharing a RACF database with other systems or if you are upgrading the first member of a multimember SSI cluster, you must force RACFVM off on all of the systems sharing that database, to avoid database corruption.
      For standalone VM systems:
      Issue FORCE RACFVM from the OPERATOR user ID of each system.
      For an SSI cluster, log on to OPERATOR and enter the following command for each member system:
      AT system-name CMD FORCE RACFVM
   g. Disconnect from OPERATOR.
   h. If this is a non-SSI system, a single-member SSI cluster, the first member of a multimember SSI cluster, or the first LPAR that is sharing a RACF database with other systems, you must convert your RACF database to the new format.
      1) Log on to RACMAINT and run the RACFCONV utility to convert the RACF database:
Shut down and IPL your upgraded system

If RACFCONV receives RC=0, RACFCONV upgraded the RACF templates successfully.
If RACFCONV receives RC=4, you will see the following messages:

An Error occurred during 'IRRMIN00' processing
Return code from 'IRRMIN00' = 4
Ready(00004);

A return code of 4 means that your templates are already at the correct level. You can ignore these messages.

If RACFCONV ends with any other return code, you should review the information on running RACFCONV in the [z/VM: RACF Security Server System Programmer’s Guide] and take any corrective actions necessary.

Continue upgrading your z/VM system only when you are sure that your RACF database templates are at the correct level.

2) Restart RACMAINT by IPLing 490:
   - IPL 490
   - RACSTART
   - #CP DISC

3) If the RACF database is shared, restart the RACF servers on all systems that share the RACF database.

   Log on to OPERATOR on the other LPARs or on the other members of your cluster and autolog RACFVM. Because RACF services are not available, you might need to enter the password for OPERATOR that is currently listed in your CP user directory. The passwords for OPERATOR that were shipped in the default z/VM 620 and z/VM 630 user directories are OPERATOR and WD5JU8QP, respectively:

   XAUTOLOG RACFVM

i. Log on to the MIGMAINT user ID on the system you are upgrading.

j. Copy the PROFILE EXEC from the RACMAINT 191 to the RACFVM 191 disk:
   1) link racmaint 191 1191 rr
   2) access 1191 x
   3) link racfvm 191 2191 mr
   4) access 2191 z
   5) rename profile exec z profile oldexec z
   6) copy profile exec x profile exec z (olddate
   7) release x (detach
   8) release z (detach

k. Using DDR and VMFCOPY, copy the RACF/VM test build disks to the RACF/VM production disks:
   1) Use DDR to copy the 6VMRAC40 590 disk to the RACFVM 490 disk:
      - LINK 6VMRAC40 590 1590 RR
      - LINK RACFVM 490 1490 MR
      - DDR
      - SYSPRINT CONS
      - INPUT 1590 DASD RAC590
      - OUTPUT 1490 DASD RCF490
      - COPY ALL
      - ENTER
      - ACCESS 1490 G
      - FORMAT 1490 G (LABEL
Shut down and IPL your upgraded system

RCF490
QUERY DISK G
RELEASE G (DETACH
DETACH 1590

2) Use VMFERASE and VMFCOPY to update the RACFVM 305 disk. In the VMFERASE command, substitute 6VMRAC20 or 6VMRAC30, depending on the release from which you are upgrading:

LINK 6VMRAC40 505 1505 RR
LINK RACFVM 305 1305 MR
ACCESS 1505 G
ACCESS 1305 H
VMFERASE PROD 6VMRACx0%RACF FROM H
VMFCOPY * = G = = H (PRODID 6VMRAC40%RACF SPRODID 6VMRAC40%RACF OLDDATE REPLACE
RELEASE G (DETACH
RELEASE H (DETACH

| l. Shut down your system.
| m. IPL the upgraded system.
| n. While logged on to an authorized user ID such as OPERATOR, force RACFVM.
| o. XAUTOLOG RACMAINT.
| p. Log on to MAINT640.
| q. Run PUT2PROD for RACF:
  put2prod racf
| r. Log off MAINT640.
| s. Log on to OPERATOR and restart the production RACF server, RACFVM:

LOGON OPERATOR
FORCE RACMAINT
XAUTOLOG RACFVM
Migrate LPs

Step 6. Migrate LPs

If you are upgrading the second, third, or fourth member of a multimember SSI cluster, skip to “Step 7. Post-upgrade installation” on page 238.

The 51D disk that is owned by MAINT640 has not been updated for LPs that were not pre-installed with z/VM (for example, C/C++, or the High Level Assembler). You will need to use MIGR51D to move the VMSES/E inventory files for the LPs from MAINT6x0’s 51D disk to MAINT640’s 51D disk.

1. Log on as MAINT640.

   `logon maint640`  
   Ready; T=n.nn/n.nn hh:mm:ss  

   The default password for MAINT640 is WD5JU8QP.

2. Create a backup copy of the your new system software inventory disk (default is 51D) using your site's normal backup procedures.

3. Link to the MAINT6x0 51D disk (where MAINT6x0 corresponds to the release of z/VM you are migrating from (for instance, MAINT630).

   `link maint6x0 51d fff rr`  
   Ready; T=n.nn/n.nn hh:mm:ss

4. Access the software inventory FFF minidisk as file mode Z.

   `access FFF z`  
   Ready; T=n.nn/n.nn hh:mm:ss

5. Access the new system 51D minidisk as file mode D.

   `access 51D d`  
   Ready; T=n.nn/n.nn hh:mm:ss

6. Access the 493 minidisk as file mode W.

   `access 493 w`  
   Ready; T=n.nn/n.nn hh:mm:ss

7. Run MIGR51D to update the system software inventory files.

   `migr51d`  
   Please enter filemode letter of the Software Inventory Disk (51D) from the previous release. Press enter to Exit.

   `z`

   The VM Software Inventory Disk (51D) Product Migration panel is displayed.
a. Enter an action code (AC) for each product listed. For information about the panel and action codes, press F1.

Notes:
1. This Product Migration panel is only a sample. Your panels will not list the same products, action codes, status, and description.
2. Products that are preselected as D (Do Not Migrate) should not be changed.
3. If a product is not supported on the new z/VM release, you should enter D (Do Not Migrate) for that product.
4. Before you delete any product, you must determine whether any product that you intend to migrate is dependent on this product. You can use VMFINFO or VMFSIM SYSDEP to determine product dependencies.

b. Press F8 to select action codes for all Software Inventory Migration panels before continuing to the next step.

c. On the final panel, press F5 to process the product migration information and display the Segment Migration panel. Depending on the size of your software inventory files, it may take several minutes to process.
d. Enter an action code for each segment listed. For information about the panel and action codes, press F1.

This Segment Migration panel is only a sample. Your panels will not list the same segments, action codes, status, and description.

**Note:** With z/VM V6.3, segments HELPSEG and NLSAMENG were deleted. If these segments are present on your current system, you should not migrate them.

e. Press F8 to select action codes for all Software Inventory Segment Migration panels before continuing to the next step.

f. On the final panel, press F5 to process. Depending on the size of your software inventory files, it may take several minutes to process.

8. Release the software inventory disk for your current system (attached as FFF and accessed as filemode Z).

```
release z
```

9. MIGR51D updated the V6.4 VMSES/E system software inventory files on your new 51D minidisk to reflect the licensed products installed on your old system that you chose to migrate. You may need to migrate the segments associated with each licensed product reflected in the new system software inventory files. See the documentation for each licensed product for information on the segments required.

If the licensed product segments are built by VMSES/E, you must sign on to MAINT640 and enter the following to update some of the other segment files on the system software inventory disk:

a. Issue VMFSGMAP:

```
vmfsgmap segbld esasegs segblist
```

At this time, you can make further changes to any segment.

b. On the first panel, enter:

```
segmerge
```

c. Press F5 to save your changes and exit from VMFSGMAP.
The VMFSGMAP and SEGMERGE commands only need to be done once, from one user ID. At this point, the appropriate files on the system software inventory disk are updated.

Now you can use the VMFBLD command to build the licensed product segments from the corresponding licensed product installation user IDs. Follow the information in the licensed product program directories.

For example:

```
vmfsetup ccplus ccxx
vmfbld pff segbld esasegs segblist ccnseg (serviced
```

If you receive message VMFBD2003W indicating that the SYSTEM SEGID file has been updated, you should do the following to update the MAINT 190 disk and re-save CMS:

```
link maint 190 190 mr
acc 190 t
copy system segid d = = t (olddate replace
PUT2PROD SAVECMS
```
Step 7. Post-upgrade installation

1. Review the latest installation information in the Preventative Service Planning (PSP) bucket to make sure all required tasks are completed.

2. **User directory default passwords:** The new user IDs that are added to the USER DIRECT during upgrade installation all have the default password WD5JU8QP, except for the user ID OPNCLOUD, which has the default password AUTOONLY.

3. A new user ID, OPNCLOUD, was included on your 640 system. The OPNCLOUD 100 and 101 minidisks are defined but not initialized. These disks will be used by the IBM z/VM Cloud Manager Appliance and will be initialized when CMA is installed.

4. The new VSWITCH controllers (DTCVSW3 and DTCVSW4) were added to your user directory with a share relative value of at least 3000. The existing VSWITCH controllers (DTCVSW1 and DTCVSW2) should also have a share relative value of at least 3000.

   If you are upgrading a non-SSI, a one-member SSI, or the first member of a multimember SSI, update the IDENTITY section of the user IDs DTCVSW1 and DTCVSW2 to add the following statement after any OPTION statements if needed:

   ```
   SHARE RELATIVE 3000
   ```

5. z/VM includes a stand-alone dump utility that you tailor according to your installation’s configuration, using CMS. After you install z/VM, you should create the stand-alone dump utility and place it on DASD for emergency use. If, after a system failure, CP cannot create an abend dump, you can use the stand-alone dump on DASD to dump all of storage.

   For instructions on creating a stand-alone dump utility, see [z/VM: CP Planning and Administration](#).

   **Note:** Do not use a stand-alone dump created from a previous release of z/VM to attempt to dump your V6.4 system.

6. If you added links in existing user definitions to disks owned by current release-specific user IDs, such as MAINT6x0, 6VMTCRx0, or 6VMDIRx0, you need to evaluate if any of these links need to be updated in the existing user definitions for the new release-specific user IDs, such as MAINT640, 6VMTCP40, 6VMDIR40, and so on.

7. Review program directories for the pre-installed licensed products and features to determine if any additional configuration is required by the new release.

8. Any volumes used to install the work system that were not added to your current system can be returned to the DASD pool.

   a. If you are upgrading the second, third, or fourth member of a multimember SSI, then all of the volumes used to install the work system can be returned to the DASD pool.

   b. If you are upgrading a non-SSI, a one-member SSI, or the first member of a multimember SSI, then all of the volumes used to install the work system except the release volumes, default labels 640RLx, can be returned to the DASD pool.

9. If you are upgrading the first member of a multimember SSI, you should ensure that all release volumes, default labels 640RLx, are available to the remaining members of the SSI.

10. If your SSI cluster runs second level and if this was the first member of a multimember SSI cluster to be upgraded to this release, add the new release volumes to the directory entries for the user IDs where you IPL your SSI members, in the same manner as the current release volumes.

    For each release volume added:

    a. Add an MDISK statement to the directory entry for the userid of the SSI member that will own the DASD.

    b. Add a LINK statement to the directory entries for each of the user IDs where you IPL your additional SSI members.

    After you have updated the directory entries for all of the user IDs where you IPL your SSI members:

    a. Shut down all members of your SSI
b. Log off the user IDs

c. Log the user IDs back on

d. IPL the members of your SSI.

This will pick up the new release volumes. When you IPL the members of your SSI, they will have access to the new volumes.

11. If you upgraded a non-SSI, a one-member SSI, or the first member of a multimember SSI, and you are using DirMaint as your directory manager, your system or SSI cluster has been updated to run DirMaint function level 640 on all members. You should now disable the prior DirMaint function level, 6x0.

a. Set 6VMDIRx0 to disabled on the currently running system.

```
SET PRODUCT 6VMDIRx0 STATE DISABLED
```

b. Edit the SYSTEM CONFIG file and change the PRODUCT statement for 6VMDIRx0 from enabled to disabled.

c. In a multimember SSI disable 6VMDIRx0 on all additional members of the SSI cluster.

```
AT membername CMD SET PRODUCT 6VMDIRx0 STATE DISABLED
```

12. If this was the first member of a multimember SSI to be upgraded to this release, the help disks (MAINT 19D, 401, and 402) were updated on the member being upgraded with the new release help files for DirMaint. Although all members were upgraded to use the new level of DirMaint, the DirMaint help files on the other members do not match the new level. You can either leave the help disks as are and they will be upgraded as you upgrade each of the remaining members, or you can manually upgrade the help disks. To manually upgrade the help disks, do the following on each member:

a. Log on to MAINT640.

b. Link and access the DirMaint test help disk as X.

```
LINK 6VMIR40 29D 29D RR
ACCESS 29D X
```

c. For each help disk to be updated (19D, 401, and 402):

1) Link and access the disk to be updated as Z, in write mode.

```
LINK MAINT addr addr MR
ACCESS addr Z
```

2) Use VMFERASE to erase the 6x0 DirMaint help files.

```
VMFERASE PROD 6VMIRx0%DIRM FROM Z
```

3) Use VMFCOPY to copy the new release DirMaint help files. If updating the 19D disk, do not include the UPCASE option on the VMFCOPY command.

```
VMFCOPY * * X = = Z (PRODID 6VMIR40%DIRM SPRODID 6VMIR40%DIRM OLDDATE REPLACE UPCASE
```

13. Changes made to the Stand Alone Program Loader in z/VM 6.4.0 require that the SALIPL record be rewritten to the IPL volume. Rewrite your SALIPL record using the z/VM 6.4.0 level of the SALIPL MODULE. See Chapter 2, "Using the Stand-Alone Program Loader", in [z/VM: System Operation](#) for instructions on rewriting the SALIPL record.

14. To be able to back out changes made by the upgrade installation process, the following disks that were deleted or moved during the upgrade installation process were not formatted to remove residual data:

---

Chapter 25. Finish your upgrade installation 239
Post upgrade installation

- Disks deleted:
  IDENTITY DHCPD 191¹
  IDENTITY LPSERVE 191¹
  IDENTITY DTCENS1 191²
  IDENTITY DTCENS2 191²
  IDENTITY VSMREQIM 191²
  IDENTITY VSMPROXY 191²
  IDENTITY ZVMLXAPP 191²
  IDENTITY ZHCP 191³
  IDENTITY ZHCP 100³

- Disks with size change:
  IDENTITY PERFSVM 201²
  IDENTITY TCPMAINT 591²
  IDENTITY TCPMAINT 592²

- Disks moved (if ICKDSF was loaded to minidisks):
  USER 5684042J 2D2²

¹ V6.2 to V6.4 upgrade only
² V6.2 to V6.4 and V6.3 to V6.4 upgrades
³ V6.3 to V6.4 upgrade only

15. If you are upgrading a non-SSI, a one-member SSI, or the last member of a multimember SSI, if you did not use XCAT in 630, delete the user ID from your directory. If you did use XCAT in 630, after you have migrated any configured files to OPNCLOUD, delete the user ID from your directory. For information about migrating XCAT to OPNCLOUD, see z/VM: Systems Management Application Programming.

16. The file CPB640 MODULE was copied to the MAINT CF1 minidisk. This is the z/VM V6.4 GA base CPLOAD MODULE. The old release CPBASE MODULE should be erased from the MAINT CF1 minidisk.

17. Pre-installed products that did not change release levels from z/VM V6.x to z/VM V6.4, were not updated on your upgraded system. Any service on the 640 installation RSU for these products was not applied to your system. These products are:
   - LE 6.2.0
   - OSAF 4.4.0
   - ICKDSF 1.17.0

   You should compare the GA service levels with the service levels for these products on your current system. For any products with GA service levels that are higher, you should install the additional service for those products.

   - For LE and OSA, information about the level of service shipped on the base is available on the z/VM Installation Resources web page (www.vm.ibm.com/install). The installation level of service is contained in the installation RSU servlink, which was copied to the MAINT640 500 minidisk by the upgrade procedure.

   - For ICKDSF, use your normal service ordering and installation procedures.

18. By default, the EREP 3.5.0 production code resides on the MAINTvrm 201 minidisk. This disk contains the level of EREP that was shipped with z/VM 6.4.0 (EREPC 3.5.0, SDO-1600). If you had previously installed service beyond SDO-1600, you need to reinstall it on your upgraded system or copy the files from your prior-release MAINTvrm 201 minidisk.

19. You should create a backup copy of your current system, following your normal backup procedures.
Chapter 26. Remove the obsolete release

In this chapter, you will:

- Remove the obsolete release.
Remove the obsolete release

**Step 1. Remove an obsolete release**

If this was the last member to be upgraded from the old release, once you are positive you will no longer be using the old release:

1. The user IDs associated with the old release level of the products that will no longer be used can be removed from the user directory and from the VMPSFS and VMSYS filepools:
   
<table>
<thead>
<tr>
<th>MAINT6x0</th>
<th>6VMDIRx0</th>
<th>6VMPTKx0</th>
<th>6VMRACx0</th>
<th>6VMRSCx0</th>
<th>6VMTCPx0</th>
<th>6VMHCDx0</th>
</tr>
</thead>
</table>

   **Note:**
   
   Do not delete 6VMLEN20.

2. Old release volumes should be checked to see if any required disks remain on the volumes before they are returned to the DASD pool.

3. Any products associated with the old release that will no longer be used should be set to disabled. Because the old release components have been removed from the VMSES/E control files, you should:
   
   - Use the SET PRODUCT command to set the status on your running system.
   - Edit the SYSTEM CONFIG file to update the PRODUCT statement to set the old release components to DISABLED or delete the PRODUCT statement.

4. The system configuration files can be updated to remove the old release volumes and products.
Part 5. Appendixes
Appendix A. Determining the RSU level for ordering service

Use the SERVICE command with the STATUS operand to determine the current RSU service level for a component or product. The SERVICE command queries the system-level service update facility (VM SYSSUF) table, which contains a list of all products and components that are installed on the system.

Table 22 lists the component names for components, features, and products supported by the SERVICE and the PUT2PROD commands.

**Table 22. Component names for components, features, and products supported by SERVICE and PUT2PROD**

<table>
<thead>
<tr>
<th>Product</th>
<th>Component Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>VMSES/E</td>
<td>VMSES</td>
</tr>
<tr>
<td>REXX/VM</td>
<td>REXX</td>
</tr>
<tr>
<td>Language Environment</td>
<td>LE</td>
</tr>
<tr>
<td>CMS</td>
<td>CMS</td>
</tr>
<tr>
<td>CP</td>
<td>CP</td>
</tr>
<tr>
<td>GCS</td>
<td>GCS</td>
</tr>
<tr>
<td>Dump Viewing Facility</td>
<td>DV</td>
</tr>
<tr>
<td>TSAF</td>
<td>TSAF</td>
</tr>
<tr>
<td>AVS</td>
<td>AVS</td>
</tr>
<tr>
<td>RSCS Networking for z/VM</td>
<td>RSCS</td>
</tr>
<tr>
<td>TCP/IP</td>
<td>TCPIP</td>
</tr>
<tr>
<td>OSA/SF for VM</td>
<td>OSA</td>
</tr>
<tr>
<td>Directory Maintenance Facility</td>
<td>DIRM</td>
</tr>
<tr>
<td>RACF Security Server for z/VM</td>
<td>RACF</td>
</tr>
<tr>
<td>Performance Toolkit for VM</td>
<td>PERFTK</td>
</tr>
<tr>
<td>HCD and HCM for z/VM</td>
<td>VMHCD</td>
</tr>
</tbody>
</table>

**Before you begin:** You must have the software inventory disk accessed. By default, the software inventory disk is the 51D disk and it is accessed as D.

To determine the RSU level of a component, issue the SERVICE command as follows:

```
  service compname status
```

A component listed in Table 22 or any other component defined in the VM SYSSUF table.

**Example:** In this example, “1601” represents the RSU level that you would use when ordering service for CP.

```
VMFSRV2195I SERVICE CP STATUS
VMFSRV27601 SERVICE processing started
VMFSRV12251 CP (6VMCP800%CP) status:
VMFSRV12251 Service Level RSU-1601
VMFSRV21251 Production Level sysname.RSU-1601
VMFSRV2760I SERVICE processing completed successfully
```
For more information, see the `SERVICE` command in z/VM: VMSES/E Introduction and Reference.
Appendix B. Migrate 51D from the old system

You can use the MIGR51D command to migrate your current system inventory disk to your new system.

You should only use this appendix if you did not use the traditional migration procedure and did not use the upgrade installation procedure.

If your current system is z/VM 5.4 and you are installing a non-SSI z/VM V6.4, you can migrate the 51D disk as part of the traditional migration procedure (documented in Chapter 10, “Plan your traditional migration,” on page 97 through Chapter 13, “Place migrated parts into production,” on page 117).

If you are performing an upgrade installation, the 51D will be migrated as part of those procedures.

If you do not follow either the traditional migration or the upgrade installation procedures, you can run MIGR51D independently.

To run MIGR51D as an independent activity, complete the steps listed here.

1. Create a backup of the z/VM version 6 release 4 system software inventory disk (default is MAINT640 51D) using your site's normal backup procedures.

2. On your new system, obtain access to the system software inventory files (MAINT 51D) on your current system.

   If your new system can be IPLed as a second level system on your current system, then go to Chapter 13, “Place migrated parts into production,” on page 117 and complete “Step 5. Access the current system software inventory disk” on page 122 through “Step 7. Run MIGR51D” on page 126.

   If your new system is running first level, see your system programmer for assistance in making a copy of the current system software inventory files accessible on your new system. On your new system, create a new minidisk owned by the MAINT640 user ID, FFF, to store the software inventory files from your current system. Once the current system software inventory files are stored on minidisk FFF on your new system, go to Chapter 13, “Place migrated parts into production,” on page 117, “Step 7. Run MIGR51D” on page 126.
Migrate 51D from the old system
Appendix C. Contents of the z/VM system

Products loaded from the z/VM system installation media

Products installed on the z/VM system are:

- z/VM
  - Control Program (CP)
  - Dump Viewing Facility (DV)
  - Conversational Monitor System (CMS)
  - REstructured eXtended eXecutor/VM (REXX)
  - Virtual Machine Serviceability Enhancements Staged/Extended (VMSES)
  - Group Control System (GCS)
  - Transparent Services Access Facility (TSAF)
  - APPC/VM VTAM® Support (AVS)
  - Language Environment (LE release level 6.2.0)
  - 3800 Model-3 Printer Image Library
  - UCENG Help - Uppercase English Help minidisk
  - Kanji Help - Japanese Help minidisk
- Environmental Record Editing and Printing Program (EREP)
- Device Support Facilities (ICKDSF)
- Remote Spooling Communications Subsystem (RSCS) Networking for z/VM
- Transmission Control Protocol/Internet Protocol (TCPIP)
- Open Systems Adapter Support Facility (OSA)
- Directory Maintenance Facility (DIRM)
- RACF Security Server for z/VM (RACF)
- Performance Toolkit for VM (PERFTK)
- Hardware Configuration Definition and Hardware Configuration Manager for z/VM (VMHCD)

CMS defaults

The CMS nucleus was built with a local mod to DMSNGP. This local mod updates the CYLADDR, which defines where to write the CMS nucleus on the System disk (the recomp value).

CP defaults

1. The LOGO CONFIG and SYSTEM CONFIG files are located on the common parm disk (PMAINT CF0). These files contain the system configuration data used by CP.
   The CP system control file (SYSTEM CONFIG) describes the system residence device (M0xRES) and various system parameters, defining the configuration of your system.
2. For detailed information about the CP system configuration function, CP nucleus options, and CP planning, see [z/VM: CP Planning and Administration](#).
3. The CP nucleus on the z/VM system is a module. The module resides on the system parm disks (MAINT CF1 and CF3 disks).
4. The CP nucleus is IPLed with the system default language, mixed case American English (AMENG), uppercase English (UCENG), or Kanji (KANJI), which was selected during installation.
5. The default USER DIRECT file on the PMAINT 2CC minidisk contains entries defining each virtual machine (user) permitted to log on to your system.
   If there is no machine mode defined for a user ID, the default machine mode definition is ESA. However, issuing the SET MACHINE command overrides the default setting. The USER DIRECT file which was built during installation contains a SET MACHINE XA, SET MACHINE ESA, or SET MACHINE XC command for all user IDs.

6. The USER DIRECT file contains a common profile section, PROFILE IBMDFLT. An INCLUDE statement for this profile has been added to each user ID that previously linked to the AMENG HELP disk (19D). The PROFILE IBMDFLT section contains a link to each HELP disk. Each user you add to the directory that needs access to a HELP disk must have an INCLUDE statement to the PROFILE IBMDFLT section or a LINK statement for each of the three help disks.

7. The USER DIRECT file contains default passwords for all user IDs defined by the installation process. All passwords that are not NOLOG, AUTOONLY, or LBYONLY have been set to the default of WD5JU8QP. Before moving your system into production, you should ensure all passwords conform to your corporate security policies.
   The following user IDs have a password of NOLOG, AUTOONLY, or LBYONLY:

   NOLOG
   6VMLEN20
   AUTOONLY
   VSMWORK1
   VSMWORK2
   VSMWORK3
   RXAGENT1
   DATAMOVE
   DATAMOV2
   DATAMOV3
   DATAMOV4
   DIRMAINT
   DIRMSAT
   DIRMSAT2
   DIRMSAT3
   DIRMSAT4
   VSMGUARD
   PERSMAPI
   DTCSMAPI
   LOHCOST
   ZVMLXTS
   OPNCLCLOU

   LBYONLY
   SSL
   SSLDCSSM

8. The z/VM system contains system definition files with sample information and default parameters. You can modify the files to define your system configuration. See “Configuring Your System” in z/VM: CP Planning and Administration for more information.

9. CP ships several CP Sample Utility Programs to help you configure your system once installation is complete. They are located on the MAINTerm 2C2 minidisk or in the VMPFS:MAINTerm.CPDVSAMPLE directory. For additional information on these programs, see appendix A in z/VM: CP Planning and Administration.

---

GCS defaults

1. The GCS nucleus was built with mixed case American English (AMENG) as the system default language.
2. The GCS nucleus was built with a system name of GCS and is loaded at storage locations X'400'-X'5FF' and X'1000'-X'11FF'.

3. The GCS nucleus was also built with the following defaults:

   **Default Item**  
   **Description**
   **Saved System Name**  
   GCS
   **Authorized VM User IDs**
   VTAM GCS MAINT NETVIEW OPERATNS RSCS AVSVM PDMREM1 PDMGRP4 SNALNKA PVMG NVAS IHVOPER CMEOSI NPM VSCS
   **Saved System Information**
   Recovery machine user ID: GCS
   User ID to receive storage dumps: OPERATNS
   GCS Trace Table Size: 16KB
   Common storage above 16MB line (YES or NO): YES
   Single user environment: no
   Maximum number of VM machines: 14
   System ID: GCS
   Name of the VSAM segment: CMSVSAM
   Name of the BAM segment: CMSBAM
   GCS saved system is restricted: yes
   Trace table in private storage: yes
   **Saved System links**
   VTAM NETVSG00
   **User IDs needing VSAM storage**
   NETVIEW NVAS CMEOSI

### Saved segments on the z/VM system

1. CMS improves system performance and storage usage by placing heavily used execs in the CMS installation segment, CMSINST. CMSINST is a logical segment within the INSTSEG physical segment. If you want to add or delete an exec from CMSINST, you should identify the changes to VMSES/E using the local modification procedure. A local modification allows VMSES/E to track the changes and to ensure the CMSINST segment is rebuilt when any of the execs in it are serviced. To see a local modification example for CMSINST, see [z/VM: Service Guide](#).

2. The QUERY NSS ALL MAP command displays the saved segments and saved systems defined on your system. The segments might be displayed in a different order.

   `query nss all map`
VMSYS, VMSYSU, VMSYSR, and VMPSFS file pool defaults

The z/VM system incorporates four prebuilt file pools:

VMSYS
• System/member specific file pool
  – BFS directories defined for Shell and Utilities, and for SSL
  – System specific work disks in SFS
• Managed by the VMSERVS server machine
• Administrators – MAINT, MAINT640, MIGMAINT, VSMGUARD, VSMWORK1, VSMWORK2, VSMWORK3, and 6VMTCP40

Note: User IDs always enrolled in the VMSYS file pool are: DTCMSAPI, GSKADMIN, GSKSSLDB, LDAPSRV, MAINT, MAINT640, OPERATNS, PERSMSAPI, ROOT, SSLSERV, SSL00001, SSL00002, SSL00003, SSL00004, SSL00005, TCPMAINT, VMRMSVM, VSMGUARD, VSMREQIN, VSMREQI6, VSMREQIU, VSMWORK1, VSMWORK2, and VSMWORK3.

VMSYSU
• User data repository file pool
  – SFS storage space for general use by the system user population
  – SFS directories defined for use by SSL pool servers
• Managed by the VMSERVU server machine
• Administrators – MAINT, MAINT640, and MIGMAINT

**Note:** User IDs always enrolled in the VMSYSU file pool are: ETC, MAINT, MAINT640, TMP, and VAR.

**VMSYSR**
• Coordinated resource recovery (CRR) file pool
• Managed by the VMSERVR server machine
• Administrators – MAINT, MAINT640, and MIGMAINT

**VMPSFS**
• Product service file pool
• Managed by the VMSERP server machine
• Administrators – MAINT, MAINT640, AUTOLOG1, AUTOLOG2, MIGMAINT, VSMGUARD, VSMWORK1, VSMWORK2, and VSMWORK3
• MAINT640's default file pool is set to VMPSFS

**Note:** User IDs always enrolled in the VMPSFS file pool are: BLDSEG, DATAMOVE, DATAMOV2, DATAMOV3, DATAMOV4, DIRMAINT, DIRMSAT, DIRMSAT2, DIRMSAT3, DIRMSAT4, MAINT, MAINT640, and VSMGUARD.

Each of these file pools has two definition files associated with it:
• *filename* POOLDEF, which defines the configuration of the file pool. *filename* is the name of the file pool.
• *filename* DMSPARMS, which contains startup parameters for the file pool server machine. *filename* is the user ID of the server machine.

For more information and examples on tailoring these files and on BFS root directory definitions, see [z/VM: CMS File Pool Planning, Administration, and Operation](#).

**Additional file pool enrollments**
If you chose to load these products into the file pool, the following user IDs are also enrolled in the following file pools:

### Table 23. VMSYS/VMPSFS File Pool User IDs

<table>
<thead>
<tr>
<th>Product</th>
<th>File Pool</th>
<th>User IDs</th>
</tr>
</thead>
<tbody>
<tr>
<td>VM</td>
<td>VMPSFS</td>
<td>6VMLLEN20</td>
</tr>
<tr>
<td>RSCS</td>
<td>VMPSFS</td>
<td>6VMRSC40</td>
</tr>
<tr>
<td></td>
<td>VMPSFS</td>
<td>RSCSAUTH</td>
</tr>
<tr>
<td></td>
<td>VMPSFS</td>
<td>RSCSDNS</td>
</tr>
<tr>
<td></td>
<td>VMPSFS</td>
<td>XCHANGE</td>
</tr>
<tr>
<td></td>
<td>VMSYS</td>
<td>6VMRSC40</td>
</tr>
<tr>
<td></td>
<td>VMSYS</td>
<td>XCHANGE</td>
</tr>
<tr>
<td>OSA/SF</td>
<td>VMPSFS</td>
<td>4OSASF40</td>
</tr>
<tr>
<td></td>
<td>VMPSFS</td>
<td>OSADMIN1</td>
</tr>
<tr>
<td></td>
<td>VMPSFS</td>
<td>OSADMIN2</td>
</tr>
<tr>
<td></td>
<td>VMPSFS</td>
<td>OSADMIN3</td>
</tr>
<tr>
<td></td>
<td>VMPSFS</td>
<td>OSAMAINTE</td>
</tr>
<tr>
<td></td>
<td>VMPSFS</td>
<td>OSASF</td>
</tr>
</tbody>
</table>
### VMSYS, VMSYSU, VMSYSR, and VMPSFS file pool defaults

**Table 23. VMSYS/VMPSFS File Pool User IDs (continued)**

<table>
<thead>
<tr>
<th>Product</th>
<th>File Pool</th>
<th>User IDs</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCP/IP</td>
<td>VMPSFS</td>
<td>6VMTCP40</td>
</tr>
<tr>
<td>ICKDSF</td>
<td>VMPSFS</td>
<td>5684042J</td>
</tr>
<tr>
<td>DIRM</td>
<td>VMPSFS</td>
<td>6VMDIR40</td>
</tr>
<tr>
<td>RACF</td>
<td>VMPSFS</td>
<td>6VMRAC40</td>
</tr>
<tr>
<td>PERFTK</td>
<td>VMPSFS</td>
<td>6VMPTK40</td>
</tr>
<tr>
<td></td>
<td>VMPSFS</td>
<td>PERFSVM</td>
</tr>
<tr>
<td></td>
<td>VMPSFS</td>
<td>PERSMAPI</td>
</tr>
<tr>
<td></td>
<td>VMPSYS</td>
<td>PERFSVM</td>
</tr>
<tr>
<td>VMHCD</td>
<td>VMPSFS</td>
<td>6VMHCD40</td>
</tr>
<tr>
<td></td>
<td>VMPSFS</td>
<td>CBDIODSP</td>
</tr>
</tbody>
</table>
Appendix D. Back up the named saved systems and segments to tape

1. Log on the system or member you are backing up as MAINT640.
   
   logon maint640
   : Ready; T=n.nn/n.nn hh:mm:ss

   The default password for MAINT640 is WD5JU8QP.

2. Attach a tape drive (tapeaddr) to MAINT640 at virtual device address 181.
   
   attach tapeaddr * 181
   TAPE 0181 ATTACHED
   Ready; T=n.nn/n.nn hh:mm:ss

3. Mount a tape, to be used for back up, on the tape drive attached at virtual device address 181.
4. Spool the console.
   
   spool console * start

5. Enter the SPXTAPE command to dump the named saved systems and segments to tape.
   
   spxtape dump tapeaddr sdf all run
   SPXTAPE DUMP INITIATED ON VDEV tapeaddr
   Ready; T=n.nn/n.nn hh:mm:ss

   DUMPING tapeaddr : nnn FILES, PAGES nnnn nn% COMPLETE
   :
   DUMPING tapeaddr : nnn FILES, PAGES nnnn nn% COMPLETE
   RDR FILE fileno1 SENT FROM MAINT640 CON WAS fileno1 RECS nnnn CPY 001 T NOHOLD NOKEEP
   SPXTAPE DUMP COMMAND COMPLETED ON VDEV tapeaddr
   TIME STARTED: hh:mm:ss
   TIME ENDED: hh:mm:ss
   TAPE COUNT: nnn
   FILES PROCESSED: nnn
   SPOOL PAGES: nnnn
   RDR FILE fileno2 SENT FROM MAINT640 CON WAS fileno2 RECS nnnn CPY 001 T NOHOLD NOKEEP

   fileno1
   File number of the volume log file. The volume log file records information about the files processed by the SPXTAPE DUMP command that are associated with a particular tape volume.

   fileno2
   File number of the command summary log file. The command summary log file records the progress and status of the SPXTAPE DUMP operation.

6. Store the tape for emergency use. If it is ever necessary, you can use this tape and the SPXTAPE command to restore the CMS system data file. For more information about the SPXTAPE command,
Back up the named saved systems and segments to tape

see *z/VM: CP Commands and Utilities Reference* For information on how to restore this tape to your system, see Appendix G, “Restore the named saved systems and segments from tape,” on page 263.

7. If you have a multimember SSI cluster, repeat substeps 1 on page 255–6 on page 255 for each remaining member to back up the NSSs and segments for that member.
Appendix E. Back up the z/VM system to tape

If you do not have a tape drive or if you wish to back up to DASD, see Appendix F, “Back up the z/VM system to DASD,” on page 261.

1. Log on to the system or member you are going to back up to tape as MAINT640.

```
logon maint640
```

The default password for MAINT640 is WD5JU8QP.

2. Ensure you have a link to all of the full-pack minidisks for all of the volumes you are backing up, as per the following table.

<table>
<thead>
<tr>
<th>Default Label</th>
<th>Full-pack Minidisk</th>
<th>Owner</th>
<th>Member Specific or Common</th>
</tr>
</thead>
<tbody>
<tr>
<td>M01RES</td>
<td>123</td>
<td>MAINT</td>
<td>Member Specific</td>
</tr>
<tr>
<td>M01W01</td>
<td>124</td>
<td>MAINT</td>
<td>Member Specific</td>
</tr>
<tr>
<td>M01W02</td>
<td>125</td>
<td>MAINT</td>
<td>Member Specific</td>
</tr>
<tr>
<td>M01W03</td>
<td>126</td>
<td>MAINT</td>
<td>Member Specific</td>
</tr>
<tr>
<td>640RL1</td>
<td>131</td>
<td>MAINT640</td>
<td>Common</td>
</tr>
<tr>
<td>640RL2</td>
<td>132</td>
<td>MAINT640</td>
<td>Common</td>
</tr>
<tr>
<td>640RL3</td>
<td>133</td>
<td>MAINT640</td>
<td>Common</td>
</tr>
<tr>
<td>VMCOM1</td>
<td>141</td>
<td>PMAINT</td>
<td>Common</td>
</tr>
<tr>
<td>VMCOM2</td>
<td>142</td>
<td>PMAINT</td>
<td>Common</td>
</tr>
</tbody>
</table>

```
qv 123-142
DASD 0123 3390 M01RES R/O 3339 CYL ON DASD nnnn SUBCHANNEL = nnnn
DASD 0124 3390 M01W01 R/O 3339 CYL ON DASD nnnn SUBCHANNEL = nnnn
DASD 0125 3390 M01W02 R/O 3339 CYL ON DASD nnnn SUBCHANNEL = nnnn
DASD 0126 3390 M01W03 R/O 3339 CYL ON DASD nnnn SUBCHANNEL = nnnn
:...
DASD 0131 3390 640RL1 R/W 3339 CYL ON DASD nnnn SUBCHANNEL = nnnn
DASD 0132 3390 640RL2 R/W 3339 CYL ON DASD nnnn SUBCHANNEL = nnnn
DASD 0133 3390 640RL3 R/W 3339 CYL ON DASD nnnn SUBCHANNEL = nnnn
DASD 0141 3390 VMCOM1 R/O 3339 CYL ON DASD nnnn SUBCHANNEL = nnnn
DASD 0142 3390 VMCOM2 R/O 3339 CYL ON DASD nnnn SUBCHANNEL = nnnn
Ready; T=n.nn/n.nn hh:mm:ss
```

3. Attach a tape drive (*tapeaddr*) to MAINT640 at virtual device address 181.

```
attach tapeaddr = 181
TAPE 0181 ATTACHED
```

4. Mount a tape, to be used for back up, on the tape drive attached at virtual device address 181.

5. Access the 193 minidisk as file mode Z.

```
access 193 z
```

6. Load the DDRXA utility to tape.
Back up the z/VM system to tape

utility utiltape ddrxa
Rewind complete
IUGWUT8317I MOVING IPL DDRXA TO TAPE
IUGWUT8318I THE IPL DDRXA PROGRAM IS
ON TAPE FILE NUMBER 1
Ready; T=n.nn/n.nn hh:mm:ss

7. Rewind the backup tape attached at virtual device address 181.

rewind 181
Rewind complete

8. IPL the tape and answer the prompts from DDRXA. For information about DDRXA, see the z/VM: CP Commands and Utilities Reference and z/VM: System Operation.

      ipl 181 clear
      z/VM DASD DUMP/RESTORE PROGRAM
      ENTER CARD READER ADDRESS OR CONTROL STATEMENTS
      ENTER:

      sysprint cons
      ENTER:

      input devno dasd valid
      ENTER:

      output 181 tape (compact
      ENTER:

      dump all
      DUMPING valid
      DUMPING DATA mm/dd/yy
      AT hh.mm.ss GMT FROM valid

      CLEAR is necessary. Do not omit it.
      Wait a few moments for DDRXA to prompt you. If a prompt does not appear, press Enter.
      This first control statement tells DDRXA that you want program messages sent to your console.
      The second control statement is the input control statement.
      You must back up all your installation volumes, except the paging volume.
      devno
      Full-pack minidisk address of the volume you are backing up.
      valid
      Volume label – for example M01RES.
      This control statement specifies the device to which you are dumping the system. You can specify one alternate tape drive for additional tape volumes.
      Example: If you had a tape attached at virtual device address 181 and an alternate tape attached at virtual device address 182, the OUTPUT control statement would be:
      output 181 tape 182 (compact
      If you are using a 3590 tape, you can use the leave option to dump multiple DASD on one tape volume.
      The output control statement would be:
      output 181 tape (compact leave
      This control statement dumps the specified volume to the tape.
      The informational messages that follow will vary according to your use of device types.
      The exact cylinder extents vary according to the device type.
Back up the z/VM system to tape

<table>
<thead>
<tr>
<th>INPUT CYLINDER EXTENTS</th>
<th>OUTPUT CYLINDER EXTENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>START</td>
<td>STOP</td>
</tr>
<tr>
<td>nnnnnnnnn</td>
<td>nnnnnnnnn</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>END OF DUMP</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>BYTES IN nnnnnnnnn</td>
<td>BYTES OUT nnnnnnnnn</td>
</tr>
<tr>
<td>TRACKS NOT COMPACTED</td>
<td></td>
</tr>
<tr>
<td>ON TAPE - nnnnnnnnn</td>
<td></td>
</tr>
</tbody>
</table>

ENTER: DDRXA prompts when finishes dumping the volume.

Note: When DDRXA encounters the end of a tape, and there is more data to dump, the program prompts you to mount the next tape.

- If you are using the same tape drive, mount the next tape and DDRXA continues.
- If you are using an alternate tape drive, DDRXA uses the alternate tape drive, then alternates between the tape drives for additional tapes. That is, if there are more than two tapes, you are prompted for the third tape on the first tape drive, the fourth tape on the second tape drive, and so forth.

9. If you have additional DASD volumes to back up, mount a new tape, if necessary, and repeat the INPUT, OUTPUT, and DUMP ALL statements for each volume.

10. Press Enter to end the program.

   ENTER

   END OF JOB

11. IPL CMS.

    #cp ipl cms
    z/VM V6.4.0 yyyy-mm-dd hh:mm

    ENTER
    Ready; T=n.nn/n.nn hh:mm:ss

    For information on how to restore your system from tape, see Appendix H, “Restore the z/VM system backup from tape,” on page 265.

12. If you have a multimember SSI cluster, repeat substeps 1. on page 257 for each remaining member to back up the member-specific volumes.
Back up the z/VM system to tape
Appendix F. Back up the z/VM system to DASD

If you wish to store a back up to tape, see Appendix E, “Back up the z/VM system to tape,” on page 257.

1. Log on to the system or member you are going to back up to DASD as MAINT640.

   logon maint640
   The default password for MAINT640 is WD5JU8QP.
   logon maint640
   Ready; T=n.nn/n.nn hh:mm:ss

2. Ensure you have a link to all of the full-pack minidisks for all of the volumes you are backing up, as per the following table.

<table>
<thead>
<tr>
<th>Default Label</th>
<th>Full-pack Minidisk</th>
<th>Owner</th>
<th>Member Specific or Common</th>
</tr>
</thead>
<tbody>
<tr>
<td>M01RES</td>
<td>123</td>
<td>MAINT</td>
<td>Member Specific</td>
</tr>
<tr>
<td>M01W01</td>
<td>124</td>
<td>MAINT</td>
<td>Member Specific</td>
</tr>
<tr>
<td>M01W02</td>
<td>125</td>
<td>MAINT</td>
<td>Member Specific</td>
</tr>
<tr>
<td>M01W03</td>
<td>126</td>
<td>MAINT</td>
<td>Member Specific</td>
</tr>
<tr>
<td>640RL1</td>
<td>131</td>
<td>MAINT640</td>
<td>Common</td>
</tr>
<tr>
<td>640RL2</td>
<td>132</td>
<td>MAINT640</td>
<td>Common</td>
</tr>
<tr>
<td>640RL3</td>
<td>133</td>
<td>MAINT640</td>
<td>Common</td>
</tr>
<tr>
<td>VMCOM1</td>
<td>141</td>
<td>PMAINT</td>
<td>Common</td>
</tr>
<tr>
<td>VMCOM2</td>
<td>142</td>
<td>PMAINT</td>
<td>Common</td>
</tr>
</tbody>
</table>

   q v 123–142
   DASD 0123 3390 M01RES R/O 3339 CYL ON DASD nnnn SUBCHANNEL = nnnn
   DASD 0124 3390 M01W01 R/O 3339 CYL ON DASD nnnn SUBCHANNEL = nnnn
   DASD 0125 3390 M01W02 R/O 3339 CYL ON DASD nnnn SUBCHANNEL = nnnn
   DASD 0126 3390 M01W03 R/O 3339 CYL ON DASD nnnn SUBCHANNEL = nnnn
   ;
   DASD 0131 3390 640RL1 R/W 3339 CYL ON DASD nnnn SUBCHANNEL = nnnn
   DASD 0132 3390 640RL2 R/W 3339 CYL ON DASD nnnn SUBCHANNEL = nnnn
   DASD 0133 3390 640RL3 R/W 3339 CYL ON DASD nnnn SUBCHANNEL = nnnn
   DASD 0141 3390 VMCOM1 R/O 3339 CYL ON DASD nnnn SUBCHANNEL = nnnn
   DASD 0142 3390 VMCOM2 R/O 3339 CYL ON DASD nnnn SUBCHANNEL = nnnn
   Ready; T=n.nn/n.nn hh:mm:ss

3. Access the 193 minidisk as file mode Z.

   access 193 z
   Ready; T=n.nn/n.nn hh:mm:ss

4. Run DDR and answer the prompts. For information about DDR, see the z/VM: CP Commands and
   Utilities Reference and z/VM: System Operation

   DDR
   z/VM DASD DUMP/RESTORE PROGRAM
   ENTER CARD READER ADDRESS OR CONTROL STATEMENTS
   ENTER:

© Copyright IBM Corp. 1991, 2017
Back up the z/VM system to DASD

sysprint cons
ENTER:

This first control statement tells DDR that you want program messages sent to your console.

input devno dasd valid
ENTER:

The second control statement is the input control statement.

You must back up all your installation volumes, except the paging volume.

devno
Full-pack minidisk address of the volume you are backing up.

valid
Volume label – for example M01RES.

output devno dasd scratch
ENTER:

You need a separate volume for each volume you are backing up.

devno
Full-pack minidisk address of the volume you are using to backup.

copy all

This control statement dumps the specified volume to the new DASD.

DUMPING valid
DUMPING DATA mm/dd/yy
AT hh:mm:ss GMT FROM valid

These are informational messages that will vary according to your use of device types.

The exact cylinder extents vary according to the device type.

INPUT CYLINDER EXTENTS OUTPUT CYLINDER EXTENTS
START STOP START STOP

nnnnnnnn nnnnnnnnn nnnnnnn nnnnnnnnn

When DDR finishes dumping the volume, it prompts.

5. If you have any more DASD volumes to back up, repeat the INPUT, OUTPUT, and COPY ALL statements for each volume.

6. Press Enter to end the program.

ENTER
END OF JOB

7. If you have a multimember SSI cluster, repeat substeps 1 on page 261 for each remaining member to back up the member-specific volumes.
Appendix G. Restore the named saved systems and segments from tape

If you created a loadable tape of the named saved systems and segments during your system installation, perform the following steps to restore the named saved system and segments.

1. Log on as MAINT640.

   `logon maint640`
   
   The default password for MAINT640 is WD5JU8QP.

   `logon maint640`
   ```
   `logon maint640`
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

2. Attach a tape drive (tapeaddr) to MAINT640.

   `attach tapeaddr *`
   
   `attach tapeaddr *`
   ```
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

3. Mount the backup tape on the attached tape drive (tapeaddr).

4. Spool the console.

   `spool console *`

5. Enter the SPXTAPE command to load the system data files.

   `spxtape load tapeaddr sdf all run`

   Address of the tape drive attached to MAINT640.

   `spxtape load tapeaddr sdf all run`
   ```
   SPXTAPE LOAD INITIATED ON VDEV tapeaddr
   Ready; T=n.nn/n.nn hh:mm:ss
   
   LOADING tapeaddr : nnn FILES, PAGES nnnn
   
   ;
   LOADING tapeaddr : nnn FILES, PAGES nnnn
   SPXTAPE LOAD END-OF-TAPE ON VDEV tapeaddr;
   MOUNT NEXT TAPE
   TAPE NUMBER: tapeaddr-001
   FILES PROCESSED: nnn
   SPOOL PAGES: nnnn
   LOADING tapeaddr : nnn FILES, PAGES nnnn
   
   ;
   LOADING tapeaddr : nnn FILES, PAGES nnnn
   RDR FILE fileno SENT FROM MAINT640 CON WAS fileno RECS nnnn CPY 001 T NOHOLD NOKEEP
   
   fileno
   File number of the volume log file.

   The volume log file records information about the files processed by the SPXTAPE LOAD command that are associated with a particular tape volume.

6. When all volumes have been loaded, use the SPXTAPE END command to end the SPXTAPE load.
Restore the named saved systems and segments from tape

spxtape end tapeaddr
SPXTAPE END INITIATED ON VDEV tapeaddr
SPXTAPE LOAD COMMAND ENDED ON VDEV tapeaddr
TIME STARTED: hh:mm:ss
TIME ENDED: hh:mm:ss
TAPE COUNT: nnn
FILES PROCESSED: nnn
SPOOL PAGES: nnnn

The SPXTAPE END command ends the SPXTAPE LOAD operation at the completion of the current file.

Ready; T=n.nn/n.nn hh:mm:ss

The CMS ready message may occur between the messages.

RDR FILE fileno2 SENT FROM MAINT640 CON WAS fileno RECS nnnn CPY 001 T NOHOLD NOKEEP

fileno2
File number of the command summary log file.

The command summary log file records the progress and status of the SPXTAPE LOAD operation.

For more information on the SPXTAPE command, see z/VM: CP Commands and Utilities Reference.

7. IPL the CMS named saved system.

ipl cmsname

;:
z/VM V6.4.0 yyyy-mm-dd hh:mm

ENTER

Ready; T=n.nn/n.nn hh:mm:ss

cmsname
Either the IBM supplied system name (CMS) or the name you defined in DMSNGP on the SYSNAME statement.

If you have changed the version heading, your own heading will appear.
Appendix H. Restore the z/VM system backup from tape

Note: This procedure requires a full-pack minidisk be defined in the CP directory, USER DIRECT, for each volume you are restoring.

If you created a backup of your new z/VM system on tape during your system installation, perform the following steps to restore the system.

1. Mount the backup tape on a tape drive.
2. IPL the tape drive, to restore the system to DASD.
   
   \[ ipl \text{ tapeaddr clear} \]

3. This will invoke DDRXA, which will restore the contents of the tape to DASD.
   
   \[ z/VM \text{ DASD DUMP/RESTORE PROGRAM} \]
   \[ \text{ENTER CARD READER ADDRESS OR CONTROL STATEMENTS} \]
   \[ \text{ENTER:} \]
   \[ \text{sysprint cons} \]
   \[ \text{ENTER:} \]
   \[ \text{input tapeaddr tape} \]
   \[ \text{ENTER:} \]

   This first control statement tells DDRXA that you want program messages sent to your console.

   The second control statement is the input control statement.

   \[ \text{tapeaddr} \]
   
   Device number where the backup tape is mounted.

   You can specify one alternate tape drive for additional tape volumes.

   Example: If you had a tape attached at virtual device address 181 and an alternate tape attached at virtual device address 182, the INPUT control statement would be:

   \[ \text{input 181 tape 182} \]

   If you are using a 3590 tape, and multiple DASD volumes were dumped on one tape volume, use the leave option to position the tape for the next restore.

   The input control statement would be:

   \[ \text{input 181 tape (leave} \]

   This output statement specifies the DASD device to which you are restoring the system.

   \[ \text{devaddr} \]

   Full-pack minidisk address of the volume to which you are restoring this tape.

   The full-pack minidisk addresses for the default DASD are 122 (M0xS01), 123 (M0xRES), 124 (M0xW01), 125 (M0xW02), ...

   By typing dasd, the device type (3390) is automatically identified by the DDRXA program.
Restore the z/VM system backup from tape

```
restore all

RESTORING valid
DATA DUMPED mm/dd/yy
    AT hh.mm.ss GMT FROM valid
    RESTORED TO valid
    INPUT CYLINDER EXTENTS    OUTPUT CYLINDER EXTENTS
    START   STOP             START   STOP
      nnnnnnnn      nnnnnnnn      nnnnnnnn      nnnnnnnn

; END OF RESTORE
BYTES RESTORED nnnnnnnnn

```

The exact cylinder extents vary according to the device type.

```
ENTER:
; END OF JOB
```

The RESTORE ALL statement tells DDRXA to restore the whole tape to the output device.

Note: When DDRXA encounters the end of a tape, and there is more data to restore, the program prompts you to mount the next tape.

- If you are using the same tape drive, mount the next tape and DDRXA continues.
- If you are using an alternate tape drive, DDRXA uses the alternate tape drive, then alternates between the tape drives for additional tapes. That is, if there are more than two tapes, you are prompted for the third tape on the first tape drive, the fourth tape on the second tape drive, and so forth.
Appendix I. Recover a file or minidisk

1. Log on as MAINT640.

   logon maint640
   ...
   Ready; T=n.nn/n.nn hh:mm:ss

   The default password for MAINT640 is WD5JU8QP.

2. If you want to recover an entire minidisk, skip this step and go to step 3.

   To recover an individual file, you must first determine on which minidisk the file is located. If you already know on which minidisk the file is located, go to step 3. Otherwise, check the minidisk map file. If you loaded z/VM to the file pool, the minidisk map file is on the directory VMPSFS:MAINT640.CPDV.OBJECT. Access this directory in place of the 194 disk.

   access 194 z
   Ready; T=n.nn/n.nn hh:mm:ss

   xedit minidisk map z
   ...
   quit
   Ready; T=n.nn/n.nn hh:mm:ss

   The MINIDISK MAP file lists the minidisks shipped on the z/VM system and the files contained on each minidisk. Look at MINIDISK MAP to determine which minidisk contains the file you want to recover.

3. If you want to recover an individual file or recover the entire minidisk to a temporary disk, you need to define a temporary disk. The temporary disk must be the same DASD type that is provided by your installation media and the same size as the minidisk you want to recover. (See the $ITEMMD$ $TABLE$ on the 4CC disk for the size of the minidisk you want to recover.)

   define [t3390 or vfb-512] loadaddr mdisksize loadaddr DASD loadaddr DEFINED
   Ready; T=n.nn/n.nn hh:mm:ss

   mdisksize
   Size of the minidisk you want to restore.

   If you receive the following message:

   HCPLNM091E DASD loadaddr not defined; temp space not available

   you must add additional temporary disk space to your system or define a minidisk with the address loadaddr. If you define a minidisk, it must be the same DASD type that is provided by your installation media and the same size as the minidisk you want to recover.

4. Recover the minidisk.

   If your installation media was DVD, you could have installed from the DVD or uploaded the contents of the DVD to either an FTP server or VM minidisk. You can use the FTP server or VM minidisk if they are still available, otherwise use the DVD.

   a. Run INSTPIPE

      instpipe

   b. Recover from the DVD or FTP server:

      pipe ftpget -h IPAddress -u userid -p password -d ftpdirct -v BEF -DVDEOF -f dddcuw* | UNPACK|
      restcmd loadaddr
Recover a file or minidisk

**IPaddress**
IP address or FTP HOSTNAME.

**userid**
User ID and password used to log on to the FTP server.

**password**

**ftpdrcrt**
Path to the DVD drive or server directory. If using a DVD drive, append `/CPDVD` to the end of the path.

**ddd**
CKD for 3390 or FBA for FBA.

**cuu**
Address of the minidisk to be recovered from the DVD, with an asterisk (*) appended to the end.

**restcmd**

**ECKDREST** for 3390 or **MDREST** for FBA.

**loadaddr**
Address to which you are restoring the minidisk.

**Notes:**

1. To recover a minidisk and overlay the existing disk, you must link the existing minidisk in write mode. For example, enter the LINK CMSBATCH 195 801 WR command.

2. If the minidisk belongs to MAINT640, `cuu` is the actual minidisk address. If the minidisk does not belong to MAINT640, `cuu` is the alias address. See the `$ITEMMD$ $TABLE$` on the 4CC disk to determine the alias address.

3. If you want to recover an entire minidisk and overlay the existing minidisk, `loadaddr` is the address at which you have the existing disk linked. If `loadaddr` is not specified, a temporary disk (T-disk) is created.

4. Recover from a VM minidisk. Access the VM minidisk address as file mode C.

   ```
   access diskaddr c
   pipe dvddecode dddcuu image c |UNPACK| restcmd loadaddr
   ```

5. If you restored the minidisk to a temporary disk, copy the file or files that you want to recover from the temporary disk to the target disk.
 recover a file or minidisk

access loadaddr fm-1
Ready; T=n.nn/n.nn hh:mm:ss

loadaddr
Address of the temporary disk.

fm-1
Any available file mode.

access mdiskaddr fm-2
Ready; T=n.nn/n.nn hh:mm:ss

mdiskaddr
Address of the target minidisk. If you loaded
z/VM to the file pool, mdiskaddr is the directory
to which the minidisks were copied. See
MOVE2SFS $TABLE$ for a list of minidisks and
directories.

fm-2
Any available file mode.

copyfile fn ft fm-1 = = fm-2 (olddate
Ready; T=n.nn/n.nn hh:mm:ss

fn File name of the file you want to recover.

ft File type of the file you want to recover. Repeat
the COPYFILE command for each file you want
to recover.
Recover a file or minidisk
Appendix J. Using a terminal emulator to upload files from a DVD

Note: Using a terminal emulator to upload files from a DVD can take several hours to complete.

The following procedure will guide you through using IBM Personal Communications to upload files from the z/VM product DVD and the z/VM installation RSU DVD to a VM minidisk. If Personal Communications is not your preferred terminal emulator, this procedure can be used as a model for using the upload function provided with your preferred terminal emulator.

Requirement: Files must be uploaded with a fixed record format, a logical record length of 1028, and a binary transfer type. These options must be used to ensure file attributes are maintained.

1. Start a new Personal Communications session and log on to a user ID with access to the minidisk where you will transfer the DVD files.

2. If you have already set up a “dvdbinary” transfer type, skip to substep 3. Otherwise, create a new transfer type called “dvdbinary”.
   a. From the Edit menu, click Preferences then Transfer.
   b. In the File Transfer Settings window, click the General tab and verify that the Host Type is VM/CMS. If not, select VM/CMS from the Host Type list.
   c. Click the VM tab.
      1) In the Transfer Type field, enter “dvdbinary”.
      2) Select Fixed in the Record Format list.
      3) In the Logical Record Length field, enter “1028”.
      4) Click Save.
      5) Click OK.

3. Load the z/VM product DVD in the DVD drive.
   Note: If your DVD drive is not labeled drive letter D, copy the 640prod.srl file from the DVD to your workstation. Open the file, and change “D:” to match your DVD drive letter for each entry. Save the modified file and use it instead of the copy on the DVD for the following steps.

4. Upload the contents of the DVD to the VM minidisk (previously accessed as file mode W).
   a. Set messages off in your VM session:
      
      set msg off
      set emsg off
      set lmsg off
      set wng off

   b. From the Actions menu, click Send File To Host.
   c. In the Send Files to Host window, click Open List.
      1) In the Open File-Transfer List File window, navigate to the CPDVD directory on the DVD and select the 640prod.srl file.
         Note: If you created a modified 640prod.srl file in the previous substep, navigate to the location on your workstation where the modified file is saved and select it instead.
      2) Click Open. Each file to be copied is added to the transfer list.
   d. Click Send.
Using a terminal emulator to upload files from a DVD

5. Repeat this procedure using the z/VM installation RSU DVD. Substitute one of the following .srl files in place of the 640prod.srl file used for the z/VM product DVD.

If installing to: Substitute:
3390 64ckdrsu.srl
FBA 64fbarsu.srl

6. When all files have been transferred, restore your message settings in your VM session:

   set msg on
   set emsg on
   set imsg on
   set wmg on

7. Verify that all of the files transferred have a fixed (F) file format and a logical record length (LRECL) of 1028.

If the file format or logical record length of any file is incorrect, then the files were uploaded incorrectly. Erase all of the files from the minidisk and upload the contents of the z/VM product DVD and the z/VM installation RSU DVD again, using the correct parameters:

   filelist * image w

   Cmd Filename Filetype Fm Format Lrecl Records Blocks Date Time
   xxx22200 IMAGE W1 F 1028 nnnn nnn dddd ttttt

8. Return to Chapter 7, From a VM Minidisk, Step 1, Substep 15 on page 43
Appendix K. Basic TCP/IP Connectivity Worksheets

Gather the TCP/IP configuration information from your network system administrator and record the information in the following tables.

If you are installing a multimember SSI, the TCP/IP configuration must be done separately on each SSI member. Therefore, you will need a separate set of configuration worksheets for each member (1-4) on which you will create a minimal TCP/IP configuration.

In these worksheets, a number in parentheses following a field description – for example, Host name (20) – is the maximum length for that field.

**QDID layer 2:** If using QDIO layer 2 for the network interface in IPWIZARD, you need to add or update the VMLAN MACPREFIX statement in your SYSTEM CONFIG file to define a unique MAC address prefix for this system. If you are installing a multimember SSI, the VMLAN MACPREFIX and USERPREFIX must be configured in each SSI member. For more information, see “Media Access Control (MAC) Address” in [z/VM: Connectivity](#) and the VMLAN statement in [z/VM: CP Planning and Administration](#). If changes are made to your SYSTEM CONFIG file, the z/VM image must be re-IPLed so that the statements take effect.

**Note:** The IP configuration wizard supports real network devices only. If you plan on using virtual network devices for TCP/IP, they must be configured manually. See [z/VM: TCP/IP Planning and Customization](#).
### Table 24. Installation TCP/IP Configuration Worksheet – Member 1

<table>
<thead>
<tr>
<th>Member 1:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>z/VM user ID of the z/VM TCP/IP stack virtual machine:</strong></td>
<td></td>
</tr>
<tr>
<td>(The default user ID is TCPIP. If you change this user ID, you must define the user ID in your user directory before issuing IPWIZARD.)</td>
<td></td>
</tr>
<tr>
<td><strong>Host name (20):</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Domain name (40):</strong></td>
<td></td>
</tr>
</tbody>
</table>
| **DNS IP address (up to three addresses):** | 1) ________________________________  
2) ________________________________  
3) ________________________________ |
| **Gateway IP address:** |  |
| **Interface name (16):** |  |
| **Device number:** |  |
| **IP address:** |  |
| **IPv4 subnet mask (15) or IPv6 prefix length (3):** |  |
| **(IPv4 only) Path MTU discovery:** | __ Enabled  
__ Disabled |
| **Choose the interface you will be using (select one):** | __ QDIO (layer 2) – see “QDIO layer 2” on page 273  
__ QDIO (layer 3)  
__ LCS  
__ HiperSockets™  
__ CTC |

See the appropriate interface worksheet to record additional information.

IPv6 is available only for QDIO and HiperSockets devices.
### Table 25. QDIO Interface Worksheet – Member 1

<table>
<thead>
<tr>
<th>Member 1:</th>
<th></th>
</tr>
</thead>
</table>
| Router type (select one): | _Primary_  
| _Secondary_  
| _None_  

Router type is not available for layer 2 transport.

| (IPv6 only) Router advertisements: | _On_  
| _Off_  

Note: As of V6.2, only Ethernet network types are allowed.

### Table 26. LCS Interface Worksheet – Member 1

<table>
<thead>
<tr>
<th>Member 1:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Port/adapter number:</td>
<td></td>
</tr>
</tbody>
</table>

Maximum transmission unit (MTU) size:

Note: As of V6.2, only Ethernet network types are allowed.

### Table 27. HiperSockets Interface Worksheet – Member 1

<table>
<thead>
<tr>
<th>Member 1:</th>
<th></th>
</tr>
</thead>
</table>
| (IPv6 only) Router advertisements: | _On_  
| _Off_  

Maximum frame size (MFS) in kilobytes:

(Optional) VLAN ID:

### Table 28. CTC Interface Worksheet – Member 1

<table>
<thead>
<tr>
<th>Member 1:</th>
<th></th>
</tr>
</thead>
</table>
| Write channel device number (select one): | _This choice contains the device number specified on the main z/VM TCP/IP Configuration Wizard panel._  
| _This choice contains the device number specified on the main z/VM TCP/IP Configuration Wizard panel plus one._  

Maximum transmission unit (MTU) size:

Peer IP address:
### Table 29. Installation TCP/IP Configuration Worksheet – Member 2

<table>
<thead>
<tr>
<th>Member 2:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>z/VM user ID of the z/VM TCP/IP stack virtual machine:</td>
<td></td>
</tr>
<tr>
<td>(The default user ID is TCPIP. If you change this user ID, you must</td>
<td></td>
</tr>
<tr>
<td>define the user ID in your user directory before issuing IPWIZARD.)</td>
<td></td>
</tr>
<tr>
<td>Host name (20):</td>
<td></td>
</tr>
<tr>
<td>Domain name (40):</td>
<td></td>
</tr>
</tbody>
</table>
| DNS IP address (up to three addresses):                                 | 1) ___________________________
|                                                                       | 2) ___________________________
|                                                                       | 3) ___________________________
| Gateway IP address :                                                    |                  |
| Interface name (16):                                                    |                  |
| Device number:                                                          |                  |
| IP address:                                                             |                  |
| IPv4 subnet mask (15) or IPv6 prefix length (3):                        |                  |
| (IPv4 only) Path MTU discovery:                                         | __ Enabled
|                                                                       | __ Disabled |
| Choose the interface you will be using (select one):                    | __ QDIO (layer 2) – see “QDIO layer 2” on page 273
|                                                                       | __ QDIO (layer 3) |
|                                                                       | __ LCS |
|                                                                       | __ HiperSockets |
|                                                                       | __ CTC |
| See the appropriate interface worksheet to record additional           |                  |
| information.                                                           |                  |
| IPv6 is available only for QDIO and HiperSockets devices.               |                  |
## Table 30. QDIO Interface Worksheet – Member 2

<table>
<thead>
<tr>
<th>Member 2:</th>
<th></th>
</tr>
</thead>
</table>
| Router type (select one): | __ Primary  
   __ Secondary  
   __ None  

Router type is not available for layer 2 transport.  

(IPv6 only) Router advertisements: | __ On  
   __ Off  

Maximum transmission unit (MTU) size: |  

(Optional) Port number: |  

(Optional) VLAN ID: |  

**Note:** As of V6.2, only Ethernet network types are allowed.

## Table 31. LCS Interface Worksheet – Member 2

<table>
<thead>
<tr>
<th>Member 2:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Port/adapter number:</td>
<td></td>
</tr>
</tbody>
</table>

Maximum transmission unit (MTU) size: |  

**Note:** As of V6.2, only Ethernet network types are allowed.

## Table 32. HiperSockets Interface Worksheet – Member 2

<table>
<thead>
<tr>
<th>Member 2:</th>
<th></th>
</tr>
</thead>
</table>
| (IPv6 only) Router advertisements: | __ On  
   __ Off  

Maximum frame size (MFS) in kilobytes: |  

(Optional) VLAN ID: |  

## Table 33. CTC Interface Worksheet – Member 2

<table>
<thead>
<tr>
<th>Member 2:</th>
<th></th>
</tr>
</thead>
</table>
| Write channel device number (select one): | __ This choice contains the device number specified on the main z/VM TCP/IP Configuration Wizard panel.  
   __ This choice contains the device number specified on the main z/VM TCP/IP Configuration Wizard panel plus one.  

Maximum transmission unit (MTU) size: |  

Peer IP address: |  

---

Appendix K. Basic TCP/IP Connectivity Worksheets 277
### Table 34. Installation TCP/IP Configuration Worksheet – Member 3

<table>
<thead>
<tr>
<th>Member 3:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>z/VM user ID of the z/VM TCP/IP stack virtual machine:</strong></td>
<td>(The default user ID is TCPIP. If you change this user ID, you must define the user ID in your user directory before issuing IPWIZARD.)</td>
</tr>
<tr>
<td><strong>Host name (20):</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Domain name (40):</strong></td>
<td></td>
</tr>
</tbody>
</table>
| **DNS IP address (up to three addresses):** | 1) ____________________________  
2) ____________________________  
3) ____________________________  |
| **Gateway IP address:** |  |
| **Interface name (16):** |  |
| **Device number:** |  |
| **IP address:** |  |
| **IPv4 subnet mask (15) or IPv6 prefix length (3):** |  |
| **(IPv4 only) Path MTU discovery:** | _ Enabled  
_ Disabled  |
| **Choose the interface you will be using (select one):** |  
_ QDIO (layer 2) – see “QDIO layer 2” on page 273  
_ QDIO (layer 3)  
_ LCS  
_ HiperSockets  
_ CTC  |

See the appropriate interface worksheet to record additional information.

IPv6 is available only for QDIO and HiperSockets devices.
Table 35. QDIO Interface Worksheet – Member 3

<table>
<thead>
<tr>
<th>Member 3:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Router type (select one):</td>
</tr>
<tr>
<td>__ Primary</td>
</tr>
<tr>
<td>__ Secondary</td>
</tr>
<tr>
<td>__ None</td>
</tr>
<tr>
<td>Router type is not available for layer 2 transport.</td>
</tr>
<tr>
<td>(IPv6 only) Router advertisements:</td>
</tr>
<tr>
<td>__ On</td>
</tr>
<tr>
<td>__ Off</td>
</tr>
<tr>
<td>Maximum transmission unit (MTU) size:</td>
</tr>
<tr>
<td>(Optional) Port number:</td>
</tr>
<tr>
<td>(Optional) VLAN ID:</td>
</tr>
<tr>
<td><strong>Note:</strong> As of V6.2, only Ethernet network types are allowed.</td>
</tr>
</tbody>
</table>

Table 36. LCS Interface Worksheet – Member 3

<table>
<thead>
<tr>
<th>Member 3:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port/adapter number:</td>
</tr>
<tr>
<td>Maximum transmission unit (MTU) size:</td>
</tr>
<tr>
<td><strong>Note:</strong> As of V6.2, only Ethernet network types are allowed.</td>
</tr>
</tbody>
</table>

Table 37. HiperSockets Interface Worksheet – Member 3

<table>
<thead>
<tr>
<th>Member 3:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(IPv6 only) Router advertisements:</td>
</tr>
<tr>
<td>__ On</td>
</tr>
<tr>
<td>__ Off</td>
</tr>
<tr>
<td>Maximum frame size (MFS) in kilobytes:</td>
</tr>
<tr>
<td>(Optional) VLAN ID:</td>
</tr>
</tbody>
</table>

Table 38. CTC Interface Worksheet – Member 3

<table>
<thead>
<tr>
<th>Member 3:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Write channel device number (select one):</td>
</tr>
<tr>
<td>__ This choice contains the device number specified on the main z/VM TCP/IP Configuration Wizard panel.</td>
</tr>
<tr>
<td>__ This choice contains the device number specified on the main z/VM TCP/IP Configuration Wizard panel plus one.</td>
</tr>
<tr>
<td>Maximum transmission unit (MTU) size:</td>
</tr>
<tr>
<td>Peer IP address:</td>
</tr>
</tbody>
</table>

Note: As of V6.2, only Ethernet network types are allowed.
### Table 39. Installation TCP/IP Configuration Worksheet – Member 4

<table>
<thead>
<tr>
<th>Member 4:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>z/VM user ID of the z/VM TCP/IP stack virtual machine:</strong></td>
</tr>
<tr>
<td>(The default user ID is TCPIP. If you change this user ID, you must define the user ID in your user directory before issuing IPWIZARD.)</td>
</tr>
<tr>
<td><strong>Host name (20):</strong></td>
</tr>
<tr>
<td><strong>Domain name (40):</strong></td>
</tr>
<tr>
<td><strong>DNS IP address (up to three addresses):</strong></td>
</tr>
<tr>
<td>1) ________________________________</td>
</tr>
<tr>
<td>2) ________________________________</td>
</tr>
<tr>
<td>3) ________________________________</td>
</tr>
<tr>
<td><strong>Gateway IP address:</strong></td>
</tr>
<tr>
<td><strong>Interface name (16):</strong></td>
</tr>
<tr>
<td><strong>Device number:</strong></td>
</tr>
<tr>
<td><strong>IP address:</strong></td>
</tr>
<tr>
<td><strong>IPv4 subnet mask (15) or IPv6 prefix length (3):</strong></td>
</tr>
<tr>
<td>(IPv4 only) <strong>Path MTU discovery:</strong></td>
</tr>
<tr>
<td>__ Enabled</td>
</tr>
<tr>
<td>__ Disabled</td>
</tr>
<tr>
<td><strong>Choose the interface you will be using (select one):</strong></td>
</tr>
<tr>
<td>__ QDIO (layer 2) – see “QDIO layer 2” on page 273</td>
</tr>
<tr>
<td>__ QDIO (layer 3)</td>
</tr>
<tr>
<td>__ LCS</td>
</tr>
<tr>
<td>__ HiperSockets</td>
</tr>
<tr>
<td>__ CTC</td>
</tr>
</tbody>
</table>

See the appropriate interface worksheet to record additional information.

IPv6 is available only for QDIO and HiperSockets devices.
### Table 40. QDIO Interface Worksheet – Member 4

<table>
<thead>
<tr>
<th>Member 4:</th>
<th></th>
</tr>
</thead>
</table>
| **Router type (select one):** | __ Primary  
__ Secondary  
__ None  

Router type is not available for layer 2 transport.  |
| **(IPv6 only) Router advertisements:** | __ On  
__ Off  |
| **Maximum transmission unit (MTU) size:** |  |
| **(Optional) Port number:** |  |
| **(Optional) VLAN ID:** |  |
| **Note:** As of V6.2, only Ethernet network types are allowed. |  |

### Table 41. LCS Interface Worksheet – Member 4

<table>
<thead>
<tr>
<th>Member 4:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Port/adapter number:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Maximum transmission unit (MTU) size:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Note:</strong> As of V6.2, only Ethernet network types are allowed.</td>
<td></td>
</tr>
</tbody>
</table>

### Table 42. HiperSockets Interface Worksheet – Member 4

<table>
<thead>
<tr>
<th>Member 4:</th>
<th></th>
</tr>
</thead>
</table>
| **(IPv6 only) Router advertisements:** | __ On  
__ Off  |
| **Maximum frame size (MFS) in kilobytes:** |  |
| **(Optional) VLAN ID:** |  |

### Table 43. CTC Interface Worksheet – Member 4

<table>
<thead>
<tr>
<th>Member 4:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Write channel device number (select one):</strong></td>
<td></td>
</tr>
</tbody>
</table>
__ This choice contains the device number specified on the main z/VM TCP/IP Configuration Wizard panel.  
__ This choice contains the device number specified on the main z/VM TCP/IP Configuration Wizard panel plus one.  |
| **Maximum transmission unit (MTU) size:** |  |
| **Peer IP address:** |  |

---

**Appendix K. Basic TCP/IP Connectivity Worksheets**
Appendix L. IPLing z/VM from an SCSI device

When IPLing z/VM from an SCSI device, the following parameters need to be entered in the HMC Load window:

1. Select the radio button for SCSI.
2. In the Load address field, enter the address of the FCP device (that is, the FCP address, not the EDEV address) used to define the residence volume for the system you are IPLing.
3. In the Load parameter field, enter the address of your system console – either SYSG for the Integrated 3270 Console on the HMC, or some other address (for example, 20) that represents your system console.
4. In the Worldwide port name field, enter the world wide port name (WWPN) used to define the residence volume for the system you are IPLing.
5. In the Logical unit number field, enter the 16-character logical unit number (LUN) of the residence volume for the system you are IPLing.
6. In the Boot program selector field, enter 0 (zero).
7. In the Boot record logical block address field, enter the 16-character value 00000000000000C8.
8. Click OK. Confirmation prompts will be displayed.

Once you have confirmed your IPL, the z/VM Stand Alone Program Loader (SAPL) panel will be displayed on the console that you specified.

1. Verify that your FCP device address is displayed in the DEVICE NUMBER field.
2. In the IPL PARAMETERS area, enter “cons=” followed by your console address, and “pdvol=” followed by the EDEVICE number used to define the residence volume for the system you are IPLing.
3. When you have entered all your data, press F10 to complete your IPL.
IPLing z/VM from an SCSI device
Appendix M. IBM-supplied user IDs with upgrade restrictions

Upgrade installation restricts changes for the user IDs included in this appendix. The following lists contain user IDs shipped with z/VM V6.2 and z/VM V6.3 with ID names and minidisk addresses that should not be changed.

- User IDs defined with the USER statement:
  
<table>
<thead>
<tr>
<th>User ID</th>
<th>Group</th>
<th>ID Name</th>
<th>Minidisk Addr</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLDCMS</td>
<td>DIRMAINT</td>
<td>SYSADMIN</td>
<td>6VMPTK20¹</td>
</tr>
<tr>
<td>BLDNUC</td>
<td>DIRMAINT</td>
<td>SYSMAINT</td>
<td>6VMPTK30²</td>
</tr>
<tr>
<td>BLDRCF</td>
<td>DIRMAINT2</td>
<td>VMSERPV</td>
<td>6VMRAC20²</td>
</tr>
<tr>
<td>BLDSEG</td>
<td>DIRMAINT3</td>
<td>4OSASF40</td>
<td>6VMRAC30²</td>
</tr>
<tr>
<td>CMS1</td>
<td>DIRMAINT4</td>
<td>5684042J</td>
<td>6VMRSC20¹</td>
</tr>
<tr>
<td>DATAMOVE</td>
<td>IBMUSER</td>
<td>6VMDIR20¹</td>
<td>6VMRSC30²</td>
</tr>
<tr>
<td>DATAMOVE2</td>
<td>MAINT620¹</td>
<td>6VMDIR30²</td>
<td>6VMTCP20¹</td>
</tr>
<tr>
<td>DATAMOVE3</td>
<td>MAINT630²</td>
<td>6VMHCD20</td>
<td>6VMTCP30²</td>
</tr>
<tr>
<td>DATAMOVE4</td>
<td>MAINT</td>
<td>6VMLLEN20</td>
<td></td>
</tr>
</tbody>
</table>

- User IDs defined with the IDENTITY statement:

<table>
<thead>
<tr>
<th>User ID</th>
<th>Group</th>
<th>ID Name</th>
<th>Minidisk Addr</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUDITOR</td>
<td>LOHCOST</td>
<td>REXECD</td>
<td>VMSERVR</td>
</tr>
<tr>
<td>AUTOLOG1</td>
<td>LPSERVE¹</td>
<td>RCS</td>
<td>VMSERVS</td>
</tr>
<tr>
<td>AUTOLOG2</td>
<td>MAINT</td>
<td>RSCSAUTH</td>
<td>VMSERVU</td>
</tr>
<tr>
<td>AVSVM</td>
<td>MIGMAINT</td>
<td>RSCSDNS</td>
<td>VMUTIL</td>
</tr>
<tr>
<td>CBDIODISP</td>
<td>MONWRITE</td>
<td>RXAGENT1</td>
<td>VSMESVRV</td>
</tr>
<tr>
<td>CMSBATCH</td>
<td>MROUTE</td>
<td>SMTP</td>
<td>VSMGUARD</td>
</tr>
<tr>
<td>DHCPD¹</td>
<td>OPERATNS</td>
<td>SNMPD</td>
<td>VSMPROXY</td>
</tr>
<tr>
<td>DISKACNT</td>
<td>OPERATOR</td>
<td>SNMPOE</td>
<td>VSMREQIM</td>
</tr>
<tr>
<td>DTCENS1</td>
<td>OPERSYMP</td>
<td>SNMPSUBA</td>
<td>VSMREQIN</td>
</tr>
<tr>
<td>DTCENS2</td>
<td>OP1</td>
<td>SSL</td>
<td>VSMREQIU</td>
</tr>
<tr>
<td>DTCVSM1</td>
<td>OSADMIN1</td>
<td>SSDLCSSM</td>
<td>VSMREQI6</td>
</tr>
<tr>
<td>DTCVSM2</td>
<td>OSADMIN2</td>
<td>SYSDUMP1</td>
<td>VSMWORK1</td>
</tr>
<tr>
<td>EREP</td>
<td>OSAMINT</td>
<td>TCP1P</td>
<td>VSMWORK3</td>
</tr>
<tr>
<td>FTPSERVE</td>
<td>OSASF</td>
<td>TCPMAINT</td>
<td>XCAT²</td>
</tr>
<tr>
<td>GCS</td>
<td>PERF SVM</td>
<td>TSAFVM</td>
<td>XCHANGE</td>
</tr>
<tr>
<td>GSKADMIN</td>
<td>PERSMAP1</td>
<td>UFTD</td>
<td>ZHCP²</td>
</tr>
<tr>
<td>IMAP</td>
<td>PORTMAP</td>
<td>VMNFS</td>
<td>ZVMLXAPP</td>
</tr>
<tr>
<td>IMAPAUTH</td>
<td>RACFSMF</td>
<td>VMRMADEMN</td>
<td>ZVMLXTS</td>
</tr>
<tr>
<td>LDAPSRV</td>
<td>RACFVM</td>
<td>VMRRSVM</td>
<td>ZVMMAPLX</td>
</tr>
<tr>
<td>LGLOPR</td>
<td>RACMAINT</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:

¹ User ID on z/VM V6.2 only
² User ID on z/VM V6.3 only

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IBM-supplied user IDs with upgrade restrictions
Appendix N. $STAGE1$ $TABLE$ entry definitions

This appendix lists the keywords that can be found in the entries in the $STAGE1$ $TABLE$ and describes the steps to manually update your system with the changes listed for each entry.

Note that the order of the entries in the $STAGE1$ $TABLE$ is the order in which the actions should be performed.

1. ATTVOLS
2. DDRMDISK DEFMDISK
3. DDRMDISK EXT3MDISK
4. DIRECT ADOMDISK
5. DIRECT ADOMDISKNB
6. DIRECT ADOMEMIDENT
7. DIRECT ADOMEMSUB
8. DIRECT ADONEVERUSER
9. DIRECT ADORRELLINK
10. DIRECT COMMON
11. DIRECT DELRELLINK
12. FILEPOOL ADDADMIN
13. FILEPOOL ADDRELF
14. FILEPOOL ADDSPACE
15. FILEPOOL CREATDIR
16. FILEPOOL ENROLLUSR
17. FILEPOOL GRANTAUTH
18. LOCALMOD COPYLCL
19. LOCALMOD UPTSLMOD
20. SETPRODUCT
21. SYSCONF ADDEDEV
22. SYSCONF ADDPRODUCT
23. SYSCONF ADDRRELVOL

These entries are described below:

1. The ATTVOLS keyword attaches a new volume to your running system.
   
   Syntax:
   
   ATTVOLS ATTACH dasdaddr SYSTEM label
   
   Example: Attach the new volume with address CECB and label UGT3R1 to the system:
   
   ATTVOLS ATTACH CECB SYSTEM UGT3R1
   
   Manual Instructions: Issue the attach command that follows the ATTVOLS keyword. In this example:
   
   ATTACH CECB SYSTEM UGT3R1

2. The DDRMDISK DEFMDISK keywords copy a minidisk from the work system to a disk that was added on the system being upgraded, using the DDR command. The disk on the work system is accessed by using the DEFINE MDISK command, and then the contents are copied to the extents defined for the new disk on the system being upgraded.
   
   Syntax:
Example: Copy the contents of the VSMGUARD A91 minidisk from the work system volume to the VSMGUARD A91 minidisk that was added to the system being upgraded:

```
DDRMIDISK DEFMDISK IDENTITY VSMGUARD A91
```

**Manual Instructions:**

1. Issue the DEFINE MDISK command to define a minidisk overlay to the disk on the work system volume:
   a. Locate the minidisk statement in the user directory file for the work system (INSTUPGR $USERDIR) located on the MIGMAINT 2CF0 disk. If the user type is IDENTITY, locate the minidisk statement contained in the SUBCONFIG that corresponds to the system being upgraded.
   b. Note the start location, disk size, and volume label for the disk. For example, if the MDISK statement for the MAINT 491 disk looks like this:
      ```
      MDISK 491 3390 3298 030 IBMCM1 MR
      ```
      the start location for the 491 disk is 3298, the size is 30, and the volume label is IBMCM1.
   c. Attach the address associated with the noted volume label (refer to Table 15 on page 160 or Table 16 on page 161 for addresses and volume labels) to your current system. In this example, if the address for the volume with label IBMCM1 is C1:
      ```
      ATTACH C11 TO SYSTEM
      ```
   d. Issue the DEFINE MDISK command:
      ```
      DEFINE MDISK linkaddr start size vollabel
      ```
      In this example:
      ```
      DEFINE MDISK 1491 3298 30 IBMCM1
      ```

2. Link to the disk that was added to the upgrade system, in write mode. In this example:
   ```
   LINK 6VMDIR40 491 2491 WR
   ```

3. Use DDR to copy from the overlay disk on the work system to the disk that was added on the system being upgraded. In this example:
   ```
   DDR
   SYSPRINT CONS
   INPUT 1491 DASD
   OUTPUT 2491 DASD
   COPY ALL
   ```
   ENTER

4. Detach the overlay and new minidisks:
   ```
   DETACH 2491
   DETACH 1491
   ```

5. Detach the work system volume from the system you are upgrading. In this example:
The DDRMDISK EXT3MDISK keywords initialize a minidisk that was added on the system being upgraded by using DDR to restore a binary file that is shipped on the MAINTvrm 400 minidisk.

**Syntax:**

```
DDRMDisK EXT3MDISK USER|IDENTITY name
```

**Example:** Initialize the contents of the NEWID 100 minidisk that was added to the system being upgraded:

```
DDRMDisK EXT3MDISK IDENTIty NEWID 100
```

**Manual Instructions:**
1. Link MAINT640 400 disk and access as X
2. Link MAINT640 493 disk and access as Z
3. Link to the disk to be initialized (in this example NEWID 100) as `vaddr` in write mode:
   
   ```
   LINK NEWID 100 100 WR
   ```

4. Run the DDRREST EXEC to initialize the disk using the image file for either 3390 or FBA DASD.
   
   For 3390:
   ```
   DDRREST vaddr ECKD100 IMAGE X
   ```
   
   In this example, if your system is installed on 3390 DASD:
   ```
   DDRREST 100 ECKD100 IMAGE X
   ```
   
   For FBA:
   ```
  DDRREST vaddr FBA100 IMAGE X
   ```
   
   In this example, if system is installed on FBA DASD:
   ```
   DDRREST 100 FBA100 IMAGE X
   ```

5. Detach the minidisk that was initialized. In this example:
   ```
   DETACH 100
   ```

---

The DIRECT ADDMDISK keywords update the user directory to add a new minidisk to an existing user ID.

**Syntax:**

```
DIRECT ADDMDISK {USER username *} | {SUBCONFIG UNKNOWNSUB identname}

mdaddr BK|NOBK (NOFMT | FMT label blocksize) mdiskstatement
```

**BK** Need to keep track for backout.
**Example:** Update the user directory to add a new minidisk, A91, to the existing SUBCONFIG entry for IDENTITY VSMWORK1 that is associated with the system you are upgrading:

```
DIRECT ADDMDISK SUBCONFIG UNKNOWNSUB VSMWORK1 A91 BK NOFMT
MDISK A91 3390 2728 005 UGIW01 MR ALL ALL ALL
```

**Manual Instructions:** Using your site’s procedures to update the user directory, add the A91 minidisk statement shown to the SUBCONFIG for VSMWORK1 that is built on the system being upgraded. You should include this disk in your backout log (BK option) and you do not need to format this minidisk (NOFMT).

1. Determine the name of the SUBCONFIG for this system by examining the BUILD ON statement for the system you are upgrading in the IDENTITY entry in the USER DIRECT file for VSMWORK1:

   ```
   BUILD ON * | systemname USING SUBCONFIG VSMWK1-1
   ```

   In this example, VSMWK1-1 is the name of the SUBCONFIG.

2. Add the MDISK statement that was included on the entry in the $STAGE1$ $TABLE$ to the SUBCONFIG entry for VSMWK1-1.

   If you edit your USER DIRECT file directly, the MDISK statement includes the correct extent information for the new disk:

   ```
   MDISK A91 3390 2728 005 UGIW01 MR ALL ALL ALL
   ```

   If you use a directory manager product, the MDISK statement contains the word NULL instead of a starting extent, followed by the disk size, volume label and password information. Use this information to have your directory manager product define the new disk:

   ```
   MDISK A91 3390 NULL 005 UGIW01 MR ALL ALL ALL
   ```

3. If you edit your user directory directly, put the new version of the directory online:

   ```
   DIRECTXA USER DIRECT
   ```

   If you use a directory manager product, ensure that the directory manager puts the updated information online immediately.

---

The DIRECT ADDMDISKNB keywords update the user directory to add a new minidisk. No backout is needed for the disk because the user or subconfig this disk belongs to was also just added, and the disk will be removed when the user/subconfig added is backed out. The disk should not be formatted.

**Syntax:**

```
DIRECT ADDMDISKNB USER username mdiskstatement
DIRECT ADDMDISKNB SUBCONFIG subconfname membername identname mdiskstatement
```
Manual Instructions: Using your site's procedures to add minidisks, add the 191 minidisk statement shown to new SUBCONFIG NEWID-1. You should not need to include this disk in your backout log because if you delete the new SUBCONFIG, the new disk will be deleted at the same time. You do not need to format this minidisk.

1. Add the MDISK statement that was included on the entry in the $STAGE1$ $STABLES$ to the SUBCONFIG entry for NEWID-1.
   If you edit your USER DIRECT file directly, the MDISK statement includes the correct extent information for the new disk:

   MDISK 191 3390 1 001 UGIW02 MR READ WRITE MULTIPLE

   If you use a directory manager product, the MDISK statement contains the word NULL instead of a starting extent, followed by the disk size, volume label and password information. Use this information to have your directory manager product define the new disk:

   MDISK 191 3390 NULL 001 UGIW02 MR READ WRITE MULTIPLE

2. If you edit your user directory directly, put the new version of the directory online:

   DIRECTXA USER DIRECT

   If you use a directory manager product, ensure that the directory manager puts the updated information online immediately.

The DIRECT ADDMEMIDENT keywords update the user directory to add a new IDENTITY entry. The information for the new IDENTITY entry is contained in a file named identname $DIRADD$, which is found on the MIGMAINT 2CF0 minidisk.

Syntax:

   DIRECT ADDMEMIDENT identname $DIRADD$ 2CF0

Example: Add a new IDENTITY entry, in this example NEWID, to the user directory using the contents of the NEWID $DIRADD$ file that was created on the MIGMAINT 2CF0 disk:

   DIRECT ADDMEMIDENT NEWID $DIRADD$ 2CF0

Manual Instructions: Following your site's procedures to update the user directory, use the information in the NEWID $DIRADD$ file to add the new IDENTITY NEWID to your user directory. You should include this task in your backout log. If you edit your user directory directly, put the new version of the directory online:

   DIRECTXA USER DIRECT

   If you use a directory manager product, ensure that the directory manager puts the updated information online immediately.

The DIRECT ADDMEMSUB keywords update the user directory to add a new SUBCONFIG entry and associate the SUBCONFIG entry with an existing IDENTITY entry. The information for the new SUBCONFIG entry is contained in a file named subconfigname $DIRADD$, which is found on the MIGMAINT 2CF0 minidisk.

Syntax:

   DIRECT ADDMEMSUB subconfigname $DIRADD$ 2CF0 membername identity
Example: Add the new subconfig, in this example NEWID-1, to the user directory using the contents of the NEWID-1 $DIRADD$ file that was created on the MIGMAINT 2CF0 disk and associate the new SUBCONFIG with system UPGRMEM1 in IDENTITY NEWID:

```
DIRECT ADDMEMSUB NEWID-1 $DIRADD$ 2CF0 UPGRMEM1 NEWID
```

Manual Instructions: Following your site's procedures to update your user directory. You should include this task in your backout log.

If you edit your user directory directly:

1. Add a BUILD ON statement to the IDENTITY for this system:
   - If UPGRMEM1 is a member of an SSI cluster:
     ```
     BUILD ON UPGRMEM1 USING SUBCONFIG NEWID-1
     ```
   - If UPGRMEM1 is not a member of an SSI cluster:
     ```
     BUILD ON * USING SUBCONFIG NEWID-1
     ```
2. Add the SUBCONFIG NEWID-1 to the user directory. The subconfig definition is in the file NEWID-1 $DIRADD$, which is located on MIGMAINT's 2CF0 disk.
3. Put the new version of the directory online:
   ```
   DIRECTXA USER DIRECT
   ```
   If you use a directory manager product, use the information in the NEWID-1 $DIRADD$ file to update the user directory and to associate the new SUBCONFIG with IDENTITY NEWID and make sure the directory manager puts the updated information online immediately.

The DIRECT ADDNEWUSER keywords update the user directory to add a new USER entry. The information for the new USER entry is contained in a file named `username $DIRADD$`, which is found on the MIGMAINT 2CF0 minidisk. Regardless of whether you use a directory manager, you should use all of the information in the `username $DIRADD$` file exactly as it appears, including all minidisk definitions.

Syntax:
```
DIRECT ADDNEWUSER username $DIRADD$ 2CF0
```

Example: Add the new USER, in this example MAINT640, to the user directory using the contents of the MAINT640 $DIRADD$ file that was created on the MIGMAINT 2CF0 disk:
```
DIRECT ADDNEWUSER MAINT640 $DIRADD$ 2CF0
```

Manual Instructions: Following your site's procedures to update the user directory, use the information in the MAINT640 $DIRADD$ file to add the new USER MAINT640 entry to your user directory. You should include this task in your backout log. These disks should not be formatted if you need to back out this task. If you edit your user directory directly, put the new version of the directory online:
```
DIRECTXA USER DIRECT
```
If you use a directory manager product, use the contents of the MAINT640 $DIRADD$ file as input to your directory manager, including the minidisk definitions. Ensure that the directory manager puts the updated information online immediately.

The DIRECT ADDRELLINK keywords update the user directory to add a link statement to an existing directory entry (USER, IDENTITY or SUBCONFIG). You should include this link change in your backout log.

Syntax:
DIRECT ADDRELLINK username|identname linkstatement

Example: Add the link statement, in this example, LINK MAINT640 201 201 RR, to the directory entry for the SUBCONFIG for IDENTITY MAINT that is associated with the system being upgraded:

DIRECT ADDRELLINK SUBCONFIG MAINT LINK MAINT640 201 201 RR

Manual Instructions: Using your site's procedures to update the user directory, add the link statement shown to the SUBCONFIG for MAINT that is built on the system being upgraded. You should include this link in your backout log.

1. Determine the name of the SUBCONFIG for this system by examining the BUILD ON statement for the system you are upgrading in the IDENTITY entry in the USER DIRECT file for MAINT:

   BUILD ON * | systemname USING SUBCONFIG MAINT-1

   In this example, MAINT-1 is the name of the SUBCONFIG.

2. Add the LINK statement that was included on the entry in the $STAGE1$ $TABLE$ to the SUBCONFIG entry for MAINT-1:

   LINK MAINT640 201 201 RR

3. If you edit your user directory directly, put the new version of the directory online:

   DIRECTXA USER DIRECT

   If you use a directory manager product, ensure that the directory manager puts the updated information online immediately.

The DIRECT COMMON keywords update the user directory to change a statement on an existing directory entry (USER, IDENTITY or SUBCONFIG).

Syntax:

DIRECT COMMON action uptype USER|IDENTITY|SUBCONFIG userid input

where action is ADD, DELETE, or REPLACE, uptype is OPTION, NAMESAVE, VSTOR, or IPL, and input contains the information that will be added to, deleted from, or replaced in the directory entry for userid. If the uptype is OPTION, combine the uptype and the input to develop the directory statement. If the uptype is NAMESAVE or IPL, then input contains the required directory statement. If the uptype is VSTOR then input contains the new storage value to be replaced on the current statement.

Example: ADD the following OPTION to the user directory entry for IDENTITY VSMGUARD:

DIRECT COMMON ADD OPTION IDENTITY VSMGUARD LNKNOPAS

Manual Instructions: Using your site's procedures to update the user directory, add, delete, or replace the directory statement defined by the $STAGE1$ $TABLE$ entry. In this example, you should add an OPTION statement to the directory entry for IDENTITY VSMGUARD that includes option LNKNOPAS.

1. Add the OPTION statement that was defined on the entry in the $STAGE1$ $TABLE$ to the IDENTITY entry for VSMGUARD:

   OPTION LNKNOPAS
$STAGE1$ $STABLE$ entry definitions

2. If you edit your user directory directly, put the new version of the directory online:

   DIRECTXA USER DIRECT

   If you use a directory manager product, ensure that the directory manager puts the updated information online immediately.

11 The DIRECT DELRELLINK keywords update the user directory to delete a link statement from an existing directory entry (USER, IDENTITY or SUBCONFIG). You should include this link change in your backout log.

Syntax:

   DIRECT DELRELLINK USER|IDENTITY|SUBCONFIG username|identname linkstatement

Example: Delete the link statement, in this example, LINK MAINT6x0 201 201 RR, from the directory entry for the SUBCONFIG for IDENTITY MAINT that is associated with the system being upgraded:

   DIRECT DELRELLINK SUBCONFIG MAINT LINK MAINT6x0 201 201 RR

Manual Instructions: Using your site's procedures to update the user directory, delete the link statement shown from the SUBCONFIG for MAINT that is built on the system being upgraded. You should include this link change in your backout log.

1. Determine the name of the SUBCONFIG for this system by examining the BUILD ON statement for the system you are upgrading in the IDENTITY entry in the USER DIRECT file for MAINT:

   BUILD ON * | systemname USING SUBCONFIG MAINT-1

   In this example, MAINT-1 is the name of the SUBCONFIG.

2. Delete the LINK statement that was included on the entry in the $STAGE1$ $STABLE$ to the SUBCONFIG entry for MAINT-1:

   LINK MAINT6x0 201 201 RR

3. If you edit your user directory directly, put the new version of the directory online:

   DIRECTXA USER DIRECT

   If you use a directory manager product, ensure that the directory manager puts the updated information online immediately.

12 The FILEPOOL ADDADMIN keywords update a DMSPARMS file to add a new administrator to an existing filepool. You should include this task in your backout log.

Syntax:

   FILEPOOL ADDADMIN fpoolname fpooluid users2add

Example: Add the user IDs listed in the FILEPOOL ADDADMIN entry in the $STAGE1$ $STABLE$, in this example, MAINT640, to the DMSPARMS file for the filepool listed, in this example, VMSYSU running on server user ID VMSERVU. The DMSPARMS file is named filepoolid DMSPARMS and is found on the 191 disk for the filepoolid. In this example, the file VMSERVU DMSPARMS will be found on the 191 disk for user ID VMSERVU:
FILEPOOL ADDADMIN VMSYSU VMSERVU MAINT640

Manual Instructions:
1. Force the filepool user ID off the system:
   FORC VMSERVU

2. Link, in write mode, the filepool's server user ID's 191 minidisk. In this example, VMSERVU's 191 minidisk:
   LINK VMSERVU 191 1191 WR

3. Access the filepool's server user ID 191 minidisk you linked above:
   ACCESS 1191 Z

4. Xedit the fpooluid DMSPARMS file. In this example VMSERVU DMSPARMS:
   XEDIT VMSERVU DMSPARMS Z

5. Add the users indicated to the ADMIN statement and file the changes. In this example, MAINT640.
6. Release and detach the filepool's server user ID 191 minidisk.
   RELEASE Z (DETACH)

7. Restart the filepool by autologging the filepoolid, in this example, VMSERVU:
   XAUTOLOG VMSERVU

The FILEPOOL ADDRELFS keywords add a new filespace to an existing filepool. You should include this task in your backout log.

Syntax:

FILEPOOL ADDRELFS fpname filespacename UNLOAD 2191

Example: Load the new filespace, 6VMDIR40, to the VMPSFS filepool:

FILEPOOL ADDRELFS VMPSFS 6VMDIR40 UNLOAD 2191

Manual Instructions:
1. Access MIGMAINT 2191 Z.
2. Link and access MAINT 193:
   LINK MAINT 193 193 RR
   ACCESS 193 X

3. Enter the FILEWAIT command:
   SET FILEWAIT ON

4. Enter the FILEDEF command to define the input file filespacename UNLOAD Z. In this example:
5. Enter the FILEPOOL command to load the $fspacename$ into $fpoolname$. In this example:

```
FILEPOOL RELOAD FILESPACE 6VMDIR40 VMPSFS
```

6. Reply '1' to the prompt.

The FILEPOOL ADDSPACE keywords increase the storage space available for a user that is enrolled in a filepool.

**Syntax:**

```
FILEPOOL ADDSPACE BK|NOBK $fpoolname$ $filespacename$ $fpoolcmd$
```

- **BK**: Need to keep track for backout.
- **NOBK**: Do not need to keep track for backout.

**Example:** Increase the amount of storage space that can be used in the VMSYS filepool by user VSMWORK1:

```
FILEPOOL ADDSPACE BK VMSYS VSMWORK1 MODIFY USER +1000 FOR VSMWORK1 VMSYS
```

**Manual Instructions:** Increase the amount of space that can be used by user VSMWORK1 by issuing the MODIFY USER command as specified by the FILEPOOL ADDSPACE entry in the $STAGE1$ $TABLE$. In this example, enter the following command:

```
MODIFY USER +1000 FOR VSMWORK1 VMSYS
```

The FILEPOOL CREATDIR keywords update a filepool to create a new directory in an existing filepool.

**Syntax:**

```
FILEPOOL CREATDIR BK|NOBK $fpoolname$ $filespacename$ $fpoolcmd$
```

- **BK**: Need to keep track for backout.
- **NOBK**: Do not need to keep track for backout.

**Example:** Update the VMSYS filepool to create the new directory VMSYS:VSMWORK1.STATUS:

```
FILEPOOL CREATDIR BK VMSYS VSMWORK1 CREATE DIRECTORY VMSYS:VSMWORK1.STATUS
```

**Manual Instructions:** Create the directory indicated by issuing the CREATE DIRECTORY command as specified by the FILEPOOL CREATDIR entry in the $STAGE1$ $TABLE$. In this example, enter the following command:

```
CREATE DIRECTORY VMSYS:VSMWORK1.STATUS
```
The FILEPOOL ENROLLUSR keywords update a filepool to enroll a new user in an existing filepool.

Syntax:

```bash
FILEPOOL ENROLLUSR BK|NOBK fpoolname username fpoolcmd
```

- **BK**: Need to keep track for backout.
- **NOBK**: Do not need to keep track for backout.

**Example**: Update the VMPSFS filepool to enroll the new user MAINT640:

```bash
FILEPOOL ENROLLUSR BK VMPSFS MAINT640 ENROLL USER MAINT640 VMPSFS:
```

**Manual Instructions**: Enroll a new user in an existing filepool by issuing the ENROLL USER command as specified by the FILEPOOL ENROLLUSR entry in the $STAGE1$ $TABLE$. In this example, enter the following command:

```bash
ENROLL USER MAINT640 VMPSFS:
```

The FILEPOOL GRANTAUTH keywords update a filepool to grant authority to a user in an existing filepool.

Syntax:

```bash
FILEPOOL GRANTAUTH BK|NOBK fpoolname username fpoolcmd
```

- **BK**: Need to keep track for backout.
- **NOBK**: Do not need to keep track for backout.

**Example**: Update the VMSYS filepool to grant authority to VSMGUARD in the VMSYS:VSMWORK1.STATUS directory:

```bash
FILEPOOL GRANTAUTH BK VMSYS VSMWORK1 GRANT AUTHORITY VMSYS:VSMWORK1.STATUS TO VSMGUARD ( WRITE NEWWRITE
```

**Manual Instructions**: Grant authority to a user in an existing filepool by issuing the GRANT AUTHORITY command as specified by the FILEPOOL GRANTAUTH entry in the $STAGE1$ $TABLE$. In this example, enter the following command:

```bash
GRANT AUTHORITY VMSYS:VSMWORK1.STATUS TO VSMGUARD ( WRITE NEWWRITE
```

The LOCALMOD COPYLCL keywords copy local modifications from the local modification disks for the current z/VM release to the new release local modifications disk. There are two versions of this entry: one to copy the VVTLC file and one to copy the local modifications files.

**Version 1**: Copy the `sourceprodid` VVTLC file to the new local mod disk as `targetprodid` VVTLC.

**Version 1 Syntax**:

```bash
LOCALMOD COPYLCL FROM sourceuserid sourcedisk sourceprodid VVTLC TO targetuserid targetdisk targetprodid VVTLC
```
Version 1 Example: Copy the 6VMCMSx0 VVTLCL file to the new local mod disk as 6VMCMS40 VVTLCL:

```
LOCALMOD COPYLCL FROM MAINT6x0 3C4 6VMCMSx0 VVTLCL TO MAINT640 3C4
   6VMCMS40 VVTLCL
```

Version 1 Manual Instructions:

1. Link and access the `sourceuserid sourcedisk`. In this example: link and access MAINT6x0 3C4:

   ```
   LINK MAINT6x0 3C4 13C4 RR
   ACCESS 13C4 G
   ```

2. Link and access the `targetuserid targetdisk` in write mode. In this example: link and access MAINT640 3C4:

   ```
   LINK MAINT640 3C4 23C4 WR
   ACCESS 23C4 H
   ```

3. Copy the VVTLCL file from the `sourceuserid` disk to the `targetuserid` disk, changing the filename to the `targetprodid`. In this example:

   ```
   COPYFILE 6VMCMSx0 VVTLCL G 6VMCMS40 VVTLCL H (OLDDATE
   ```

4. Release and detach the disks that were linked and accessed:

   ```
   RELEASE G (DETACH
   RELEASE H (DETACH
   ```

Version 2: Copy the local mod files to the new local mod disk.

Version 2 Syntax:

```
LOCALMOD COPYLCL FROM sourceuserid sourcedisk pfn * TO targetuserid targetdisk pfn =
```

Version 2 Example:

```
LOCALMOD COPYLCL FROM MAINT6x0 3C4 TELL * TO MAINT640 3C4 TELL =
```

Version 2 Manual Instructions:

1. Link and access the `sourceuserid sourcedisk`. In this example: link and access MAINT6x0 3C4:

   ```
   LINK MAINT6x0 3C4 13C4 RR
   ACCESS 13C4 G
   ```

2. Link and access the `targetuserid targetdisk` in write mode. In this example: link and access MAINT640 3C4:

   ```
   LINK MAINT640 3C4 23C4 WR
   ACCESS 23C4 H
   ```

3. Copy the local mod files from the `sourceuserid` disk to the `targetuserid` disk. In this example:

   ```
   COPYFILE TELL * G TELL = H (OLDDATE
   ```

4. Release and detach the disks that were linked and accessed:
The LOCALMOD UPDTSLMOD keywords update the SYSLMOD table on MAINT640’s 51D disk to indicate local mods have been added.

**Syntax:**

```
LOCALMOD UPDTSLMOD ADD VMFSIM MODIFY VM SYSLMOD Z TDATA
    :LMOD lmoddata :STAT statdata :CUSTYPE custdata
```

**Example:** Update the VM SYSLMOD table on MAINT640’s 51D disk:

```
LOCALMOD UPDTSLMOD ADD VMFSIM MODIFY VM SYSLMOD Z TDATA
    :LMOD 6VMCMS40%CMS.TELL.SXE.0002.VVTLCL
    :STAT REWORK.UPPDATE.UPDTIME.MIGMAINT
    :CUSTYPE LOCALMOD (ADD
```

**Manual Instructions:**
1. Link MAINT640’s 51D disk in write mode:

   ```
   LINK MAINT640 51D 151D WR
   ```

2. Access MAINT640’s 51D disk as Z.

3. Update the SYSLMOD table by issuing the VMFSIM MODIFY command as specified by the LOCALMOD UPDTSLMOD entry. In this example, enter the following command:

   ```
   VMFSIM MODIFY VM SYSLMOD Z TDATA :LMOD 6VMCMS40%CMS.TELL.SXE.0002.VVTLCL
       :STAT REWORK.UPPDATE.UPDTIME.MIGMAINT :CUSTYPE LOCALMOD (ADD
   ```

4. Release and detach the disk that was linked and accessed:

   ```
   RELEASE Z (DETACH
   ```

The SETPRODUCT keyword issues the SET PRODUCT command to set the enablement status (ENABLED or DISABLED) of a product on your running system.

**Syntax:**

```
SETPRODUCT SET PRODUCT prodid STATE prodstat
```

**Example:** Set the status for product 6VMPTK40 to ENABLED on the running system:

```
SETPRODUCT SET PRODUCT 6VMPTK40 STATE ENABLED
```

**Manual Instructions:** Set the status of the product on your running system by issuing the SET PRODUCT command as specified by the SETPRODUCT entry. In this example:

```
SET PRODUCT 6VMPTK40 STATE ENABLED
```

The SYSCONF ADDEDEV keywords update the system configuration file to add an edevice
statement for a new volume. There are two versions of this entry. Use Version 1 if the edevice
details were available during INSTUPGR STAGE1 (PRIME. Use Version 2 if the edevice details
were not available.

**Version 1 Syntax:**

```
SYSCONF ADDEDEV 1 edevice addr type fba attr SCSI fcp_dev fcpaddr
               wwpn wwpnaddr lun lunaddr
```

**Version 2 Syntax:**

```
SYSCONF ADDEDEV 2 edevice addr is not an emulated device
```

**Example:** Add the edevice statement to your system configuration file.

**Version 1:**

```
SYSCONF ADDEDEV 1 edevice 6505 type fba attr SCSI fcp_dev 1F01
               wwpn 500507630b00c038 lun 401140f100000000
```

**Version 2:**

```
SYSCONF ADDEDEV 2 edevice 6505 is not an emulated device
```

**Manual Instructions:**

1. Link and access the disk containing your system configuration file:

```
LINK PMAINT CF0 CF0 WR
ACCESS CF0 Z
```

2. Update the system configuration file to add the new edevice statement. In this example:

**Version 1:**

```
edevice 6505 type fba attr SCSI fcp_dev 1F01 wwpn 500507630b00c038
               lun 401140f100000000
```

**Version 2:**

a. If a real edevice statement is required, you should determine the details of the device and
   add an edevice statement with the correct attributes.

b. If a real edevice statement is not required, do one of the following:
   - Add the entry (commented out) to document the device added:
     ```
     /* edevice 6505 is not an emulated device */
     ```
   - Choose to skip adding an edevice statement.

3. Save the changes you made to the system configuration file and release and detach the disk
   that was linked and accessed:

```
RELEASE Z (DETACH)
```

---

The SYSCONF ADDPRODUCT keywords update the system configuration file to permanently set
the enablement status (ENABLED or DISABLED) of a product on your system.

**Syntax:**
Example: Add the PRODUCT statement for 6VMPTK40 to your system configuration file. The entire PRODUCT statement is documented in the comments preceding the SYSCONF ADDPRODUCT entry in the $STAGE1$ $TABLE$. For example:

```
* Add the following product statement for 6VMPTK40 to SYSTEM CONFIG
* PRODUCT PRODID 6VMPTK40 STATE DISABLED DESCRIPTION '00/00/00.00:00:00.$UPGRADE PERFORMANCE TOOLKIT FOR VM'
SYSCONF ADDPRODUCT 6VMPTK40 DISABLED
* 
```

SYSCONF ADDPRODUCT 6VMPTK40 ENABLED

Manual Instructions:
1. Link and access the disk containing your system configuration file:
   ```
   LINK PMAINT CF0 CF0 WR
   ACCESS CF0 Z
   ```

2. Update the system configuration file to permanently set the status of the product on your system by adding the PRODUCT statement with the STATE specified by the SYSCONF ADDPRODUCT entry. In this example:
   ```
   PRODUCT PRODID 6VMPTK40 STATE DISABLED DESCRIPTION '00/00/00.00:00:00.$UPGRADE PERFORMANCE TOOLKIT FOR VM'
   ```

3. Save the changes you made to the system configuration file and release and detach the disk that was linked and accessed:
   ```
   RELEASE Z (DETACH)
   ```

The SYSCONF ADDRELVOL keywords update the system configuration file to add a new User_Volume_List statement that includes the labels for the new release volumes.

Syntax:
```
SYSCONF ADDRELVOL User_Volume_List volumelabels
```

Example: Add the release volumes to your system configuration file by adding the User_Volume_List statement:
```
SYSCONF ADDRELVOL User_Volume_List UGT3R1 UGT3R2
```

Manual Instructions:
1. Link and access the disk containing your system configuration file:
   ```
   LINK PMAINT CF0 CF0 WR
   ACCESS CF0 Z
   ```

2. Update the system configuration file to add the new release volumes statement listed in the SYSCONF ADDRELVOL entry in the $STAGE1$ $TABLE$. In this example:
$STAGE1$ $TABLES$ entry definitions

User_Volume_List UGT3R1 UGT3R2
Appendix O. STAGE2 $TABLE$ entry definitions

This appendix lists the keywords that can be found in the entries in the STAGE2 $TABLE$ and describes the steps to manually update your system with the changes listed for each entry.

Note that the order of the entries in the STAGE2 $TABLE$ is the order in which the actions should be performed.

These entries are described below:

1. The CPYFIL keyword copies a file. CPYFIL REPLace replaces the file if it exists. CPYFIL NOREPL returns an error if the file already exists.

Syntax:

   CPYFIL REPLace|NOREPL sourcelinktype sourcefname sourceftype * sourceuserid sourcedisk
targetlinktype targetfname targetftype * targetuserid targetdisk

sourcelinktype
Method used to access the disk where the file resides: LINKACC|ACCDIR|MDISK. LINKACC is specified if the source location is a minidisk, accessed using the LINK and ACCESS commands. ACCDIR is specified if the source location is an SFS directory which is just accessed with the ACCESS command. MDISK is specified if the source location is located on a work system volume that must be accessed using the DEFINE MDISK command. For instructions on how to access a disk using DEFINE MDISK, see the DDRMDISK keyword.

sourcefname
File name of the file to be copied.

sourceftype
File type of the file to be copied.

sourceuserid
User ID that owns the disk where the file resides. If the file is in an SFS directory the value of this field is “DIR”.

sourcedisk
Minidisk or SFS directory where the file resides.

targetlinktype
Method used to access the disk where the file will be copied: LINKACC|ACCDIR|MDISK. LINKACC is specified if the target (“to”) location is a minidisk, accessed using the LINK and ACCESS commands. ACCDIR is specified if the target location is an SFS directory which is just accessed with the ACCESS command. MDISK is specified if the target location must be
accessed using the DEFINE MDISK command. For instructions on how to access a disk using DEFINE MDISK, see the DDRMDISK keyword.

targetfname
File name given to the file when it is copied.

targetftype
File type given to the file when it is copied.

targetuserid
User ID that owns the disk where the file will be copied. If the file is in an SFS directory the value of this field is "DIR".

targetdisk
Minidisk or SFS directory where the file will be copied.

Example:

CPYFIL REPL ACCDIR LDAPDS SAMENVR * DIR VMPSFS:6VMTCP40.TCPIP.OBJECT
LINKACC LDAPDS SAMENVR * TCPMAINT 198

Manual Instructions:
1. Link and access the source disk.
   If the source-linktype is LINKACC, link and access the minidisk.
   If the source-linktype is ACCDIR, access the SFS directory. In this example:
   ACCESS VMPSFS:6VMTCP40.TCPIP.OBJECT G

2. Link and access the target ("to") disk in write mode.
   If the target-linktype is LINKACC, link and access the minidisk. In this example:
   LINK TCPMAINT 198 1198 WR
   ACCESS 1198 H
   If the target-linktype is ACCDIR, access the SFS directory.

3. Copy the file from the source disk to the target disk, using REPLACE if it was specified on the CPYFIL entry. In this example:
   COPYFILE IBM DTC++001 G IBM DTC++001 H (OLDDATE REPLACE

   Note: The OLDDATE parameter should always be specified on the COPYFILE command.

4. Release and detach, if necessary, the SFS directories and minidisks accessed above. In this example:
   RELEASE G
   RELEASE H (DETACH

The DDRMDISK MDISK keywords copy a minidisk from a work system volume to a disk on the current system. The disk on the work system volume is accessed using the DEFINE MDISK command, then the contents of the disk are copied using the DDR command to the disk on the current system.

Syntax:

DORMDISK MDISK IDENTITY sourceusername sourcedisk LINK IDENTITY targetusername targetdisk
Example: DDR the MAINT 190 disk on the work system to the MAINT 190 disk on the system being upgraded:

```
DDRMDSK MDISK IDENTITY MAINT 190 LINK IDENTITY MAINT 190
```

Manual Instructions:
1. Issue the DEFINE MDISK command to define a minidisk overlay to the source disk on the work system:
   a. Locate the minidisk statement in the work directory file (INSTUPGR $USERDIR) located on the MIGMAINT 2CF0 disk for the `sourceusername` and `sourcedisk` in the `$STAGE2$ TABLE$` entry. If the `sourcetype` is SUBCONFIG, locate the minidisk statement contained in the SUBCONFIG that corresponds to the system being upgraded.
   b. Note the start location, size and volume label. In this example, if the MDISK statement for the MAINT 190 disk looks like this:

```
MDISK 190 3390 280 214 IBMRES
```

then the start location for the 190 disk is 280, the size is 214, and the volume label is IBMRES.
   c. Attach the address associated with the noted volume label (refer to Table 15 on page 160 or Table 16 on page 161 for addresses and volume labels) to your current system. In this example, if the address for the volume with label IBMRES is C10:

```
ATTACH C10 TO SYSTEM
```
   d. Issue the DEFINE MDISK command for the `sourcedisk`:

```
DEFINE MDISK vaddr start size vollabel
```

In this example:

```
DEFINE MDISK 1190 280 214 IBMRES
```

2. Link, in write mode, to the `targetdisk` owned by `targetusername` on your current system. In this example:

```
LINK MAINT 190 2190 WR
```

3. Use the DDR command to copy from the `sourcedisk (vaddr)` on the work system volume to the `targetdisk` that is being updated on the system being upgraded. In this example:

```
DDR
SYSPRINT CONS
INPUT 1190 DASD
OUTPUT 2190 DASD
COPY ALL
<answer any prompts, then press enter to end DDR>
```

4. Detach the disks you linked to and defined. In this example:

```
DETACH 1190
DETACH 2190
```

5. Detach the work system volume from the current system. In this example:
**$STAGE2$ $STABLE$ entry definitions**

---

**DETACH C10 FROM SYSTEM**

---

3 The DIRECT DEENTRY keywords update the user directory to delete a USER, IDENTITY, or SUBCONFIG definition. For SUBCONFIG, only the SUBCONFIG definition associated with the system or member that is being updated is deleted.

**Syntax:**

```
DIRECT DEENTRY USER|IDENTITY|SUBCONFIG identusername membername
```

**Example:** Delete the SUBCONFIG definition for IDENTITY DHCPD that is associated with the system being upgraded, UPGRMEM1.

```
DIRECT DEENTRY SUBCONFIG DHCPD UPGRMEM1
```

**Manual Instructions:** Following your site's normal procedures to update the user directory, delete the USER, IDENTITY, or SUBCONFIG definition specified in the $STAGE2$ $STABLE$ entry, as follows:

**USER**  Delete the entire USER definition.

**IDENTITY**
Delete the IDENTITY definition. All SUBCONFIG definitions associated with this IDENTITY definition should have already been deleted.

**SUBCONFIG**
Delete the SUBCONFIG definition that is associated with this member. Also, delete the BUILD ON statement in the IDENTITY definition that refers to this SUBCONFIG.

1. Determine the name of the SUBCONFIG to be deleted by examining the BUILD ON statement for system you are upgrading in the IDENTITY specified on the $STAGE2$ $STABLE$ entry. In this example:

```
BUILD ON UPGRMEM1 USING SUBCONFIG DHCPD-1
```

   The name of the SUBCONFIG is DHCPD-1.

2. Follow your site's normal process to delete the named SUBCONFIG.

3. If you edit your user directory directly, put the new version of the directory online:

```
DIRECTXA USER DIRECT
```

   If you use a directory manager product, ensure that the directory manager puts the updated information online immediately.

---

4 The DIRECT DELRELLINK keywords update the user directory to delete a link statement from an existing directory entry (USER, IDENTITY or SUBCONFIG).

**Syntax:**

```
DIRECT DELRELLINK USER|IDENTITY|SUBCONFIG username|identname linkstatement
```

**Example:** Delete the link statement, in this example, LINK MAINT6x0 201 201 RR, from the directory entry for the SUBCONFIG for IDENTITY MAINT that is associated with the system being upgraded:
DIRECT DELRELLINK SUBCONFIG MAINT LINK MAINT6x0 201 201 RR

**Manual Instructions:** Using your site’s procedures to update the user directory, delete the link statement shown from the SUBCONFIG for MAINT that is built on the system being upgraded.

1. Determine the name of the SUBCONFIG for this system by examining the `BUILD ON` statement for the system you are upgrading in the `IDENTITY` entry in the `USER DIRECT` file for MAINT:

   `BUILD ON * systemname USING SUBCONFIG MAINT-1`

   In this example, MAINT-1 is the name of the SUBCONFIG.

2. Delete the `LINK` statement that was included on the entry in the `$STAGE1$ TABLE$` to the SUBCONFIG entry for MAINT-1:

   `LINK MAINT6x0 201 201 RR`

3. If you edit your user directory directly, put the new version of the directory online:

   `DIRECTXA USER DIRECT`

   If you use a directory manager product, ensure that the directory manager puts the updated information online immediately.

---

**5** The `DIRECT MOVEMDISK` keywords update the user directory to move an existing minidisk from its current location to a new location. MOVEDISK `COPY` indicates that the data on the current disk should be copied to the disk at its new location. MOVEDISK `NOCOPY` indicates that the disk should be defined at the new location specified on the `$STAGE2$ TABLE$` entry, but no data from the current disk should be copied to the new location.

**Syntax:**

```
DIRECT MOVEMDISK idtype userid membername COPY|NOCOPY mdiskstmtdata
```

**Example:** Move the 191 minidisk owned by user 6VMHCD20 to a new location specified as cylinder 1958 for a length of 50 on the volume labeled UGCOM2. The data from the existing minidisk should be copied to the new minidisk location:

```
DIRECT MOVEMDISK USER 6VMHCD20 UPGRMEM1 COPY 191 3390 1958 050 UGCOM2
```

**Manual Instructions:** Following your site’s normal procedures to update the user directory, move the minidisk listed from its current location to the location defined in the `DIRECT MOVEMDISK` entry. If `COPY` is specified on the `MOVEMDISK` entry, transfer all data to the new location.

---

**6** The `MIGDISK COPY` keywords use the `VMFCOPY` command to copy files for the specified product ID from the source location to the target location on the system being upgraded.

**Syntax:**

```
MIGDISK COPY {fname ftype}* * targetlinktype targetprodid targettype targetuid targetaddr sourcelinktype sourceprodid sourcetype sourceuid sourceaddr EXCL|NOEXCL
```

**Example:** When `fname ftype` is `* *`, use `VMFCOPY` to copy all files on `sourceuid sourceaddr` that are associated with the `sourceprodid` to `targetuid targetaddr`, associating them with `sourceprodid`.

---

Appendix O. `$STAGE2$ TABLE$` entry definitions 307
When `fname` and `ftype` are a filename and filetype, the named file will be found on the MIGMAINT 2CF0 disk. Use VMFCOPY to copy only the files listed in `fname` from `sourceuid` `sourceaddr` that are associated with the `sourceprodid` to `targetuid` `targetaddr`, associating them with `sourceprodid`.

**targetlinktype**
Method used to access the location where the files will be copied. LINK is specified if the target location is a minidisk, accessed using the LINK and ACCESS commands. ACCDIR is specified if the target location is an SFS directory which is just accessed with the ACCESS command. MDISK is specified if the target location is located on a work system volume that must be accessed using the DEFINE MDISK command.

**targetprodid**
For the MIGDISK COPY keywords, this field should be ignored. Only the `sourceprodid` is used.

**targettype**
USER, IDENTITY, or SUBCONFIG.

**targetuid**
User ID that owns the target location. If the files will be copied to an SFS directory the value of this field is “DIR”.

**targetaddr**
Minidisk or SFS directory where the files will be copied.

**sourcelinktype**
Method used to access the source location of the files to be copied. LINK is specified if the source location is a minidisk, accessed using the LINK and ACCESS commands. ACCDIR is specified if the source location is an SFS directory which is just accessed with the ACCESS command. MDISK is specified if the source location is located on a work system volume that must be accessed using the DEFINE MDISK command.

**sourceprodid**
The VMSES/E prodid that is associated with the files to be copied.

**sourcetype**
USER, IDENTITY, or SUBCONFIG.

**sourceuid**
User ID that owns the source location. If the files to be copied are in an SFS directory the value of this field is “DIR”.

**sourceaddr**
Minidisk or SFS directory that contains the files to be copied.

**EXCL|NOEXCL**
This field should be ignored.

**Example 1**, when `fname` and `ftype` is * *:

```
MIGDISK COPY * * LINK 6VMDK30%PERFTK IDENTITY PERF5VM 201 ACCDIR 6VMPTK40%PERFTK USER DIR
VMPSFS:6VMPTK402PERFTK.TBUILD NOEXCL
```

**Example 2**, when `fname` and `ftype` is a file, 6VMCMS40 C493CMS, on the MIGMAINT 2CF0 disk:

```
MIGDISK COPY 6VMCMS40 C493CMS LINK 6VMCMS40%CMS IDENTITY MAINT 193 LINK 6VMCMS40%CMS USER MAINT640 493 EXCL
```

**Manual Instructions:**

1. Access the source location.

   If the `sourcelinktype` is LINK, link and access the `sourceuid` `sourceaddr`.
If the `sourcelinktype` is ACCDIR, access the SFS directory specified. In Example 2:

```
ACCESS VMPSFS:6VMPTK40.PERFTK.TBUILD G
```

If the `sourcelinktype` is MDISK, the disk must be defined issuing the DEFINE MDISK command, as follows:

a. Locate the minidisk statement in the work directory file (INSTUPGR $USERDIR) located on the MIGMAINT 2CF0 disk for the `sourceuid` and `sourceaddr` in the `$STAGE2$ $TABLE$ entry. If the `sourcetype` is SUBCONFIG, locate the minidisk statement contained in the SUBCONFIG that corresponds to the system being upgraded.

b. Note the start location, size, and volume label. For example, if the MDISK statement for the MAINT 491 disk looks like this:

```
MDISK 491 3390 3298 030 IBMCM1 MR
```

the start location for the 491 disk is 3298, the size is 30, and the volume label is IBMCM1.

c. Attach the address associated with the noted volume label (refer to Table 15 on page 160 or Table 16 on page 161 for addresses and volume labels) to your current system. In this example, if the address for the volume with label IBMCM1 is C1:

```
ATTACH C11 TO SYSTEM
```

d. Issue the DEFINE MDISK command for the `sourceaddr`:

```
DEFINE MDISK linkaddr start size vollabel
```

In this example:

```
DEFINE MDISK 1491 3298 30 IBMCM1
```

e. Access the MDISK defined for `sourceaddr`:

```
ACCESS linkaddr fm
```

In this example:

```
ACCESS 1491 H
```

2. Access the target location in write mode.

If the `targetlinktype` is LINK, link and access `targetuid` `targetaddr` with `linkmode` of WR. In Example 1:

```
LINK PERFSVM 201 1201 WR
ACCESS 1201 H
```

If the `targetlinktype` is ACCDIR, access the SFS directory specified, specifying the option FORCERW on the ACCESS command. For example:

```
ACCESS dirname fm (FORCERW)
```

If the `targetlinktype` is MDISK, the disk must be defined issuing the DEFINE MDISK command, as follows:

a. Locate the minidisk statement in the work directory file (INSTUPGR $USERDIR) located on the MIGMAINT 2CF0 disk for the `targetuid` and `targetaddr` in the `$STAGE2$ $TABLE$ entry. If the `sourcetype` is SUBCONFIG, locate the minidisk statement contained in the SUBCONFIG that corresponds to the system being upgraded.
b. Note the start location, size, and volume label. For example, if the MDISK statement for the MAINT 190 disk looks like this:

```
MDISK 190 3390 280 214 IBMRES
```

the start location for the 190 disk is 280, the size is 214, and the volume label is IBMRES.

c. Attach the address associated with the noted volume label (refer to Table 15 on page 160 or Table 16 on page 161 for addresses and volume labels) to your current system. In this example, if the address for the volume with label IBMRES is C10:

```
ATTACH C10 TO SYSTEM
```

d. Issue the DEFINE MDISK command:

```
DEFINE MDISK linkaddr start size vollabel
```

In this example:

```
DEFINE MDISK 2190 280 214 IBMRES
```

e. Access the MDISK defined for `targetaddr`

```
ACCESS linkaddr fm
```

In this example:

```
ACCESS 2190 H
```

3. Issue the VMFCOPY command to copy the files from the `sourceaddr` to the `targetaddr`. 
When `fname filetype` is `**`, use the VMFCOPY command to copy all the files in the VMSES PARTCAT for `targetprodid` on `sourceaddr` to `targetaddr`:

```
VMFCOPY ** sourcefm = = targetfm ( PRODID sourceprodid 
SPROID sourceprodid OLDDATE REPLACE
```

In Example 1:

```
VMFCOPY ** G = = H ( PRODID 6VMPTK40%PERFTK SPROID 6VMPTK40%PERFTK OLDDATE REPLACE
```

Note: If the target disk is MAINT’s 402 disk, add the UPCASE operand to the end of the VMFCOPY command.

When `fname filetype` is a file on the MIGMAINT 2CF0 disk, use the VMFCOPY command to copy only the files listed in the file `fname filetype`. Issue the following command for each entry in the named file:

```
VMFCOPY entryfilename entryfiletype sourcefm = = targetfm 
( PRODID sourceprodid SPROID sourceprodid OLDDATE REPLACE
```

In Example 2, for each `filename filetype` entry in file 6VMCMS40 C493CMS, enter the following command:

```
VMFCOPY filename filetype G = = H ( PRODID 6VMCMS40%CMS SPROID 
6VMCMS40%CMS (OLDDATE REPLACE
Note: If the target disk is MAINT's 402 disk, add the UPCASE operand to the end of the VMFCOPY command.

The MIGDISK ERASE keywords use the VMFERASE command to erase files for the specified product ID from the target location.

Syntax:

```
MIGDISK ERASE {fname ftype|* *} targetlinktype targettype targetuid
targetaddr targetprodid EXCL|NOEXCL
```

**fname ftype|** * *

When `fname ftype` is * *, use VMFERASE to erase all files from the `targetuid targetaddr` that are associated with `targetprodid`.

When `fname ftype` is a filename and filetype, the named file will be found on the MIGMAINT 2CF0 disk. Use VMFERASE to erase only the files listed in `fname ftype` from the `targetuid targetaddr` that are associated with `targetprodid`.

**targetlinktype**

Method used to access the location from which the files will be erased. LINK is specified if the target location is a minidisk, accessed using the LINK and ACCESS commands. ACCDIR is specified if the target location is an SFS directory which is just accessed with the ACCESS command. MDISK is specified if the target location is located on a work system volume that must be accessed using the DEFINE MDISK command.

**targettype**

USER, IDENTITY, or SUBCONFIG.

**targetuid**

User ID that owns the target location. If the files will be erased from an SFS directory the value of this field is “DIR”.

**targetaddr**

Minidisk or SFS directory from which the files will be erased.

**targetprodid**

The VMSES/E prodid that is associated with the files to be erased.

**EXCL|NOEXCL**

This field should be ignored.

**Example 1**, when `fname ftype` is * *:

```
MIGDISK ERASE * * LINK IDENTITY PERFSVM 201 6VMPTKx0%PERFTK NOEXCL
```

**Example 2**, when `fname ftype` is a file on the MIGMAINT 2CF0 disk, in this example 6VMCMSx0 E490CMS:

```
MIGDISK ERASE 6VMCMSx0 E490CMS MDISK IDENTITY MAINT 190 6VMCMSx0%CMS EXCL
```

**Manual Instructions:**

1. Access the target location in write mode.

   If the `targetlinktype` is LINK, link and access `targetuid targetaddr` with `linkmode` of WR. In Example 1:
If the `targetlinktype` is ACCDIR, access the SFS directory specified, specifying the option `FORCERW` on the `ACCESS` command. For example:

```
ACCESS dirname fm (FORCERW)
```

If the `targetlinktype` is MDISK, the disk must be defined issuing the `DEFINE MDISK` command, as follows:

a. Locate the minidisk statement in the work directory file (INSTUPGR $USERDIR) located on the MIGMAINT 2CF0 disk for the `targetuid` and `targetaddr` in the `$STAGE2$ $TABLE$` entry. If the `sourctype` is SUBCONFIG, locate the minidisk statement contained in the SUBCONFIG that corresponds to the system being upgraded.

b. Note the start location, size, and volume label. For example, if the MDISK statement for the MAINT 190 disk looks like this:

```
MDISK 190 3390 280 214 IBMRES
```

the start location for the 190 disk is 280, the size is 214, and the volume label is IBMRES.

c. Attach the address associated with the noted volume label (refer to Table 15 on page 160 or Table 16 on page 161 for addresses and volume labels) to your current system. In this example, if the address for the volume with label IBMRES is C10:

```
ATTACH C10 TO SYSTEM
```

d. Issue the `DEFINE MDISK` command:

```
DEFINE MDISK linkaddr start size vollabel
```

In this example:

```
DEFINE MDISK 2190 280 214 IBMRES
```

e. Access the MDISK defined for `targetaddr`:

```
ACCESS linkaddr fm
```

In this example:

```
ACCESS 2190 H
```

2. Issue the `VMFERASE` command to erase the files from the `targetaddr`.  

When `fname filetype` is `* *`, use `VMFERASE` to erase all the files in the VMSES PARTCAT for `targetprodid` on `targetaddr`:

```
VMFERASE PROD targetprodid FROM targetfm
```

In Example 1:

```
VMFERASE PROD 6VMPTKx0%PERFTK FROM H
```

When `fname filetype` is a file on the MIGMAINT 2CF0 disk, use the, use `VMFERASE` to erase only the files listed in the file `fname filetype`. Issue the following command for each entry in the named file:

```
VMFERASE FILE filename filetype targetfm
```
In Example 2, for each filename filetype entry in file 6VMCMSx0 E490CMS, enter the following command:

```bash
VMFERASE FILE filename filetype H
```

---

**8** The PARTNOTIFY keyword writes a message to the systemname $WRNFILE file on the MIGMAINT 2CF0 disk that needs to be addressed after the upgrade is complete.

**Syntax:**

```
PARTNOTIFY msgnumber formatnumber substitutiondata
```

**Example:**

```
PARTNOTIFY 8555 1 MPROUTE SCF++002 , 6VMTCP40 491 , MPROUTE SCONFIG
```

**Manual Instructions:** Make a note of the messages specified by the PARTNOTIFY keyword and refer to z/VM: CP Messages and Codes for explanations of the messages. The actions indicated by these messages should be addressed after the upgrade is complete.

---

**9** The SESCMD keyword issues the command specified after the keyword.

**Syntax:**

```
SESCMD keyword sescommand
```

**Example:**

```
SESCMD FINSBLD VMFINS BUILD PPF SERVP2P REXX (SERVICED LINK
```

**Manual Instructions:** Ignore the value specified in keyword and issue the command specified in sescommand. In this example:

```
VMFINS BUILD PPF SERVP2P REXX (SERVICED LINK
```

---

**10** The SESMOVE COPY keywords use the VMFCOPY command to copy a file from the MIGMAINT 2CF0 disk to the PMAINT 550 OR 551 disk.

**Syntax:**

```
SESMOVE COPY prodid targetfname targetftype LINK USER PMAINT 550|551
sourcefnamesourceftype LINK IDENTITY MIGMAINT 2CF0
```

**Example:** Use the VMFCOPY command to copy the file CPFMTXA EXEC from the MIGMAINT 2CF0 disk to the file CPFMTXA EXEC on the PMAINT 551 disk, associating the file with prodid 6VMCPR40%CP:

```
SESMOVE COPY 6VMCPR40%CP CPFMTXA EXEC LINK USER PMAINT 551
CPFMTXA EXEC LINK IDENTITY MIGMAINT 2CF0
```

**Manual Instructions:**

1. Link and access the PMAINT 550 or 551 disk in write mode. In this example:
2. Link and access the MIGMAINT 2CF0 disk. In this example:
   \texttt{LINK MIGMAINT 2CF0 2CF0 MR}
   \texttt{ACCESS 2CF0 G}

3. Issue the VMFCOPY command:
   \begin{verbatim}
   VMFCOPY sourcefname sourceftype fm_2CF0 targetfname targetftype fm_550|fm_551
   \end{verbatim}
   \texttt{( PRODID sourceprodid OLDDATE REPLACE}
   \begin{verbatim}
   \end{verbatim}
   In this example:
   \texttt{VMFCOPY CPFMTXA EXEC G CPFMTXA EXEC H ( PRODID 6VMCPR40%CP OLDDATE REPLACE}

11 The SESMOVE ERASE keywords use the VMFERASE command to erase a file from the PMAINT 550 or 551 disk.

Syntax:
\begin{verbatim}
SESMOVE ERASE \texttt{fname ftype LINK USER PMAINT 550|551}
\end{verbatim}

Example: Use the VMFERASE command to erase the file CPFMTXA EXEC from the PMAINT 551 disk:
\begin{verbatim}
SESMOVE ERASE CPFMTXA EXEC LINK USER PMAINT 551
\end{verbatim}

Manual Instructions:
1. Link and access PMAINT's 550 or 551 disk in write mode. In this example:
   \begin{verbatim}
   LINK PMAINT 551 551 WR
   ACCESS 551 G
   \end{verbatim}

2. Issue the VMFERASE command:
   \begin{verbatim}
   VMFERASE FILE \texttt{fname ftype fm_550|fm_551}
   \end{verbatim}
   In this example:
   \begin{verbatim}
   VMFERASE FILE CPFMTXA EXEC G
   \end{verbatim}

12 The UPDDISK COPY keywords copy either a single file or an entire disk. UPDDISK COPY uses COPYFILE with the OLDDATE REPLACE options.

Syntax:
\begin{verbatim}
UPDDISK COPY sourcelinktype sourceidtype sourceuserid sourceaddrdir sourcefname sourceftype
targetlinktype targetidtype targetuserid targetaddrdir targetfname targetftype
\end{verbatim}

\texttt{sourcelinktype}

Method used to access the disk where the file resides: LINKACC, ACCDIR, or MDISK.
LINKACC is specified if the source location is a minidisk, accessed using the \texttt{LINK and}
ACCESS commands. ACCDIR is specified if the source location is an SFS directory which is just accessed with the ACCESS command. MDISK is specified if the source location is located on a work system volume that must be accessed using the DEFINE MDISK command. For instructions on how to access a disk using DEFINE MDISK, see the DDRMDISK keyword.

**sourceidtype**
Type of userid: USER or IDENTITY.

**sourceuserid**
User ID that owns the disk where the file resides. If the file is in an SFS directory, the value of this field is “DIR”.

**sourceaddrdir**
Minidisk or SFS directory where the file resides.

**sourcefname**
File name of the file to be copied or NOFN if the entire disk is to be copied.

**sourceftype**
File type of the file to be copied or NOFT if the entire disk is to be copied.

**targetlinktype**
Method used to access the disk where the file will be copied: LINKACC, ACCDIR, or MDISK. LINKACC is specified if the target ("to") location is a minidisk, accessed using the LINK and ACCESS commands. ACCDIR is specified if the target location is an SFS directory which is just accessed with the ACCESS command. MDISK is specified if the target location must be accessed using the DEFINE MDISK command. For instructions on how to access a disk using DEFINE MDISK, see the DDRMDISK keyword.

**targetidtype**
Type of userid: USER or IDENTITY.

**targetuserid**
User ID that owns the disk where the file will be copied. If the file is in an SFS directory, the value of this field is “DIR”.

**targetaddrdir**
Minidisk or SFS directory where the file will be copied.

**targetfname**
File name given to the file when it is copied or NOFN if the entire disk is to be copied.

**targetftype**
File type given to the file when it is copied or NOFT if the entire disk is to be copied.

**Example:**

```
UPDDISK COPY LINKACC USER PMAINT 550 CPFMTXA EXEC LINKACC USER PMAINT 551 CPFMTXA EXEC
```

**Manual Instructions:**

1. Link and access the source disk. In this example:

```
LINK PMAINT 550 1550 RR
ACCESS 1550 H
```

2. Link and access the target ("to") disk in write mode. In this example:

```
LINK PMAINT 551 1551 WR
ACCESS 1551 H
```

3. Copy the file from the source disk to the target disk, using OLDDATE REPLACE. In this example:
COPYFILE CPFMTXA EXEC G CPFMTXA EXEC A H (OLDDATE REPLACE)

4. Release and detach, if necessary, the SFS directories and minidisks accessed above. In this example:

```
RELEASE G
RELEASE H (DETACH)
```

The UPDDISK ERASE keywords erase either a single file or an entire disk.

**Syntax:**

```
UPDDISK ERASE sourcelinktype sourceidtype sourceuserid sourceaddrdir sourcefname sourceftype
```

**sourcelinktype**
Method used to access the disk where the file resides: LINKACC, ACCDIR, or MDISK. LINKACC is specified if the source location is a minidisk, accessed using the LINK and ACCESS commands. ACCDIR is specified if the source location is an SFS directory which is just accessed with the ACCESS command. MDISK is specified if the source location is located on a work system volume that must be accessed using the DEFINE MDISK command. For instructions on how to access a disk using DEFINE MDISK, see the DDRMDISK keyword.

**sourceidtype**
Type of userid: USER or IDENTITY.

**sourceuserid**
User ID that owns the disk where the file resides. If the file is in an SFS directory, the value of this field is “DIR”.

**sourceaddrdir**
Minidisk or SFS directory where the file resides.

**sourcefname**
File name of the file to be copied or NOFN if the entire disk is to be copied.

**sourceftype**
File type of the file to be copied or NOFT if the entire disk is to be copied.

**Example:**

```
UPDDISK ERASE ACCDIR * DIR VMPSFS:6VMTCP40.TCPIP.OBJECT LDAPDS SAMPENVR
```

**Manual Instructions:**
1. Link, if necessary, and access the disk. In this example:

```
ACCESS VMPSFS:6VMTCP40.TCPIP.OBJECT G
```

2. Erase the file from the source disk. In this example:

```
ERASE LDAPDS SAMPENVR G
```

3. Release and detach, if necessary, the SFS directory or minidisk accessed above. In this example:

```
RELEASE G
```
Appendix P. Removing changes made by STAGE1 (optional)

This appendix provides instructions on how to undo any changes that have been made to your current system during STAGE1 of the upgrade installation procedure.
Back out changes made in Chapter 21, Finish the STAGE1 upgrade

Step 1. Back out changes made in Chapter 21, "Finish the STAGE1 Upgrade"

If you did not complete any steps in Chapter 21, “Finish the STAGE1 upgrade,” on page 203, go on to “Step 2. Choose your backout option” on page 319. If you did complete steps in Chapter 21, “Finish the STAGE1 upgrade,” on page 203, you must back out some of those changes by hand.

1. During the backout process, the MAINT640 user ID will be deleted. If you had local modifications to rework, you might want to save any files you reworked on a different user ID, for future reuse.

2. If you are upgrading a non-SSI system, a one-member SSI cluster, or the first member of a multimember SSI cluster, the 6VMDIR40 user ID will be deleted during the backout process. If DirMaint is enabled as your directory manager and you made changes to configuration files, authorization files, or both, those changes will be lost if they were saved on a minidisk that is owned by 6VMDIR40.

3. If you are using an external security manager (ESM), you should review the documentation for your ESM to determine whether any authorizations you added need to be removed prior to backing out, because the user IDs that were added will be deleted during backout processing. If you are using RACF as your ESM, you do not need to remove any authorizations.

4. Before you begin to back out the remainder of the changes made during STAGE1, you should make sure that the MIGMAINT userid is not linked to any MAINT640 minidisks. Enter the QUERY MDISK command for the 5E5 and 51D minidisks (QUERY MDISK 5E5 and QUERY MDISK 51D) and check the owning user ID. If the OwnerID is MAINT640, detach the minidisks (DETACH 51D and DETACH 5E5). Then link and access your current system (620 or 630) 51D and 5E5 disks:

   LINK MAINT6x0 51D 51D MR
   ACCESS 51D D
   LINK MAINT6x0 5E5 5E5 RR
   ACCESS 5E5 B

5. If you are using DirMaint as your directory manager and you are backing out changes to a non-SSI system, a one-member SSI cluster, or the first member of a multimember SSI cluster, the automated BACKOUT process might encounter an error using DirMaint after the 6VMDIR40 user ID is deleted. If this happens, recycle your DirMaint server user IDs (DIRMAINT, DIRMSATx, and DATAMOVx) and restart the backout by re-entering this command:

   INSTUPGR STAGE1 (BACKOUT)

6. If you are backing out a member of a multimember SSI cluster, you should make sure your directory changes are online for all members of your SSI cluster. If you are using a directory manager, this should have been done automatically by the directory manager. If you are not using a directory manager, follow your normal procedures to put the updated directory online everywhere.
Step 2. Choose your backout option

If you used the INSTUPGR command with the COMMIT option to make changes to your system, a file named $BACKOUT $TABLE$ was created. This file contains entries that will undo the changes made by the INSTUPGR command. If you made some or all of the STAGE1 changes manually, you should have documented those changes and you must remove those changes yourself.

If you made all or some changes to your system using the INSTUPGR command, go to “Step 3. Undo STAGE1 changes using INSTUPGR” on page 320.

If you made all the STAGE1 changes to your system yourself, go to “Step 4. Undo STAGE1 changes manually” on page 321.
Step 3. Undo STAGE1 changes using INSTUPGR

1. Log on to the MIGMAINT user ID on the system being upgraded. Make sure the user ID meets the MIGMAINT user ID requirements.

2. Access the 24CC minidisk as file mode C.

   access 24cc c
   Ready; T=n.nn/n.nn hh:mm:ss

3. Run INSTUPGR to undo the changes made by INSTUPGR STAGE1 (COMMIT).

   instupgr stage1 (backout
   * Now processing $BACKOUT $TABLE$ E. File is processed from the
   * last record to the first to assure proper backout.
   Now processing line nnn of nnn
   Now processing line nnn of nnn
   :
   IUGUPG8392I INSTUPGR ended successfully
   Ready; T=n.nn/n.nn hh:mm:ss
   Ready; T=n.nn/n.nn hh:mm:ss

4. If any error conditions occur, review the error messages in file INSTUPGR $CONSLOG on the MIGMAINT 2CF0 minidisk (accessed as filemode E) and correct the condition that is causing the error. Then return to substep 3.

5. If you also made changes to your system manually, refer to the backout document that you created to manually undo your changes. Remember that the order in which you made the $STAGE1$ updates is the reverse order in which the updates should be removed.

6. Log off the MIGMAINT user ID.

If you undid the STAGE1 changes to your system because you need to correct errors, correct the errors now and then return to Chapter 19, “Generate the STAGE1 changes file,” on page 193. If you are not continuing with the upgrade installation at this time, IBM recommends that you log back on to MIGMAINT and erase all of the files on the MIGMAINT 24CC and the 2CF0 disks. This will prevent accidental use of out-of-date information should you decide to use the upgrade installation procedure later. You may return the volumes you used to install the work system to your DASD pool. If you decide later to use the upgrade installation procedure for this system, you should start over again, at the beginning of Part 4, “Upgrade installation,” on page 135.
Step 4. Undo STAGE1 changes manually

1. Log on to the MIGMAINT user ID on the system being upgraded. Make sure the user ID meets the MIGMAINT user ID requirements.

2. Refer to the backout documentation you created while making the STAGE2 updates manually to undo your changes.

3. Access the 24CC minidisk as file mode C.

   access 24cc c
   Ready; T=n.nn/n.nn hh:mm:ss

4. Once all the changes are complete, run the INSTUPGR command to update the appropriate status tables so that you can restart your upgrade installation when you are ready.

   instupgr stage1 (backout done)
   IUIGUPG8392I INSTUPGR ended successfully
   Ready; T=n.nn/n.nn hh:mm:ss

5. Log off the MIGMAINT user ID.

If you undid the STAGE1 changes to your system because you need to correct errors, correct the errors now and then return to Chapter 19, “Generate the STAGE1 changes file,” on page 193. If you are not continuing with the upgrade installation at this time, IBM recommends that you log back on to MIGMAINT and erase all of the files on the MIGMAINT 24CC and the 2CF0 disks. This will prevent accidental use of out-of-date information should you decide to use the upgrade installation procedure later. You may return the volumes you used to install the work system to your DASD pool. If you decide later to use the upgrade installation procedure for this system, you should start over again, at the beginning of Part 4, “Upgrade installation,” on page 135.
Appendix Q. Upgrade installation directory manager exit interface

This appendix defines a program interface that can be used by a directory manager program to code an upgrade exit program. This exit program is provided by a directory manager product to allow upgrade installation processing to use the directory manager functions. Upgrade installation processing will call the exit with the defined syntax. The exit will then invoke the directory manager commands and return the appropriate return code to the calling program.

An exit that is coded for a release of z/VM will need to be made available to run on any release of z/VM that can be upgraded. So an exit coded for V6.4 will need to be made available on V6.2 and V6.3. The exit will need to incorporate release and version information (as discussed below) to allow verification that it is compatible with the level of z/VM to which an upgrade is being performed.

If updates are necessary for the directory manager to operate with a newer level of z/VM, a customer will first need to upgrade the directory manager to the required level (by applying any necessary service updates, or installation of a new level) before the customer can upgrade the system.

The exit needs to be named UPGDMIXT EXEC and must be installed on the MAINT 19E disk.

Requirements

1. File modes C and E are reserved for z/VM installation use.
2. The exit must contain a version indicator in the format \texttt{vrm.nn}, where: \texttt{vrm} is a z/VM version, release and modification level (for instance 640), and \texttt{nn} is an exit version number (for example, 01). The installation upgrade utilities will make an initial call to the exit to confirm that the exit version indicator is suitable for use with the current system upgrade.
3. For a given release of z/VM, the exit must run in all prior releases of z/VM that can be upgraded to the given release using the upgrade installation process.
4. If a failure occurs while performing the function requested by the installation upgrade utilities, the exit will need to:
   - Roll back any changes that had been made during a given function request. For example, if the exit must issue multiple commands to complete a requested function and several of those commands are completed prior to a command failure, then the exit will need to roll back the completed commands before returning control to the installation upgrade utilities.
   - Return one of the defined failure codes to the calling installation upgrade utility.
5. The exit must generate a log file named UPGDMIXT $LOGFILE E (the appropriate disk will have been accessed by the installation upgrade utilities prior to any exit calls). It should be appended with information appropriate for each invocation of the exit. At a minimum, the $LOGFILE should include the following:
   - Name of the calling exec
   - A date/time stamp
   - The function request made by the calling exec
   - Actual command(s) issued to complete the request
   - Successful or failed status
   - If necessary, pointers to additional data or logs (such as server-base logs)
6. The exit will be able to use the A-disk for work space. It will need to clean up any files created on the A-disk before returning control to the calling installation upgrade utility.
7. Whenever possible, the exit should suppress output to the user’s console.
Upgrade installation directory manager exit interface

Syntax of the call to the exit

The exit is called with a parameter list containing four tokens and a data stem, as follows:

**token1**
The name of the program calling the exit.

**token2**
A keyword.

**token3**
The exit interface data stem variable name (*stem_name*).

**token4**
An integer value that indicates the number of records loaded into the exit interface data stem.

The data stem is a REXX stem variable. The records that make up the data stem are as follows:

**stem_name.0**
The number of records loaded into the data stem. This value can be compared to **token4** to confirm the correct/expected number of records have been acquired.

**stem_name.1**
Keyword.

**stem_name.2**
Object type.

**stem_name.3**
Object modifier.

**stem_name.4**
Action.

**stem_name.5-n**
Data records.

Example of a call to the exit:

```
"PIPE COMMAND EXEC UPGDMIXT" pgm_name keyword stem_name count
```

Contents of the exit interface data stem

The exit interface data stem will contain at least one record. Records 2-n are optional, depending on the function to be performed by the exit.

**Record 1: Keyword (Required)**

Valid keywords:
- SETUP
- VERIFY
- CLEANUP
- ENTRY
- LINK
- MDISK
- VSTOR
- PRIV
- OPTION
- IUCV
- COMMAND
- IPL
- LOADDEV
Upgrade installation directory manager exit interface

- NAMSAVE

Record 2: Object type (Optional)
Valid object types:
- USER
- IDENTITY
- SUBCONFIG
- PROFILE
- VERSION

Record 3: Object modifier (Optional)
Valid object modifiers:
- If the object type is VERSION, the exit version indicator (vrm.nn).
- If the object type is SUBCONFIG, the name of the subconfig, node, and identity (subname node identname).
- Otherwise, the name of the affected object type (name). The name can be any valid name for an object type, as defined by the CP user directory

Record 4: Action (Optional)
Valid actions:
- ADD
- DELETE
- REPLACE
- COPY
- GET
- UNLOCK

Records 5-n: Data (Optional)
The data necessary to perform a given function. The data will vary based on the action/object being manipulated.
Exit interface data stem options

**CLEANUP**

Use the CLEANUP options to clean up directory manager environment and files left on the work (A) disk.

It is anticipated that only one CLEANUP call will be made to an exit, during a given processing stage. Cleanup processing can be used to restore/undo SETUP environment changes made for handling directory change requests. There are no arguments for this keyword.

**COMMAND**

Use the COMMAND options to either add a new COMMAND statement or delete an existing COMMAND statement.

**COMMAND Options Syntax**

```
COMMAND Options Syntax

where:

name
is the user, identity, or profile name.

subname
is the subconfig name. If the subconfig name is UNKNOWNSUB, the name must be determined from the node and identname.
```
node

is the name of the member that owns the subconfig, if running in an SSI, or an asterisk (*), if running on a non-SSI (only valid with SUBCONFIG object type).

identname

is the name of the IDENTITY for the subconfig (only valid for SUBCONFIG object type).

:ORDER

indicates the ordinal value of the command follows (ADD only).

num

is the ordinal placement of the COMMAND statement (ADD only).

text

is the information to be appended to the keyword “COMMAND” to derive the statement to be added to or deleted from the directory.

Notes:

1. Only one command statement can be added or deleted at a time.
2. A new statement must be created for each command. Statements cannot be added to existing COMMAND statements.
3. The statement will be inserted as the numth COMMAND statement in the directory entity.
4. If there are no COMMAND statements in the directory entity, this statement will be added as the first COMMAND statement.
5. If num is larger than the number of COMMAND statements in the directory entity, this statement will be added following the last COMMAND statement.

Examples:

COMMAND USER pmaint ADD :ORDER 1 SET RUN ON
COMMAND IDENTITY zvm1xapp ADD :ORDER 9 SET D8ONECMD * OFF
COMMAND PROFILE tcpmsu ADD :ORDER 3 SET RUN ON
COMMAND SUBCONFIG lohc0s-1 memb2 lohc0st ADD :ORDER 4 TERM LINEND #
COMMAND USER pmaint DELETE SET RUN ON
COMMAND PROFILE ibmdflt DELETE SPOOL CONS START *
COMMAND IDENTITY zvm1xapp DELETE SET D8ONECMD * OFF
COMMAND SUBCONFIG UNKNOWNSUB memb2 vmservr DELETE SET RUN ON

ENTRY

Use the ENTRY options to add a new USER, IDENTITY, or SUBCONFIG, exactly as defined, to delete an existing USER, IDENTITY, or SUBCONFIG, or to get, replace, lock, or unlock a userid entry.

If ADD is specified, the records passed on the call contain the exact directory entry that should be added. No changes should be made to the records. If there are MDISK statements in the file, add the MDISK statements just as they are.

If GET is specified, the specified userid entry from the user directory will be obtained and written to the E disk as userid DIRECT. If LOCK is specified, the userid entry will be locked in the user directory. If NOLOCK is specified, the userid entry will not be locked.

If REPLACE is specified, the existing userid directory entry will be replaced with the directory entry passed on the call, and the userid will be unlocked.

If UNLOCK is specified, the userid will be unlocked.

If LOCK is specified, the user ID will be locked.
where:

name
is the user or identity name.

subname
is the subconfig name. If the subconfig name is UNKNOWNSUB, the name must be determined from the node and identname.

node
is the name of the member that owns the subconfig, if running in an SSI, or an asterisk (*), if running on a non-SSI (only valid with SUBCONFIG object type).

identname
is the name of the IDENTITY for the subconfig (only valid for SUBCONFIG object type).

direntry
is the complete directory entry.

userid
is the user ID.

Notes:
1. For IDENTITY:
   a. When adding, the BUILD ON statement will not be included in the definition.
   b. When deleting, an IDENTITY with a SUBCONFIG will never be deleted. The SUBCONFIG will always be deleted first.
2. For SUBCONFIG:
   a. When adding, the BUILD ON statement will be added to the IDENTITY when the SUBCONFIG is defined.
   b. When deleting, the BUILD ON statement will be removed from the IDENTITY when the SUBCONFIG is deleted.
3. For DELETE, the files on any disks that are deleted must not be erased.

Examples:
ENTRY USER MAINT640 ADD direntry
ENTRY IDENTITY OPERNEW ADD direntry
ENTRY SUBCONFIG OPER-2 MEMB2 OPERNEW ADD direntry
ENTRY USER MAINT640 DELETE
ENTRY IDENTITY OPERNEW DELETE
ENTRY SUBCONFIG OPER-2 MEMB2 OPERATOR DELETE
ENTRY SUBCONFIG UNKNOWNSUB MEMB2 SERVERW DELETE
ENTRY USER 5684042J GET LOCK
ENTRY USER 5684042J REPLACE direntry
ENTRY USER 5684042J UNLOCK
ENTRY USER 5684042J LOCK
IPL
Use the IPL options to add a new IPL control statement or delete an existing IPL control statement.

IPL Options Syntax

```
IPL USER name ADD statement
   -IDENTITY
   -PROFILE
   SUBCONFIG subname node identname
   DELETE  
```

where:

- **name** is the user, identity, or profile name.
- **subname** is the subconfig name. If the subconfig name is `UNKNOWN` or `UNKNOWNSUB`, the name must be determined from the **node** and **identname**.
- **node** is the name of the member that owns the subconfig, if running in an SSI, or an asterisk (*), if running on a non-SSI (only valid with SUBCONFIG object type).
- **identname** is the name of the IDENTITY for the subconfig (only valid for SUBCONFIG object type).
- **statement** is the IPL COMMAND statement to be added or deleted.

Examples:
```
IPL SUBCONFIG lohc0n-memb2 lohc1st ADD IPL 190
IPL SUBCONFIG UNKNOWNSUB memb2 lohc1st ADD IPL CMS
IPL USER pmaint ADD IPL 190 PARM AUTOCR
IPL IDENTITY avsvm ADD IPL CMS PARM AUTOCR
IPL PROFILE ibmdeflt ADD IPL CMS
IPL SUBCONFIG lohc0n-memb2 lohc1st DELETE IPL 190
IPL SUBCONFIG UNKNOWNSUB memb2 lohc1st DELETE IPL CMS
IPL USER pmaint DELETE IPL 190 PARM AUTOCR
IPL IDENTITY avsvm DELETE CPL CMS PARM AUTOCR
IPL PROFILE ibmdeflt DELETE IPL CMS
```

IUCV
Use the IUCV options to add a new IUCV statement or delete an existing IUCV statement.

IUCV Options Syntax

```
IUCV USER name ADD text
   -IDENTITY
   -PROFILE
   DELETE  
```

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where:

name
  is the user, identity or profile name.

text
  is the information to be appended to the keyword “IUCV” to derive the statement to be added to or deleted from the directory.

Notes:
  1. Only one IUCV statement can be added or deleted at a time.
  2. When adding, a new IUCV statement must be created. The new information cannot be added to an existing statement.

Examples:
  IUCV USER pmaint ADD *IDENT GATEANY GATEWAY REVOKE
  IUCV IDENTITY avsvm ADD *MSG
  IUCV PROFILE tcpcmsu ADD ALLOW
  IUCV IDENTITY avsvm DELETE *IDENT GATEANY GATEWAY REVOKE
  IUCV USER pmaint DELETE *MSG
  IUCV PROFILE tcpcmsu DELETE ALLOW

**LINK**

Use the LINK options to add, delete, or replace a LINK statement.

**LINK Options Syntax**

Use the LINK options to add, delete, or replace a LINK statement.

```
LINK
  USER name
  IDENTITY
  SUBCONFIG subname
  ADD owner addr1 addr2 mode
  DELETE owner addr1 addr2 mode
  REPLACE :OLD owner addr1 addr2 mode:NEW owner addr1 addr2 mode
```

where:

name
  is the user or identity name.

subname
  is the subconfig name. If the subconfig name is UNKNOWNSUB, the name must be determined from the node and identname.

node
  is the name of the member that owns the subconfig, if running in an SSI, or an asterisk (*), if running on a non-SSI (only valid with SUBCONFIG object type).

identname
  is the name of the IDENTITY for the subconfig (only valid for SUBCONFIG object type).

owner
  is the user whose disk will be linked (for ADD), or whose disk is currently being linked (for DELETE or REPLACE).

addr1
  is the disk that will be linked (for ADD), or is currently being linked (for DELETE or REPLACE).

addr2
  is the address at which the disk will be linked (for ADD), or is currently being linked (for DELETE or REPLACE).
mode
  is the link mode to be used (for ADD), or is the current link mode (for DELETE or REPLACE).

:OLD
  indicates the start of the information to be replaced (REPLACE only).

:NEW
  indicates the start of the replacement information (REPLACE only).

naddr2
  is the new address at which the disk will be linked (REPLACE only).

nmode
  is the new link mode to be used (REPLACE only).

Note: The owner and addr1 cannot change in a LINK REPLACE statement. Only the addr2 and mode can be changed (to naddr2 and nmode).

Examples:
  LINK USER cms1 ADD pmaint 2cc 2cc wr
  LINK SUBCONFIG maint-3 memb2 maint ADD maint640 201 201 rr
  LINK USER bldcms DELETE maint 407 407 rr
  LINK SUBCONFIG maintain3 memb2 maint DELETE maint630 201 201 rr
  LINK SUBCONFIG UNKNOWNSUB memb2 maint DELETE maint630 201 201 rr
  LINK USER bldcms REPLACE OLD maint 407 407 rr ;NEW maint 407 409 rr
  LINK SUBCONFIG maintain3 memb2 maint REPLACE :OLD maint630 201 201 rr ;NEW maint630 201 201 wr
  LINK SUBCONFIG UNKNOWNSUB memb2 maint REPLACE :OLD maint630 201 201 rr ;NEW maint630 201 199 rr

LOADDEV
Use the LOADDEV options to add a new LOADDEV control statement or delete an existing LOADDEV control statement.

LOADDEV Options Syntax

```
  LOADDEV -USER name ADD statement
  LOADDEV -IDENTITY
  LOADDEV -PROFILE
  LOADDEV -SUBCONFIG subname node identname ADD statement
  LOADDEV -SUBCONFIG subname node identname DELETE statement
```

where:

name
  is the user, identity, or profile name.

subname
  is the subconfig name. If the subconfig name is UNKNOWNSUB, the name must be determined from the
  node and identname.

node
  is the name of the member that owns the subconfig, if running in an SSI, or an asterisk (*), if running
  on a non-SSI (only valid with SUBCONFIG object type).

identname
  is the name of the IDENTITY for the subconfig (only valid for SUBCONFIG object type).
Upgrade installation directory manager exit interface

statement

is the LOADDEV control statement to be added or deleted.

Examples:

LOADDEV SUBCONFIG lohcso-1 memb2 lohcst ADD LOADDEV PORT 0
LOADDEV SUBCONFIG UNKNOWNSUB memb2 lohcst ADD LOADDEV BOOT 0
LOADDEV USER pmaint ADD LOADDEV LUN 0
LOADDEV IDENTITY zvm:1xapp ADD LOADDEV SCPD Data 'text'
LOADDEV PROFILE ibmdflt ADD LOADDEV BR_LBA 0600
LOADDEV SUBCONFIG lohcso-1 memb2 lohcst DELETE LOADDEV PORT 0
LOADDEV SUBCONFIG UNKNOWNSUB memb2 lohcst DELETE LOADDEV BOOT 0
LOADDEV USER pmaint DELETE LOADDEV LUN 0
LOADDEV IDENTITY zvm:1xapp DELETE LOADDEV SCPD Data 'text'
LOADDEV PROFILE ibmdflt DELETE LOADDEV BR_LBA 0600

Note: In the above examples, text could be anything up to 4096 (4K) characters of data.

MDISK

Use the MDISK options to:

• Add a new MDISK.
• Delete an existing MDISK.
• Redefine the placement of an existing minidisk (to increase the size or move it to a different volume), with no data copied.
• Redefine the placement of an existing minidisk (to increase the size or move it to a different volume), with all data copied.

MDISK Options Syntax

where:

name

is the user or identity name.

subname

is the subconfig name. If the subconfig name is UNKNOWNSUB, the name must be determined from the node and identname.

node

is the name of the member that owns the subconfig, if running in an SSI, or an asterisk (*), if running on a non-SSI (only valid with SUBCONFIG object type).

identname

is the name of the IDENTITY for the subconfig (only valid for SUBCONFIG object type).

:FORMAT

specifies the disk should be formatted (ADD only).
:NOFORMAT
  specifies the disk should be unformatted (ADD only).

:LABEL label
  specifies the label to put on the minidisk when formatting (ADD only).

:BLKSIZE blksz
  specifies the blocksize to use when formatting (ADD only).

addr
  is the virtual device address of the minidisk being added, deleted, or defined.

devtype
  is the device type of the minidisk to be added or defined (ADD, REPLACE, or COPY only).

startloc
  is a starting cylinder/block number of the disk (ADD, REPLACE, or COPY only). If startloc is an integer, the provided extents will be used. If startloc is NULL, the directory manager will define the extents.

size
  is the size in cylinders or blocks of the disk (ADD, REPLACE, or COPY only).

volser
  is the label of the volume where the minidisk will reside (ADD, REPLACE, or COPY only).

mode
  specifies the user's mode of access at logon (ADD only).

pws
  optionally specifies the string to be used as passwords (ADD only).

:OLD * :NEW
  specifies to replace all old information with the new information that follows (REPLACE ONLY).

Notes:
1. For REPLACE and COPY, the label and blksz for the new minidisk should be the same as for the current minidisk. The access mode and passwords should also be the same as for the current minidisk.
2. For REPLACE, the contents of the current disk will not be copied to the new disk. For COPY, the contents of the current disk will be copied to the new disk.
3. For DELETE, the files on any disks that are deleted must not be erased.

Examples:
Upgrade installation directory manager exit interface

MDISK USER pmain ADD :NOFORMAT 199 3390 1050 20 m01w01 MR R199 W199 M199
MDISK SUBCONFIG lohoc-1 memb2 lohcost ADD :FORMAT :LABEL loh199 :BLKSIZE 2K
111 FB-512 18000 14400 vmc0m1 MR R111 W111 M111
MDISK SUBCONFIG UNKNOWNSUB memb2 lohcost ADD :FORMAT :LABEL loh199 :BLKSIZE 2K
111 FB-512 180000 14400 vmc0m1 MR R111 W111 M111
MDISK SUBCONFIG lohoc-1 memb2 lohcost ADD :FORMAT :LABEL loh199 :BLKSIZE 2K
199 3390 NULL 20 m01w01 MR R199 W199 M199
MDISK SUBCONFIG UNKNOWNSUB memb2 lohcost ADD :FORMAT :LABEL loh199 :BLKSIZE 2K
199 3390 NULL 20 m01w01 MR R199 W199 M199
MDISK USER pmain ADD :NOFORMAT 111 FB-512 NULL 14400 vmc0m1 MR R111 W111 M111
MDISK USER pmain DELETE 199
MDISK SUBCONFIG lohoc-1 memb2 lohcost DELETE 111
MDISK SUBCONFIG UNKNOWNSUB memb2 lohcost DELETE 111
MDISK SUBCONFIG lohoc-1 memb2 lohcost REPLACE :OLD * :NEW 199 3390 1050 20 m01w01
MDISK SUBCONFIG UNKNOWNSUB memb2 lohcost REPLACE :OLD * :NEW 199 3390 1050 20 m01w01
MDISK USER pmain REPLACE :OLD * :NEW 111 FB-512 18000 14400 vmc0m1
MDISK SUBCONFIG lohoc-1 memb2 lohcost REPLACE :OLD * :NEW 199 3390 NULL 20 m01w01
MDISK SUBCONFIG UNKNOWNSUB memb2 lohcost REPLACE :OLD * :NEW 199 3390 NULL 20 m01w01
MDISK USER pmain REPLACE :OLD * :NEW 111 FB-512 NULL 14400 vmc0m1
MDISK SUBCONFIG lohoc-1 memb2 lohcost COPY 199 3390 20 m01w01
MDISK SUBCONFIG UNKNOWNSUB memb2 lohcost COPY 199 3390 20 m01w01
MDISK USER pmain COPY FB-512 14400 vmc0m1
MDISK SUBCONFIG lohoc-1 memb2 lohcost COPY 199 3390 NULL 20 m01w01
MDISK SUBCONFIG UNKNOWNSUB memb2 lohcost COPY 199 3390 NULL 20 m01w01
MDISK USER pmain COPY 111 FB-512 NULL 14400 vmc0m1

NAMESAVE
Use the NAMESAVE options to add a new NAMESAVE statement or delete an existing NAMESAVE statement.

NAMESAVE Options Syntax

where:
name is the user, identity or profile name.
statement is the NAMESAVE statement to be added or deleted.

Examples:
NAMESAVE USER pmain ADD NAMESAVE GCS
NAMESAVE IDENTITY avsvm ADD NAMESAVE VTAM
NAMESAVE PROFILE tcpcmsu ADD NAMESAVE MONDCSS
NAMESAVE USER pmain DELETE NAMESAVE MONDCSS
NAMESAVE IDENTITY avsvm DELETE NAMESAVE TCPPIP
NAMESAVE PROFILE tcpcmsu DELETE NAMESAVE VSMDCSS

OPTION
Use the OPTION options to add a new option to a directory entry or profile, or delete an existing option from a directory entry or profile.
where:

name

is the user, identity, or profile name.

subname

is the subconfig name. If the subconfig name is UNKNOWNSUB, the name must be determined from the node and identname.

node

is the name of the member that owns the subconfig, if running in an SSI, or an asterisk (*), if running on a non-SSI (only valid with SUBCONFIG object type).

identname

is the name of the IDENTITY for the subconfig (only valid for SUBCONFIG object type).

option

is the option to be added to or deleted from the directory entry or profile.

Notes:

1. Only one option may be added or deleted at a time.
2. When adding, if there is no existing OPTION statement in the entity that is being updated, the entire OPTION statement will be added. If an OPTION STATEMENT already exists, the new option can be added to the existing OPTION statement, or else a new statement can be added.
3. When deleting, if this is the last option on an OPTION statement, the entire statement should be removed.

Examples:

OPTION SUBCONFIG lohc0s-1 memb2 lohc0st ADD LANG AMENG
OPTION SUBCONFIG UNKNOWNSUB memb2 lohc0st ADD DIAG88
OPTION USER pmaint ADD MAINTCCW
OPTION IDENTITY avsvm ADD LNKS
OPTION PROFILE ibmdfit ADD MAINTCCW
OPTION SUBCONFIG vsmwrk-1 memb2 vsmwork1 DELETE MAXCONN 2000
OPTION SUBCONFIG UNKNOWNSUB memb2 lohc0st DELETE DIAG88
OPTION USER pmaint DELETE QUICKDSP
OPTION IDENTITY tsafvm DELETE COMSRV
OPTION PROFILE tcpsslu DELETE MAXCONN 1024

PRIV

Use the PRIV options to add a privilege class to a user or identity, or delete a privilege class from a user or identity.
Upgrade installation directory manager exit interface

PRIV Options Syntax

```
PRIV USER name ADD privclas
```

where:

- **name**
  - is the user or identity name.

- **privclas**
  - is the privilege class to be added or deleted.

Notes:

1. Only one privilege class may be added or deleted at a time.
2. If a privilege class to be added is already in the directory entry, the calling program will be returned to with RC=1.
3. If a privilege class to be deleted is not in the directory entry, the calling program will be returned to with RC=1.

Examples:

```
PRIV IDENTITY lohcsp ADD B
PRIV IDENTITY cmsuser ADD C
PRIV USER vmservp ADD F
PRIV IDENTITY lohcst DELETE B
PRIV IDENTITY cmsuser DELETE C
PRIV USER vmservp DELETE F
```

SETUP

Use the SETUP options to set up and validate the environment necessary for the exit to perform directory update functions.

It is anticipated that only one SETUP call will be made to an exit, during a given processing stage. Setup processing can be used to establish a persistent environment for handling ensuing directory change requests. Actions performed would include:

- Validating the version.
- Validating that any required resources (such as disks) are available.
- Ensuring that the directory manager is running.
- Ensuring that the requesting user ID is authorized to perform directory functions.

SETUP Options Syntax

```
SETUP VERSION vrm.nn
```

where:

- **vrm.nn**
  - is the release and update level of the exit (for example, 640.01).
Note: Upgrade processing will not preserve the exit’s operating environment between calls to the exit. If the exit must link and access specific disks, that must be done every time the exit is called.

**VERIFY**
Use the VERIFY options to verify that the exit supports the version level provided.

It is anticipated that only one VERIFY call will be made to an exit, to confirm compatibility for use during the upgrade process as a whole.

```
VERIFY Options Syntax

►►VERIFY—VERSION—vrm.nn◄◄

where:

vrm.nn
is the release and update level of the exit (for example, 640.01).
```

**VSTOR**
Use the VSTOR options to modify the virtual storage size of a user or identity.

```
VSTOR Options Syntax

►►VSTOR—USER—name—REPLACE—:OLD—*:NEW—newinvstor—newmaxvstor◄◄

where:

name
is the user or identity name.

:OLD * :NEW
specifies to replace all old information with the new information that follows.

newinvstor
is the new minimum virtual storage value.

newmaxvstor
is the new maximum virtual storage value.

Note: If the current VSTOR values are larger than the new VSTOR values, they will not be changed. The calling program will be returned to with RC=1.
Upgrade installation directory manager exit interface

Return codes

These are the return codes that the exit program should use when returning control to the calling installation upgrade utility. In general, 0 is a successful return code, return codes 1-7 are reserved for warning messages, and return codes of 8 and higher are used for an error condition that requires the upgrade process to stop.

The following defines the return codes that should be returned by the exit to the calling program. No other return codes should be used.

0      Function requested completed successfully.
1      Directory update was already in place so no action taken.
2-7    Reserved for future use. Do not use.
8      General error (not defined by the installation upgrade utilities).
9      Version not compatible.
10     Directory manager not functional.
11     Userid not authorized for directory manager command(s).
12     The requested update is not recognized.
13     Setup processing failed.
14     Rollback failure.
15     Logging failure.
19     Insufficient space.
20     Directory manager timeout.
21     Userid not found in directory.
22     Userid already locked.
23     Userid was not locked.
24     Unexpected error trying to GET userid.

Coding sample for acquiring the contents of a data stem

The content of the data stem can be acquired using a CMS PIPELINE command, as illustrated in this REXX coding sample:

```rexx
/*----------------------------------------------------------------------------*/
/* Obtain input arguments. */
Parse Arg Input1CallerName Keyword DataStem DataCount .

/*----------------------------------------------------------------------------*/
/* Acquire the data that pertains to the given keyword, via a CMS PIPELINE */
/* command, and perform basic confirmation that this command has succeeded. */
/*----------------------------------------------------------------------------*/
'PIPE' '(Name Get_Stem_Data)',
  'Stem' DataStem '1',
  '| Stem DMX_data.'
If (rc <> 0) | (Symbol('DMX_DATA.0') <> 'VAR')
Then Do
  /* Error Handling...*/
End
```
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Glossary

For a list of z/VM terms and their definitions, see z/VM: Glossary.

The z/VM glossary is also available through the online z/VM HELP Facility, if HELP files are installed on your z/VM system. For example, to display the definition of the term “dedicated device”, issue the following HELP command:

```
help glossary dedicated device
```

While you are in the glossary help file, you can do additional searches:

- To display the definition of a new term, type a new HELP command on the command line:
  ```
  help glossary newterm
  ```
  This command opens a new help file inside the previous help file. You can repeat this process many times. The status area in the lower right corner of the screen shows how many help files you have open. To close the current file, press the Quit key (PF3/F3). To exit from the HELP Facility, press the Return key (PF4/F4).

- To search for a word, phrase, or character string, type it on the command line and press the Clocate key (PF5/F5). To find other occurrences, press the key multiple times.
  The Clocate function searches from the current location to the end of the file. It does not wrap. To search the whole file, press the Top key (PF2/F2) to go to the top of the file before using Clocate.
Bibliography

See the following publications for additional information about z/VM. For abstracts of the z/VM publications, see z/VM: General Information GC24-6193.

Where to Get z/VM Information

z/VM product documentation and other z/VM information is available in IBM Knowledge Center - z/VM (www.ibm.com/support/knowledgecenter/SSB27U).

You can also obtain z/VM product publications from IBM Publications Center (www.ibm.com/e-business/linkweb/publications/servlet/pbi.wss).

z/VM Base Library

Overview

- z/VM: License Information GC24-6200
- z/VM: General Information GC24-6193
- z/VM: Glossary GC24-6195

Installation, Migration, and Service

- z/VM: Installation Guide GC24-6246
- z/VM: Migration Guide GC24-6201
- z/VM: Service Guide GC24-6247
- z/VM: VMSES/E Introduction and Reference GC24-6243

Planning and Administration

- z/VM: CMS File Pool Planning, Administration, and Operation SC24-6167
- z/VM: CMS Planning and Administration SC24-6171
- z/VM: Connectivity SC24-6174
- z/VM: CP Planning and Administration SC24-6178
- z/VM: Enabling z/VM for OpenStack (Support for OpenStack Liberty Release) SC24-6251
- z/VM: Getting Started with Linux on z Systems SC24-6194
- z/VM: Group Control System SC24-6196
- z/VM: I/O Configuration SC24-6198
- z/VM: Running Guest Operating Systems SC24-6228
- z/VM: Saved Segments Planning and Administration SC24-6229
- z/VM: Secure Configuration Guide SC24-6230
- z/VM: TCP/IP LDAP Administration Guide SC24-6236
- z/VM: TCP/IP Planning and Customization SC24-6238
- z/OS and z/VM: Hardware Configuration Manager User’s Guide SC34-2670

Customization and Tuning

- z/VM: CP Exit Customization SC24-6176
- z/VM: Performance SC24-6208

Operation and Use

- z/VM: CMS Commands and Utilities Reference SC24-6166
- z/VM: CMS Primer SC24-6172
- z/VM: CMS User’s Guide SC24-6173
- z/VM: CP Commands and Utilities Reference SC24-6175
- z/VM: System Operation SC24-6233
- z/VM: TCP/IP User’s Guide SC24-6240
- z/VM: Virtual Machine Operation SC24-6241
- z/VM: XEDIT Commands and Macros Reference SC24-6244
- z/VM: XEDIT User’s Guide SC24-6245

Application Programming

- z/VM: CMS Application Development Guide SC24-6162
- z/VM: CMS Application Development Guide for Assembler SC24-6163
- z/VM: CMS Application Multitasking SC24-6164
- z/VM: CMS Callable Services Reference SC24-6165
- z/VM: CMS Macros and Functions Reference SC24-6168
- z/VM: CMS Pipelines User’s Guide and Reference SC24-6252
- z/VM: CP Programming Services SC24-6179
- z/VM: CPI Communications User’s Guide SC24-6180
- z/VM: Enterprise Systems Architecture/Extended Configuration Principles of Operation SC24-6192
z/VM: Language Environment User’s Guide
SC24-6199
z/VM: OpenExtensions Advanced Application Programming Tools
SC24-6202
z/VM: OpenExtensions Callable Services Reference
SC24-6203
z/VM: OpenExtensions Commands Reference
SC24-6204
z/VM: OpenExtensions POSIX Conformance Document
GC24-6205
z/VM: OpenExtensions User’s Guide
SC24-6206
z/VM: Program Management Binder for CMS
SC24-6211
z/VM: Reusable Server Kernel Programmer’s Guide and Reference
SC24-6220
z/VM: REXX/VM Reference
SC24-6221
z/VM: REXX/VM User’s Guide
SC24-6222
z/VM: Systems Management Application Programming
SC24-6234
z/VM: TCP/IP Programmer’s Reference
SC24-6239
Common Programming Interface Communications Reference
SC26-4399
Common Programming Interface Resource Recovery Reference, SC31-6821
z/OS: IBM Tivoli Directory Server Plug-in Reference for z/OS
SA76-0169
z/OS: Language Environment Concepts Guide
SA22-7567
z/OS: Language Environment Debugging Guide
GA22-7560
z/OS: Language Environment Programming Guide
SA22-7561
z/OS: Language Environment Programming Reference
SA22-7562
z/OS: Language Environment Run-Time Messages
SA22-7566
z/OS: Language Environment Writing Interlanguage Communication Applications
SA22-7563
z/OS MVS Program Management: Advanced Facilities
SA23-1392
z/OS MVS Program Management: User’s Guide and Reference
SA23-1393

Diagnosis
z/VM: CMS and REXX/VM Messages and Codes
GC24-6161
z/VM: CP Messages and Codes
GC24-6177
z/VM: Diagnosis Guide
GC24-6187
z/VM: Dump Viewing Facility
GC24-6191
z/VM: Other Components Messages and Codes
GC24-6207
z/VM: TCP/IP Diagnosis Guide
GC24-6219
z/VM: TCP/IP Messages and Codes
GC24-6237
z/VM: VM Dump Tool
GC24-6242
z/OS and z/VM: Hardware Configuration Definition Messages
SC34-2668

z/VM Facilities and Features

Data Facility Storage Management Subsystem for VM
z/VM: DFSMS/VM Customization
SC24-6181
z/VM: DFSMS/VM Diagnosis Guide
GC24-6182
z/VM: DFSMS/VM Messages and Codes
GC24-6183
z/VM: DFSMS/VM Planning Guide
SC24-6184
z/VM: DFSMS/VM Removable Media Services
SC24-6185
z/VM: DFSMS/VM Storage Administration
SC24-6186

Directory Maintenance Facility for z/VM
z/VM: Directory Maintenance Facility Commands Reference
SC24-6188
z/VM: Directory Maintenance Facility Messages
GC24-6189
z/VM: Directory Maintenance Facility Tailoring and Administration Guide
SC24-6190

Open Systems Adapter/Support Facility
Open Systems Adapter-Express Customer’s Guide and Reference
SA22-7935
SA22-7990
Open Systems Adapter-Express Integrated Console Controller 3215 Support
SA23-2247
Open Systems Adapter-Express3 Integrated Console Controller Dual-Port User’s Guide
SA23-2266

Performance Toolkit for VM
z/VM: Performance Toolkit Guide
SC24-6209
z/VM: Performance Toolkit Reference
SC24-6210

RACF Security Server for z/VM
z/VM: RACF Security Server Auditor’s Guide
SC24-6212
z/VM: RACF Security Server Command Language Reference
SC24-6213

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Remote Spooling Communications Subsystem Networking for z/VM

- z/VM: RSCS Networking Diagnosis GC24-6223
- z/VM: RSCS Networking Exit Customization SC24-6224
- z/VM: RSCS Networking Messages and Codes GC24-6225
- z/VM: RSCS Networking Operation and Use SC24-6226
- z/VM: RSCS Networking Planning and Configuration SC24-6227

Prerequisite Products

Device Support Facilities


Environmental Record Editing and Printing Program

- Environmental Record Editing and Printing Program (EREP): Reference GC35-0152
- Environmental Record Editing and Printing Program (EREP): User’s Guide GC35-0151
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