z/VM

Guide for Automated Installation and Service

version 5 release 2

GC24-6099-02

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Note!
Before using this information and the product it supports, read the information in “Notices” on page 201.

Third Edition (December 2005)

This edition applies to the version 5, release 2, modification 0 of IBM z/VM (product number 5741-A05) and to all subsequent releases and modifications until otherwise indicated in new editions.

This edition replaces GC24-6099-01.

Contents

About This Book

This book guides system programmers through the step-by-step installation and service procedures for z/VM®.

The procedures allow installation of the z/VM system first-level on a processor or second-level (as a guest operating system hosted by z/VM). See the *z/VM: General Information* for a list of the processors supported by z/VM and the guest operating systems hosted by z/VM.

Who Should Read This Book

This book is intended for system programmers responsible for installing and servicing z/VM.

System programmers are responsible for system operation and system management activities requiring a higher degree of computer skill and technical training and education than those covered by other system support personnel. They are ultimately responsible for the efficient functioning of the system.

What You Should Know Before Reading This Book

This book assumes that you have a general idea of what z/VM does and that you understand the concept of a virtual machine. You should also have a general understanding of z/VM, IBM System z9, and zSeries® data processing techniques.

This book includes all updates at the time of this publication (December 2005). Any updates to this book will be reflected in the book that is available at our Web site:

`www.ibm.com/eserver/zseries/zvm/`

How This Book Is Organized

This book has four parts, appendices, notices, a glossary, a bibliography, and an index.

- Part 1, “z/VM System DDR Installation,” on page 1, contains step-by-step installation procedures for installing z/VM from tape or CD distribution media.
- Part 2, “z/VM System Image DVD Installation,” on page 63, contains step-by-step installation procedures for installing z/VM from DVD distribution media, including installation worksheets required for installation planning.
- Part 3, “Post z/VM System Installation,” on page 123, contains procedures for migrating customized files and service for products pre-installed on the z/VM installation media and information about customizing or configuring certain licensed products and features.
- Part 4, “Service Procedure,” on page 163, contains step-by-step procedures for applying service to your z/VM system.
- The appendices include supplemental information and procedures for installation and service.
- Legal notices, a reference to the z/VM glossary, a bibliography, and index round out the book.

How to Use This Book

You may treat each part in this document independently, but within each part read and follow the procedures in the order presented. For instance, if installing from tape, follow Part 1, “z/VM System DDR Installation,” on page 1. If installing from DVD, follow Part 2, “z/VM System Image DVD Installation,” on page 63. If migrating customized files and service for products pre-installed on the z/VM installation media, follow Part 3, “Post z/VM System Installation,” on page 123, and for information about customizing or configuring certain licensed products and features, follow Part 3, “Post z/VM System Installation,” on page 123. For service, follow Part 4, “Service Procedure,” on page 163 from beginning to end.

Conventions Used in This Book

Substeps in procedures display what you should type and the system responses you see.

- Bold font indicates exactly what you should type.

  Example: The following shows a command you would type:

  disconnect

- Normal font indicates system responses and requests.

  Example: The following shows a system response:

  ```
  HCPIPX8475I THE PRODUCTS YOU SELECTED TO LOAD TO MINIDISK ARE:
              VM  RSCS  TCPIP  OSA  ICKDSF DIRM RACF
              PERFTK  VMHCD
  ```

- 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 tape drive for *tapeaddr*:

    attach *tapeaddr* *** 181**

  – In the following, the system would supply a tape address for *tapeaddr* and *userID* in its response:

    TAPE *tapeaddr* ATTACHED TO *userID* 181

- Reverse type indicates special keys you must press.

  Example: The following indicates you must press the Enter key:

  ENTER

- Explanatory notes appear to the right of input and output.

  Example:

  attach *tapeaddr* *** 181**

  TAPE *tapeaddr* ATTACHED TO *userID* 181
  Ready; T=*n.nn/n.nn hh:mm:ss*

  tapeaddr is the address of the tape drive(s) where the z/VM System DDR tapes will be mounted. *userID* is the first-level user ID logged on to in the previous substep.

- For outputs, a vertical bar (|) indicates you will receive one of the responses within the braces ({}). Here is a sample output:

  ```
  {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

For more information about z/VM functions, see the books listed in the “Bibliography” on page 207.

PDF Links to Other Books

If you are viewing the Adobe Portable Document Format (PDF) version of this book, it may contain links to other books. A link to another book is based on the name of the requested PDF file. The name of the PDF file for an IBM book is unique and identifies both the book and the edition. The book links provided in this book are for the editions (PDF names) that were current when the PDF file for this book was generated. However, newer editions of some books (with different PDF names) may exist. A link from this book to another book works only when a PDF file with the requested name resides in the same directory as this book.

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- Title and complete publication number of the book
- Page number, section title, or topic you are commenting on

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Summary of Changes

This book contains terminology, maintenance, and editorial changes. Technical changes or additions to the text and illustrations are indicated by a vertical line to left of the change (in that edition only). Some product changes identified in this summary may be provided through z/VM service by program temporary fixes (PTFs) for authorized program analysis reports (APARs).

GC24-6099-02, z/VM Version 5 Release 2

This edition supports the general availability of z/VM V5.2.

- CD-ROM distribution media is no longer available.
- New support is provided that allows for unique pack labels for the installation packs (except the 520RES). The default pack labels will still be provided (520RES, 520SPL, 520PAG, 520W01, 520W02). During installation customers will be allowed to specify a different label for the 520W01, 520W02, 520SPL and 520PAG packs. This function is not available for a first-level DDR (tape) install.
- A new procedure has been added to assist in migrating customized files and service for products preinstalled on the z/VM installation media.

GC24-6099-01, z/VM Version 5 Release 1

This edition supports the general availability of z/VM V5.1.

- There is a new section for installing the z/VM System Image from DVD: Part 2, “z/VM System Image DVD Installation,” on page 63
- A MAINT 500 minidisk has been added, which contains the RSU for DVD installation and can be used to receive electronic delivery of service.
- Real Time Monitor (RTM) is no longer pre-installed.
- VM Performance Reporting Facility (VMPRF) is no longer pre-installed.
- A new release of Performance Toolkit® for VM, 510, is pre-installed (disabled).
- A new release of Directory Maintenance Facility (DIRM), 510, is pre-installed (disabled).
- Chapter 14, “Install Preventive (RSU) or Corrective (COR) Service and Place the Service into Production,” on page 165 and Appendix B, “Determining the RSU Level for Ordering Service,” on page 175 have been updated with information on the new STATUS operand on the SERVICE EXEC command.
- Part 4, “Service Procedure,” on page 163 has been updated with information on the new SYSMEMO table.
- TSM/ADSM is no longer pre-installed.
- 3390 Single and Double density DASD are no longer supported for installation.
- 3390 MOD 9 DASD is now supported for installation.
- SCSI FCP disk logical units (SCSI disks) are now supported for installation.
- A new release of TCP/IP, 510, is pre-installed.
- PLX and Restricted Source no longer ship with z/VM. They are available upon request from IBM Resource Link™.
- DFSMS and DFSMS Kanji no longer ship automatically with z/VM, but may be ordered through SDO as free features.
- Changes to the SYSRES pack (510RES):
  - Increase checkpoint area to max (9 cylinders/2000 4K pages)
  - Increase warmstart area to max (9 cylinders/2000 4K pages)
  - Remove tdisk from System Res (510RES)
  - Replace paging on System Res (510RES) with a paging volume (510PAG)

– Replace spooling on System Res (510RES) with a spooling volume (510SPL).

Part 1. z/VM System DDR Installation

Part 1 contains installation procedures for installing z/VM from tape distribution media. If you are installing z/VM from DVD distribution media, use Part 2, “z/VM System Image DVD Installation,” on page 63.

In this part, you will:

- Plan your installation
- Fill in worksheets
- Install the z/VM System DDR.

z/VM System DDR Installation

Chapter 1. Plan Your Installation

In this chapter, you will

- Plan your installation
- Fill in the Installation Worksheet and the TCP/IP configuration worksheet.

Step 1. Understand the Requirements

Before you install z/VM version 5 release 2, you must satisfy the following requirements:

1. z/VM media deliverables
   - Be sure you have both the Installation tape(s) and the latest RSU tape(s).
2. General
   - Be sure that you have the proper processor for your z/VM V5.2 system. 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 24 lines, or an Integrated 3270 Console is required for installation of z/VM.
   - See the *z/VM Program Directory* to get the latest RSU available.
   - See the PSP Bucket, zvm520 upgrade, cp subset, installation information section, for the latest information affecting installation
   - If you are planning to migrate from another z/VM system, review the *z/VM: Migration Guide*.
   - If you plan to deploy Linux™ on z/VM, see *z/VM: Getting Started with Linux on System z9 and zSeries* for important planning information about Linux virtual servers.
3. First-level installation
   - First-Level installation requires at least 256 MB of real storage. Note that the storage required for installation is not necessarily the amount you should have assigned for running production workloads. Refer to *z/VM: CP Planning and Administration* for information on determining production storage requirements.
   - The function to change the installation pack labels cannot be used on a first-level installation
4. Second-level installation
   - You must use the only one userid on your first-level system for the entire installation.
   - The userid you are using on your first-level system to install must have the following:
     – At least 64 MB of virtual storage.
     – Privilege classes B and G
     – To use the function to change the installation pack labels, your installation userid must be able to issue the DEFINE MDISK command. The IBM default privilege class for this command is class A. The DEFINE MDISK command also requires the userid to have DEVMAINT on its OPTION directory statement.

Step 2. Choose Your Installation Method

Choose your installation method based on the following:

If . . .	Then use the . . .
No supported VM system is running in the processor or LPAR on which you are installing z/VM version 5 release 2	**First-Level Installation Method**
You are installing in a virtual machine on a supported VM system. (You must be able to IPL 520 as a second level system.)	**Second-Level Installation Method**

Step 3. Choose the Document to Use for Installation

There are two sets of instructions for using either installation method:

- *z/VM: Summary for Automated Installation and Service (Tape Installation)* contains only the commands needed to install z/VM. It does not contain detailed procedures, descriptions of the parameters, or responses and messages received. Use the Summary only if you are familiar with system operator tasks on VM, and comfortable using the HMC if installing First-Level.

  The one-page installation and service summary is packaged with the *z/VM: Guide for Automated Installation and Service*.
- *z/VM: Guide for Automated Installation and Service* (this guide) contains detailed procedures for installing z/VM.

If you are using the procedure described in *z/VM: Summary for Automated Installation and Service (Tape Installation)*, leave this document and use the one-page document. Otherwise, continue to the next step.

Step 4. Complete the Installation and Basic IP Connectivity Worksheets

1. Record the installation method you selected to use to install z/VM in the Installation Worksheet (Table 1 on page 9). Your choices are First-Level or Second-Level.
2. Determine which products you will load into the VMSYS file pool and which products you will load to minidisks only. Each product on the z/VM System DDR allows VMSYS file pool directories to be used in place of some minidisks. Record your choices in the Installation Worksheet (Table 1 on page 9).
3. Select your system default language and record your choice in the Installation Worksheet (Table 1 on page 9). The choices are:

   - Mixed Case English (AMENG)
   - Uppercase English (UCENG)
   - German (GERMAN)
   - Kanji (KANJI)

4. Select the DASD model you will use to install, either 3390 Mod 3 or 3390 Mod 9, and record the DASD model in the Installation Worksheet (Table 1 on page 9). For performance reasons, if installing to 3390 Mod 9, IBM recommends using emulated 3390 Mod 9s instead of real 3390 Mod 9s.
5. Select the DASD addresses required to install. Record the addresses in the Installation Worksheet (Table 1 on page 9).
   a. If you choose 3390 Mod 9:
      - You need one 3390 Mod 9 DASD (10017 cylinders) for the 520RES volume.
      - You need a separate volume for 520SPL. This DASD can be any model 3390. A 3390 Mod 3 is suggested.
      - You need a separate volume for 520PAG. This DASD can be any model 3390. A 3390 Mod 3 is suggested.

   b. If you choose 3390 Mod 3:
      - You need one 3390 Mod 3 DASD (3339 cylinders) for the 520RES volume.
      - You need a separate volume for 520SPL. This DASD can be any model 3390. A 3390 Mod 3 is suggested.
      - You need a separate volume for 520PAG. This DASD can be any model 3390. A 3390 Mod 3 is suggested.
      - You need one 3390 Mod 3 DASD (3339 cylinders) for the 520W01 volume
      - You need one 3390 Mod 3 DASD (3339 cylinders) for the 520W02 volume.

6. Record the DASD addresses for each DASD in the Installation Worksheet (Table 1 on page 9) under the ***DASD Address*** column. Record your first address in the row with the label ″520RES″ and continue recording addresses corresponding to the labels. If you need fewer than all the DASD labels in the table, disregard the extra labels.
7. If you are changing the installation pack labels, record the new pack labels in the Installation Worksheet (Table 1 on page 9).

   For each default label you wish to change, record the new label in the Installation Worksheet (Table 1 on page 9) under the New Label column. (520RES label cannot be changed.)

   Notes:

   a. Installation pack labels cannot be changed on a first-level installation.
   b. To use the function to change the installation pack labels, your installation userid must be able to issue the DEFINE MDISK command. The IBM default privilege class for this command is class A. The DEFINE MDISK command also requires the userid to have DEVMAINT on its OPTION directory statement.

Complete the Installation and Basic IP Conectivity Worksheets

8. If, after you install z/VM, you want to establish a minimal TCP/IP configuration that establishes basic connectivity to your IP network, fill in the IP worksheets beginning with Table 2 on page 10.
9. Proceed according to the installation method you chose:

If you chose the . . .	Then go to . . .
First-Level Installation Method	Chapter 2, “First-Level Installation Method,” on page 13
Second-Level Installation Method	Chapter 3, “Second-Level Installation Method,” on page 27

Table 1. Installation Worksheet

Installation method (First-Level or Second-Level): _____

Below, in the ***Install to*** column, record an "M" if you will load the product to a minidisk, or an "F" if you will load the product to the VMSYS file pool.

Install to	***Product***	***Install to***	***Product***	***Install to***	***Product***
	VM		RSCS		TCPIP
	OSA		ICKDSF		DIRM
	RACF		PERFTK		VMHCD

System Default Language: _____

DASD Model: _____

Pack Type	***DASD Label***	***New Label***	***DASD Address***
RES	520RES	520RES	
SPOOL	520SPL		
PAGE	520PAG		
USER1	520W01		
USER2	520W02		

Note: After completing the worksheet, be sure to return to the next substep on page 7.

Complete the Installation and Basic IP Conectivity Worksheets

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 following information from your network system administrator and record the information in the TCP/IP Configuration Worksheet (Table 2) and the appropriate interface worksheet. In these worksheets, a number in parentheses following a field description, for example Host name (20), is the maximum length for that field.

Table 2. TCP/IP Configuration Worksheet

VM user ID of the VM TCP/IP stack virtual machine: (Default value is TCPIP. If you change this userid, you must define the userid in your user directory before running the IPWIZARD.)	
Host name (20):	
Domain name (40):	
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):	
Choose the interface you will be using (check one):	__ QDIO __ LCS __ HiperSockets™ __ CLAW __ CTC Refer to the appropriate interface worksheet to record more information. IPv6 is available only for QDIO devices.

Table 3. QDIO Interface Worksheet

Network type (select one):	__ Ethernet __ Token Ring IPv6 is not available for Token Ring adaptors.
Port name (optional) (8):	
Router type (select one):	__ Primary __ Secondary __ None
Maximum Transmission Unit (MTU) size:	

Table 4. LCS Interface Worksheet

Network type (select one):	__ Ethernet __ Token Ring __ FDDI
Port/Adapter number:	
Maximum Transmission Unit (MTU) size:	

Table 5. HiperSockets Interface Worksheet

Maximum Frame Size (MFS): (in kilobytes)	

Table 6. CLAW Interface Worksheet

CLAW host name (8): (This name must match the host-name configured on the CLAW device)	
CLAW adapter name (8): (This name must match the device-name configured on the CLAW device)	
Maximum Transmission Unit (MTU) size:	

Table 7. CTC Interface Worksheet

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 1.
Maximum Transmission Unit (MTU) size:	
Peer IP Address:	

Note: When you have completed the IP Worksheets, return to substep 9 on page 8.

Complete the Installation and Basic IP Conectivity Worksheets

Chapter 2. First-Level Installation Method

In this chapter, you will:

- Use step-by-step procedures to install the z/VM System DDR in a new system environment.

Step 1. Restore the Initial Installation System (IIS)

In this step, you will:

- Mount volume 1 of the z/VM System DDR on a tape drive
- Initialize, format, and relabel the DASD
- Load down the Initial Installation System (IIS) from the z/VM System DDR.

Notes:

1. The IPLable Device Support Facilities (ICKDSF) program in Tape File 1 of the z/VM System DDR may not be at the latest service level. Use this copy of the program only for installation.
2. Make sure that any DASD with the same labels you are using for installation are **not** attached to your system.

1. Before you begin, fill out the Installation Worksheet (Table 1 on page 9) in Chapter 1, “Plan Your Installation.”
2. Refer to the Installation Worksheet (Table 1 on page 9) to ensure all the DASD addresses listed on the worksheet are available for use. Follow the operation manual for your own hardware.

   Attention: Make sure any DASD with the labels 520RES, 520SPL, 520PAG, or 520W0n that you are not using for this installation are **never** attached to your system. Any such DASD may be brought online when you IPL the Initial Installation System in “Step 3. Restore the Initial Installation System (IIS)” on page 32. You can remove these DASD now or use the Device Support Facilities to relabel the DASD. If you choose to relabel the DASD, wait until substep 7 on page 15, in which we explain how to use the Device Support Facilities (ICKDSF) to relabel the DASD.
3. Mount volume 1 of the z/VM System DDR on a tape drive.
4. If you are installing from an Integrated 3270 Console see Appendix I, “Using an Integrated 3270 Console for Installation,” on page 199.
5. IPL the tape drive that contains volume 1, to load the Device Support Facilities (ICKDSF) program. Follow the **hardware IPL** procedure specified for your processor, specifying a LOADPARM of **CNSL***ccuu*, where *ccuu* is the address of your system console (for example, 0020).

   Refer to your processor’s hardware operation manuals for help.

   Notes:

   a. For more information about the Device Support Facilities (ICKDSF), see the *Device Support Facilities User’s Guide and Reference*.
6. Wait 60 seconds or so for the IPL to complete. If you see no messages, press **Enter** on your 3270 console to create an interrupt. If you do not see a response, you pressed **Enter** before the IPL was complete. Reset the keyboard. Wait approximately 60 seconds and press **Enter** again.

   ```
   ENTER

   CLEAR SCREEN WHEN READY
   Reset                                   Press the Reset key to unlock the
                                           keyboard.
   Clear                                   Depending on how your console is
                                           defined, you may not have to clear
                                           your screen.

   ICK005E DEFINE INPUT DEVICE, REPLY      This message tells you that the
            'DDDD,CUU' OR 'CONSOLE'        Device Support Facilities (ICKDSF) is
   ENTER INPUT/COMMAND:                    loaded and ready.
   ```

   console

```
CONSOLE
ICK006E DEFINE OUTPUT DEVICE, REPLY
          'DDDD,CUU' or 'CONSOLE'
ENTER INPUT/COMMAND:
```

console

```
CONSOLE
ICKDSF - SA/XA/ESA DEVICE SUPPORT FACILITIES
  nn.n TIME:hh:mm:ss mm/dd/yy    PAGE 1
ENTER INPUT/COMMAND:
```

7. Use ICKDSF to re-label any DASD volumes that are not being used to install z/VM. If you do not have any DASD labelled 520RES, 520SPL, 520PAG, or 520W0n on your system, skip to substep 8.

   If all the DASD you have labelled 520RES, 520SPL, 520PAG, or 520W0n on your system are going to be used for this installation, skip to substep 8.

   Otherwise, continue with this substep to use the ICKDSF program to relabel the DASD you are **not** going to use for this installation. If there is more than one DASD to relabel, relabel them one at a time.

   cpvolume label unit(*dasdaddr***) novfy volid(***volid***)**

   dasdaddr is the address of the DASD you want to relabel, and *volid* is the new label you will use for that DASD.

```
ICK00700I DEVICE INFORMATION FOR dasdaddr IS
            CURRENTLY AS FOLLOWS:
          PHYSICAL DEVICE = xxxx.
          STORAGE CONTROLLER = xxxx
          STORAGE CONTROL DESCRIPTOR = xx
          DEVICE DESCRIPTOR = xx
   ⋮
ICK003D REPLY U TO ALTER VOLUME dasdaddr CONTENTS,
          ELSE T
ENTER INPUT/COMMAND:
```

u

```
   ⋮
ENTER INPUT/COMMAND:
```

   If you have another DASD to relabel, **repeat** the CPVOLUME LABEL command.

8. If your DASD are already initialized, skip to substep 10 on page 16 to format and label them.

9. For uninitialized DASD, use the INSTALL command to initialize the DASD. If there is more than one uninitialized DASD, initialize one DASD at a time.

   Note: Do not run the INSTALL command for Enterprise Storage Server® (Shark) DASD. Enterprise Storage Server DASD are initialized when setup.

   install unit(*dasdaddr***) novfy**

   dasdaddr is the address of the DASD you want to initialize. *dasdaddr* is recorded in your Installation Worksheet (Table 1 on page 9).

```
ICK00700I DEVICE INFORMATION FOR dasdaddr IS
            CURRENTLY AS FOLLOWS:
          PHYSICAL DEVICE = xxxx.
          STORAGE CONTROLLER = xxxx
          STORAGE CONTROL DESCRIPTOR = xx
          DEVICE DESCRIPTOR = xx
   ⋮
ICK003D REPLY U TO ALTER VOLUME dasdaddr CONTENTS,
          ELSE T
ENTER INPUT/COMMAND:
u
   ⋮
ENTER INPUT/COMMAND:
```

The system takes at least 20 to 40 minutes to inspect and initialize a DASD. You will get a series of ICK messages that describe the status of the device being initialized at the point that the initialization is almost complete.

If you have another DASD to initialize, **repeat** the INSTALL command.

10. If you CP formatted your DASD ahead of time for this install using ICKDSF or CPFMTXA, go to substep 11. Otherwise, format and label the 520RES and each DASD listed on your Installation Worksheet (Table 1 on page 9). Issue the following command for each DASD that you need to format.

    cpvolume format unit(*dasdaddr***) novfy volid(***volid***) mode(esa) nofiller**

    dasdaddr is the address of the DASD you want to format. *dasdaddr* is recorded on your Installation Worksheet.

    volid is the volume identifier (***Label***) listed in your Installation Worksheet.

```
   ⋮
ICK003D REPLY U TO ALTER VOLUME dasdaddr CONTENTS,
          ELSE T
ENTER INPUT/COMMAND:
u
   ⋮
ENTER INPUT/COMMAND:
```

If you have another DASD to format, **repeat** the CPVOLUME FORMAT command.

11. If you have already formatted your DASD and do not need to format them in substep 10, you **must** label them now:

    cpvolume label unit(*dasdaddr***) novfy volid(***volid***)**

    dasdaddr is the address of the DASD you want to relabel, and *volid* is the new label you will use for that DASD.

```
ICK00700I DEVICE INFORMATION FOR dasdaddr IS
            CURRENTLY AS FOLLOWS:
          PHYSICAL DEVICE = xxxx.
          STORAGE CONTROLLER = xxxx
          STORAGE CONTROL DESCRIPTOR = xx
          DEVICE DESCRIPTOR = xx
   ⋮
ICK003D REPLY U TO ALTER VOLUME dasdaddr CONTENTS,
          ELSE T
ENTER INPUT/COMMAND:
```

u

```
   .
   .
   .
ENTER INPUT/COMMAND:
```

Repeat this substep for each DASD volume being used for this installation.

12. IPL the tape drive again to load the DDR program from tape. You do not have to exit the ICKDSF program. Follow the **hardware IPL** procedure specified for your processor.

    During hardware IPL procedures, you may specify a console address in the Load Parameter field. The console address for the DDR is just the console *ccuu*, instead of **CNSL***ccuu* as it was for ICKDSF. If you are using the Integrated 3270 console, see Appendix I, "Using an Integrated 3270 Console for Installation," Step 4.

Load Parameter Specified

If the Load Parameter field is used, the DDR program will appear at the specified console.

Load Parameter Not Specified

If no console address is used, you will need to wait a minute or so for the IPL to complete. You will see no messages. Press **Enter** to create an interrupt. If you do not see a response, you pressed **Enter** before the IPL was complete. Reset the keyboard. Wait approximately 60 seconds and press **Enter** again.

ENTER

```
CLEAR SCREEN WHEN READY
```

Reset
Clear

Press the **Reset** key to unlock the keyboard.

Depending on your console, you may not have to clear your screen.

13. Answer the following prompts from the DDR program to load the Initial Installation System from the z/VM System DDR to the system residence device (520RES) and Spool space to the Spool DASD (520SPL).

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

sysprint cons

```
ENTER:
```

input *tapeaddr* **tape (skip 1 leave**

```
ENTER:
```

tapeaddr is the address of the tape drive where you mounted volume 1.

By typing the word **tape**, the tape device type is automatically identified by the DDR program.

output *dasdaddr* **dasd 520res**

dasdaddr is the address of the system residence device (520RES) recorded on your Installation Worksheet.

DDR checks the DASD label to make sure it is 520RES, the system residence device.

```
ENTER:
```

restore all

```
HCPDDR725D SOURCE DASD DEVICE WAS (IS) LARGER THAN OUTPUT DEVICE
DO YOU WISH TO CONTINUE?  RESPOND YES OR NO:
```

You may or may not receive this message. This is not a problem. Respond **yes** and continue.

yes

```
RESTORING 520RES
DATA DUMPED mm/dd/yy
  AT hh.mm.ss GMT FROM 520RES
  RESTORED TO 520RES
INPUT CYLINDER EXTENTS     OUTPUT CYLINDER EXTENTS
      START       STOP                START        STOP
      00000000    00000158            00000000     00000158
      00000399    00000685            00000399     00000685

 END OF RESTORE
BYTES RESTORED nnnnnnnnnn

ENTER:
```

Informational messages: GMT means Greenwich Mean Time. The exact cylinder extents vary according to the device type.

input *tapeaddr* **tape (rew**

```
ENTER:
```

tapeaddr is the address of the tape drive where you mounted volume 1.

By typing the word **tape**, the tape device type is automatically identified by the DDR program.

output *dasdaddr* **dasd 520SPL**

dasdaddr is the address of the Spool DASD (520SPL) recorded on your Installation Worksheet.

DDR checks the DASD label to make sure it is 520SPL.

```
ENTER:
```

restore all

```
HCPDDR725D SOURCE DASD DEVICE WAS (IS) LARGER THAN OUTPUT DEVICE
DO YOU WISH TO CONTINUE?  RESPOND YES OR NO:
```

You may or may not receive this message. This is not a problem. Respond **yes** and continue.

yes

```
RESTORING 520SPL
DATA DUMPED mm/dd/yy
  AT hh.mm.ss GMT FROM 520SPL
  RESTORED TO 520SPL
INPUT CYLINDER EXTENTS     OUTPUT CYLINDER EXTENTS
      START       STOP                START        STOP
      00000000    00000199            00000000     00000199

 END OF RESTORE
BYTES RESTORED nnnnnnnnnn

ENTER:
```

Informational messages: GMT means Greenwich Mean Time. The exact cylinder extents vary according to the device type.

ENTER

```
END OF JOB
```

Press **Enter** to end the program.

14. IPL the tape drive that contains volume 1, to load the Device Support Facilities (ICKDSF) program. Follow the **hardware IPL** procedure specified for your processor, specifying a LOADPARM of **CNSL***ccuu*, where *ccuu* is the address of your system console (for example, 0020). If you are using the Integrated 3270 console, see Appendix I, "Using an Integrated 3270 Console for Installation," Step 5.

    Refer to your processor's hardware operation manuals for help.

    Notes:

    a. For more information about the Device Support Facilities (ICKDSF), see the *Device Support Facilities User's Guide and Reference*.

15. Wait 60 seconds or so for the IPL to complete. If you see no messages, press **Enter** to create an interrupt. If you do not see a response, you pressed **Enter** before the IPL was complete. Reset the keyboard. Wait approximately 60 seconds and press **Enter** again.

    ENTER

    ```
    CLEAR SCREEN WHEN READY
    ```

    Reset

    Press the **Reset** key to unlock the keyboard.

    Clear

    Depending on how your console is defined, you may not have to clear your screen.

    ```
    ICK005E DEFINE INPUT DEVICE, REPLY
              'DDDD,CUU' OR 'CONSOLE'
    ENTER INPUT/COMMAND:
    ```

    This message tells you that the Device Support Facilities (ICKDSF) is loaded and ready.

    console

    ```
    CONSOLE
    ICK006E DEFINE OUTPUT DEVICE, REPLY
              'DDDD,CUU' or 'CONSOLE'
    ENTER INPUT/COMMAND:
    ```

    console

    ```
    CONSOLE
    ICKDSF - SA/XA/ESA DEVICE SUPPORT FACILITIES
      nn.n TIME:hh:mm:ss mm/dd/yy    PAGE 1
    ENTER INPUT/COMMAND:
    ```

16. Allocate the 520SPL and 520PAG DASD. Issue the following commands.

    cpvolume alloc unit(*dasdaddr***) novfy type (SPOL, 200,** *numcyl***)**

    dasdaddr is the address of the spool DASD (520SPL) recorded on your Installation Worksheet.

    numcyl is the number of cylinders. The values are **3338** for a 3390 Model 3 and **10016** for a 3390 Model 9.

    ```
      ⋮
    ICK003D REPLY U TO ALTER VOLUME dasdaddr CONTENTS,
              ELSE T
    ENTER INPUT/COMMAND:
    ```

    u

    ```
      ⋮
    ENTER INPUT/COMMAND:
    ```

    cpvolume alloc unit(*dasdaddr***) novfy type (PAGE, 1,** *numcyl***)**

dasdaddr is the address of the PAGE DASD (520PAG) recorded on your Installation Worksheet .

numcyl is the number of cylinders. The values are **3338** for a 3390 Model 3 and **10016** for a 3390 Model 9.

17. If you selected to install on a 3390 Model 3, skip this substep.

    If you selected to install on a 3390 Model 9, allocate the 520RES DASD to increase the allocation to the end of the volume.

```
cpvolume alloc unit(dasdaddr) novfy
   ⋮
ICK003D REPLY U TO ALTER VOLUME dasdaddr CONTENTS,
          ELSE T
ENTER INPUT/COMMAND:
u
   ⋮
ENTER INPUT/COMMAND:
```

Step 2. IPL the z/VM IIS

In this step, you will:

- Bring up the z/VM Initial Installation System first-level.

1. Bring up the z/VM version 5 release 2 system from the DASD device you just restored it to; that is, IPL the real address of 520RES noted on your Installation Worksheet. Follow the **hardware IPL** procedure for your processor. You **must** specify the address of your system console (*ccuu*) on the Load Parameter field on the hardware system console. If you are using the Integrated 3270 Console, go to Appendix I, "Using an Integrated 3270 Console for Installation," on page 199, step 6.

   Note: Refer to the proper hardware operation manuals for help.

2. The stand alone program loader panel is displayed on the VM operator console you specified in substep 1.

```
 STAND ALONE PROGRAM LOADER: z/VM VERSION 5 RELEASE 2.0

 DEVICE NUMBER:   dasdaddr   MINIDISK OFFSET:   nnnnnnnn   EXTENT:  1

 MODULE NAME:     CPLOAD     LOAD ORIGIN:       1000

 --------------------------------IPL PARAMETERS--------------------------------
cons=consaddr

 ----------------------------------COMMENTS----------------------------------




 --------------------------------------------------------------------------------


 9= FILELIST  10= LOAD  11= TOGGLE EXTENT/OFFSET
```

Figure 1. Sample Stand Alone Program Loader Panel

3. Move the cursor to the IPL PARAMETERS field and type:

   cons=*consaddr*

   As shown in Figure 1, *consaddr* is the primary system console address. This statement defines the operator console. Spaces are not allowed around the equal sign. If you are using the Integrated 3270 Console, *consaddr*=SYSG.

4. Press **PF10** to load.

   PF10

5. The IPL of your z/VM system continues:

```
hh:mm:ss z/VM V5 R2.0
          SERVICE LEVEL nnnn (64-BIT)

hh:mm:ss SYSTEM NUCLEUS CREATED ON yyyy-mm-dd AT hh:mm:ss,
          LOADED FROM 520RES
hh:mm:ss ****************************************
hh:mm:ss * LICENSED MATERIALS - PROPERTY OF IBM*   *
hh:mm:ss * 5741-A05 (C) COPYRIGHT IBM CORP. 1983,  *
hh:mm:ss * 2004. ALL RIGHTS RESERVED.             *
hh:mm:ss * US GOVERNMENT USERS RESTRICTED RIGHTS - *
hh:mm:ss * USE, DUPLICATION OR DISCLOSURE         *
hh:mm:ss * RESTRICTED BY GSA ADP SCHEDULE CONTRACT *
hh:mm:ss * WITH IBM CORP.                         *
hh:mm:ss *                                        *
hh:mm:ss * * TRADEMARK OF INTERNATIONAL BUSINESS   *
hh:mm:ss *   MACHINES                             *
hh:mm:ss ****************************************
hh:mm:ss HCPZCO6718I Using parm disk 1 on volume 520RES (device xxxx).
hh:mm:ss HCPZCO6718I Parm disk resides on cylinders xxx through xxx.
```

⋮

You may receive an informational message, HCPISU951I, about volumes not mounted. If you are not using those volume labels, ignore this message.

Attention: If you receive informational message HCPIIS954I, you have duplicate volumes with the same label and must correct this error before continuing. Make a note of the duplicate DASD addresses.

- At the start prompt, enter **shutdown**
- Re-label the packs that are not to be used (refer to Step 1. Restore the Initial Installation System (IIS) substeps 3 through 7)
- Re-IPL (refer to Step 2. IPL the z/VM IIS substep 1 on page 21)

```
hh:mm:ss Start ((Warm|Force|COLD|CLEAN) (DRain)
          (DIsable) (NODIRect) (NOAUTOlog)) or (SHUTDOWN)
```

cold drain noautolog

Because there is no data or accounting information to recover, use **cold drain** to request a cold start. Use **noautolog** at this point because you do not need the servers and all user IDs logged on.

6. If it has not been set before, set the TOD (time-of-day) clock using standard operating procedures. Consult *z/VM: System Operation* for those procedures.

```
NOW hh:mm:ss {EST|EDT} weekday yyyy-mm-dd
Change TOD clock (yes|no)
```

{yes|no}

You will see this message only if the TOD clock has been set before.
Answer **yes** to reset the TOD clock, **no** to keep the current setting.

Yes Reply System Response

```
Set date MM/DD/YY
```
Type in the month, day, and year, separated by slash marks.

```
Set time HH:MM:SS
```
Type in the hours, minutes, and seconds, separated by colons.

```
Press "TOD ENABLE SET" key at designated instant
NOW hh:mm:ss {EST|EDT} weekday mm/dd/yy
Change TOD clock (Yes|No)
no
```

If you are using a multiprocessor, you may receive a message here concerning the clocks of the different images of the processor. If you do, see *z/VM: System Operation* for information about resetting the clocks.

7. CP logs on the primary system operator (user ID OPERATOR).

```
hh:mm:ss The directory on volume 520RES at address nnnn
           has been brought online.
hh:mm:ss HCPWRS2513I
hh:mm:ss HCPWRS2513I Spool files available     {nnnn|NONE}
```

Note: Depending on the type of spool files available, you may receive the following prompt:

Spool Files Prompt

```
hh:mm:ss HCPWRS2513I
hh:mm:ss HCPWRS2513I Spool files on offline volumes      {nnnn|NONE}
hh:mm:ss HCPWRS2513I Spool files with I/O errors         {nnnn|NONE}
hh:mm:ss HCPWRS2513I Spool files with control errors     {nnnn|NONE}
hh:mm:ss HCPWRS2513I Spool files to be discarded         {nnnn|NONE}
hh:mm:ss HCPWRS2513I                                      -------
hh:mm:ss HCPWRS2513I Total files to be deleted            nnnn
hh:mm:ss HCPWRS2511A
hh:mm:ss HCPWRS2511A Spool files will be deleted because of
                      COLD start.
hh:mm:ss HCPWRS2511A No files have been deleted yet.


hh:mm:ss HCPWRS2511A To continue COLD start and delete files,
                       enter GO.
hh:mm:ss HCPWRS2511A To stop COLD start without deleting
                       files, enter STOP.
go
```
Here the system gives you an opportunity to stop the cold start and save your spool files. You do not need to save any spool files at this time; answer **go**.

```
hh:mm:ss HCPWRS2512I Spooling initialization is complete.
hh:mm:ss DASD nnnn dump unit CP IPL pages nnnn
hh:mm:ss HCPAAU2700I System gateway ZVMV5R20 identified.
hh:mm:ss z/VM Version 5 Release 1.0, Service Level 0000 (64-bit),
hh:mm:ss built on IBM Virtualization Technology
hh:mm:ss There is no logmsg data
hh:mm:ss FILES:   NO RDR,   NO PRT,   NO PUN
hh:mm:ss LOGON AT hh:mm:ss EDT DAY mm/dd/yy
hh:mm:ss GRAF  nnnn LOGON  AS  OPERATOR USERS = n
hh:mm:ss HCPIOP952I nnnnM system storage
hh:mm:ss FILES: nnnnnnnn RDR, nnnnnnnn PRT,      NO PUN
hh:mm:ss HCPCRC8082I Accounting records are accumulated for userid DISKACNT
```

8. Disconnect from the OPERATOR user ID.

disconnect

```
DISCONNECT AT hh:mm:ss {EST|EDT} weekday mm/dd/yy

Press enter or clear key to continue
```

ENTER

9. Log on to the MAINT user ID.

ENTER

The default password for MAINT is MAINT.

logon maint

```
z/VM Version 5 Release 2.0, Service Level 0000 (64-bit),
built on IBM Virtualization Technology
There is no logmsg data
FILES:   NO RDR,   NO PRT,   NO PUN
LOGON AT hh:mm:ss EDT DAY mm/dd/yy
DMSIND2015W Unable to access the Y-disk. Filemode Y (19E)not accessed
z/VM V5.2.0    yyyy-mm-dd hh:mm
```

ENTER

```
DMSACP113S B(5E5) not attached or invalid device address
DMSACP113S D(51D) not attached or invalid device address
Ready; T=n.nn/n.nn hh:mm:ss
```

Message DMSACP113S is not a problem at this time.

Step 3. Run the INSTPLAN EXEC

In this step, you will:

- Run INSTPLAN.

1. Run INSTPLAN.

   instplan

```
                    *** z/VM INSTALLATION PLANNING ***

Mark the product(s) selected to be installed into the VMSYS filepool with an
"F" and those selected to be installed to minidisks with an "M"

Install To   Product     Install To   Product     Install To   Product
----------   ---------   ----------   ---------   ----------   ---------
    M        VM              M        RSCS            M        TCPIP
    M        OSA             M        ICKDSF          M        DIRM
    M        RACF            M        PERFTK          M        VMHCD

Place a nonblank character in front of the System Default Language you would
like for your system.

    _ AMENG        _ UCENG        _ KANJI        _ GERMAN

Place a nonblank character in front of the DASD model onto which your
z/VM system will be loaded.  Only one model may be selected.

    _ 3390 Mod 3        _ 3390 Mod 9

    PF1 = HELP   PF3/PF12 = QUIT   PF5 = Process   ENTER = Refresh
```

   a. Refer to the Installation Worksheet (Table 1 on page 9) 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 VMSYS file pool.

   b. Place a non-blank character next to the System Default Language you selected for your system (see the Installation Worksheet, Table 1 on page 9).

   c. Place a non-blank character in front of the DASD model that matches the ***DASD Model*** in the Installation Worksheet (Table 1 on page 9).

   d. After completing Steps a, b, and c, press **PF5** to complete the planning step.

   Note: The output you see may be different depending on your planning choices.

```
HCPIPX8475I THE PRODUCTS YOU SELECTED TO LOAD TO MINIDISK ARE:
            VM  RSCS  TCPIP  OSA ICKDSF
              DIRM  RACF PERFTK  VMHCD

            THE PRODUCTS YOU SELECTED TO LOAD TO SFS ARE:
            NONE

            THE SYSTEM DEFAULT LANGUAGE SELECTED:
            AMENG

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

            THE DASD NEEDED TO LOAD z/VM ARE:
            520RES 520SPL 520PAG...
```

```
HCPINP8392I INSTPLAN EXEC ENDED SUCCESSFULLY
Ready; T=n.nn/n.nn hh:mm:ss
```

2. Choose the addresses of your tape drives.

   If you are installing from 3590 tape, you need a tape drive for one volume.

   If you are installing from 3480 or 3490 tape, you need tape drives for 14 volumes.

   Notes:

   a. If you use a unique tape drive for each volume, or use a tape stacker in automatic mode, the tapes will be loaded without interruption. If you must use one tape drive for multiple volumes, you will be prompted by the INSTALL EXEC when a tape volume needs to be changed.

What to Do Next

Go to Chapter 4, “Load the System DDR,” on page 39.

Chapter 3. Second-Level Installation Method

In this chapter, you will:

Use step-by-step procedures to install the z/VM System DDR from a VM system.

Step 1. Load the Installation Tools from the z/VM System DDR

In this step, you will

- Log on to a first-level user ID
- Attach tape drives
- Mount the z/VM System DDR tapes on the tape drives
- Load the installation tools.

1. Before you begin, fill out the Installation Worksheet (Table 1 on page 9) in Chapter 1, “Plan Your Installation.”
2. From your current operating system, log on to the first-level user ID that you will use to install z/VM version 5 release 2. This userid must meet the following requirements:
   - 64 MB virtual storage.
   - Privilege classes B and G
   - To use the function to change the installation pack labels, the userid must also be able to issue the DEFINE MDISK command. The IBM default privilege class for this command is class A. The DEFINE MDISK command also requires the userid to have DEVMAINT on its OPTION directory statement.
   - A 191 minidisk (it must be 191) accessed as A that has at least 3 cylinders or 500 4KB blocks of available space.
   - You must IPL the z/VM IIS (“Step 4. IPL the z/VM IIS” on page 35) on the SAME USERID you use to run INSTPLAN and INSTIIS
3. Access your 191 minidisk as A. It must be 191 and it must be a minidisk, not an SFS directory. The installation tools will be loaded to the A disk. Files are created on this disk that are accessed by installation execs in a later step. Verify there are at least 500 4KB blocks of space available (BLKS LEFT).

   access 191 a

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

   query disk a

   ```
   LABEL   VDEV  M  STAT  CYL  TYPE  BLKSZ  FILES   BLKS USED-(%) BLKS LEFT   BLK  TOTAL
   lbl191  191    A  R/W    nn  3390  4096   nnn    nnnn-nn        nnnnn      nnnn

   Ready;
   ```

4. Choose the addresses of your tape drives.

   If you are installing from 3590 tape, you need a tape drive for one volume.

   If you are installing from 3480 or 3490 tape, you need tape drives for 14 volumes.

   Notes:

   a. If you use a unique tape drive for each volume, or use a tape stacker in automatic mode, the tapes will be loaded without interruption. If you must use one drive for multiple volumes, you will be prompted by the INSTALL EXEC when a tape volume needs to be changed.

   b. To display all available tape drives on your system, enter:

      query tape free

5. Attach the tape drives.

   Enter the following ATTACH command for each tape drive needed. Volume 1 must be mounted on 181.

attach *tapeaddr* ***** **18***x*

```
TAPE tapeaddr ATTACHED TO userID 18x
Ready; T=n.nn/n.nn hh:mm:ss
```

tapeaddr is the address of the tape drive(s) where the z/VM System DDR tapes will be mounted. 18*x* is the virtual address where the tape drives are attached. Start with 181 and continue with 182, 183, and so on. *userID* is the first-level userid you logged on to in substep 2 on page 28.

6. Mount the z/VM System DDR tapes on the tape drives. Volume 1 must be mounted on the tape drive attached as address 181.
7. Load the installation tools from volume 1 of the z/VM System DDR to your (191) A disk.

rew 181

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

vmfplc2 fsf 4

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

vmfplc2 load * * a

```
 Loading ...
   :
   :
 End-of-file or end-of-tape
Ready; T=n.nn/n.nn hh:mm:ss
```

rew 181

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

Step 2. Run the INSTPLAN EXEC

In this step, you will:

- Run INSTPLAN.

1. Run INSTPLAN.

   instplan

```
                    *** z/VM INSTALLATION PLANNING ***

Mark the product(s) selected to be installed into the VMSYS filepool with an
"F" and those selected to be installed to minidisks with an "M"

Install To   Product     Install To   Product     Install To   Product
----------   ---------   ----------   ---------   ----------   ---------
    M        VM              M        RSCS            M        TCPIP
    M        OSA             M        ICKDSF          M        DIRM
    M        RACF            M        PERFTK          M        VMHCD

Place a nonblank character in front of the System Default Language you would
like for your system.

    _ AMENG        _ UCENG        _ KANJI        _ GERMAN

Place a nonblank character in front of the DASD model onto which your
z/VM system will be loaded.  Only one model may be selected.

    _ 3390 Mod 3        _ 3390 Mod 9

    PF1 = HELP   PF3/PF12 = QUIT   PF5 = Process   ENTER = Refresh
```

Figure 2. Installation Planning Panel

a. Refer to the Installation Worksheet (Table 1 on page 9) 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 VMSYS file pool.

b. Place a non-blank character next to the System Default Language you selected for your system (see the Installation Worksheet, Table 1 on page 9).

c. Place a nonblank character in front of the DASD model that matches the ***DASD Model*** in the Installation Worksheet (Table 1 on page 9).

d. After completing Steps a, b, and c, press **PF5** to complete the planning step.

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

```
HCPIPX8475I THE PRODUCTS YOU SELECTED TO LOAD TO MINIDISK ARE:
            VM  RSCS  TCPIP  OSA ICKDSF
              DIRM  RACF PERFTK  VMHCD

            THE PRODUCTS YOU SELECTED TO LOAD TO SFS ARE:
            NONE

            THE SYSTEM DEFAULT LANGUAGE SELECTED:
            AMENG

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

            THE DASD NEEDED TO LOAD z/VM ARE:
            520RES 520SPL 520PAG...
HCPINP8392I INSTPLAN EXEC ENDED SUCCESSFULLY
Ready; T=n.nn/n.nn hh:mm:ss
```

Step 3. Restore the Initial Installation System (IIS)

In this step, you will:

- Format the DASD
- Load down the Initial Installation System (IIS) from the z/VM System DDR.

1. Refer to the Installation Worksheet (Table 1 on page 9). Attach all the DASD listed in the worksheet that are not already attached. Enter the following ATTACH command for each DASD:

   attach *dasdaddr* *****

   ```
   DASD dasdaddr ATTACHED TO userID dasdaddr
      ⋮
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

   dasdaddr is the address of the DASD.
   userID is the first-level user ID logged on to previously.

   Attention: Issue the QUERY DASD ATTACH * command to make sure that any DASD with the same labels that you are using for installation are **not** already attached to this userid. You must detach any other DASD with these labels **now** to prevent bringing them online.

2. Run INSTIIS to format and label your installation DASD and to restore the IIS.

   instiis

```
       *** z/VM INSTALLATION DASD FORMAT/RESTORE ***


PACK    DASD         DASD              VIRTUAL TAPE          DO NOT
TYPE    LABEL       ADDRESS              ADDRESS           FORMAT DASD
=========================================================================
RES     520RES       ____                  ___                __
SPOOL   520SPL       ____
PAGE    520PAG       ____
USER    520W01       ____
USER    520W02       ____




 PF1 = HELP    PF3/PF12 = QUIT    PF5 = Process    ENTER = Refresh
```

Figure 3. Installation DASD Format and Restore Panel (3390 Model Layout)

   a. If you want to change the labels of the SPOOL, PAGE, or USER packs, fill in the DASD LABEL field with the new labels. You cannot change the 520RES label. To use the function to change the installation pack labels, the userid must be able to issue the DEFINE MDISK command. The IBM default privilege class for this command is class A. The DEFINE MDISK command also requires the userid to have DEVMAINT on its OPTION directory statement.

   b. Fill in the DASD addresses using the information from the Installation Worksheet (Table 1 on page 9). For detailed information, press **PF1** for HELP.

   c. Fill in the tape address (181) where volume 1 is mounted.

   d. Place a non-blank character in the **DO NOT FORMAT DASD** column only if you have already formatted your DASD for installation, in which case the DASD will be labeled, but not formatted.

e. Press **PF5** to process.

```
HCPIIX8381I CHECKING TAPE VOLUME NUMBER FOR DRIVE 181

HCPIIX8377R YOU HAVE SELECTED TO FORMAT THE FOLLOWING DASD:

HCPIIX8483R YOU HAVE SELECTED NOT TO FORMAT YOUR DASD.
            THIS ASSUMES YOU HAVE ALREADY FORMATTED THE
            DASD AND THIS EXEC WILL ONLY RELABEL AS
            FOLLOWS
```

Depending on whether you chose to format your DASD, you will receive either message HCPIIX8377R or HCPIIX8483R.

```
520RES dasdaddr
lblspl dasdaddr
lblpag dasdaddr
lblw01 dasdaddr
lblw02 dasdaddr

DO YOU WANT TO CONTINUE ? (Y|N)
```

y

```
HCPIIX8490I NOW FORMATTING|LABELING DASD dasdaddr
HCPIIX8490I NOW FORMATTING|LABELING DASD dasdaddr
HCPIIX8490I NOW FORMATTING|LABELING DASD dasdaddr
⋮
HCPIIX8380I RESTORING IIS TO 520RES and lblspl

RESTORING 520RES
DATA DUMPED   mm/dd/yy AT hh.mm.ss  GMT FROM 520RES RESTORED TO 520RES
INPUT CYLINDER EXTENTS         OUTPUT CYLINDER EXTENTS
   START       STOP               START        STOP
00000000   00000158            00000000    00000158
00000399   00000685            00000399    00000685
END OF RESTORE
 BYTES RESTORED nnnnnnnnnn


HCPDDR717D DATA DUMPED FROM 520SPL
TO BE RESTORED TO spllabel
```

You will receive this message if you changed the label for the 520SPL pack.

```
RESTORING 520SPL
DATA DUMPED   mm/dd/yy AT hh.mm.ss  GMT FROM 520SPL RESTORED TO lblspl
INPUT CYLINDER EXTENTS         OUTPUT CYLINDER EXTENTS
   START       STOP               START        STOP
00000000   00000199            00000000    00000199
END OF RESTORE
 BYTES RESTORED nnnnnnnnnn


END OF JOB
HCPIIX8490I NOW ALLOCATING DASD dasdaddr (RES PACK)
HCPIIX8490I NOW ALLOCATING DASD dasdaddr (SPOOLING)
HCPIIX8490I NOW ALLOCATING DASD dasdaddr (PAGING)
HCPINI8392I INSTIIS EXEC ENDED SUCCESSFULLY
Ready; T=n.nn/n.nn hh:mm:ss
```

3. If you are installing from 3590, skip this substep and go to “Step 4. IPL the z/VM IIS” on page 35.

   If you are installing from 3480 or 3490 tape, continue with this substep. You are finished using volume 1 of the z/VM System DDR. Unload the tape from the drive.

tape run

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

Step 4. IPL the z/VM IIS

In this step, you will:

- Bring up the Initial Installation System

WARNING: You must IPL the z/VM IIS on the same userid you used to run INSTPLAN and INSTIIS.

1. Clear your virtual machine and make sure the z/VM system will recognize your terminal as a 3277, 3278, or 3279.

   system clear

   Reset and clear your virtual machine storage.

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

   terminal conmode 3270

2. Determine the amount of your virtual storage. If it is less than 64MB, define your storage to 64MB.

   query virtual storage

   Run the DEFINE command **only** if you have less than 64M of storage.

   ```
   STORAGE = nnnnM
   ```

   define storage 64m

   ```
   STORAGE =   64M
   Storage cleared - system reset
   ```

3. Set virtual machine mode to XA.

   set machine xa

   Setting the virtual machine to XA architecture causes a reset as if you entered SYSTEM CLEAR. If your machine is already in XA mode, you will not get a response.

   ```
   SYSTEM RESET
   SYSTEM = XA
   ```

4. 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       MDFY       0 FCB       LPP OFF
        consaddr 3270   NOEOF OPEN nnnn NOKEEP NOMSG NONAME
        consaddr SUBCHANNEL = nnnn
   ```

   consaddr is the address of your virtual console.

5. IPL the IIS you loaded to the system residence device (520RES).

   ipl *dasdaddr* **clear loadparm** *consaddr*

   Clear is necessary. Do not omit it.

   dasdaddr is the address of the system residence device (520RES).

   consaddr is the address of your virtual console.

   The stand alone program loader panel displays after issuing the IPL command.

```
 STAND ALONE PROGRAM LOADER: z/VM VERSION 5 RELEASE 2.0

 DEVICE NUMBER:   dasdaddr   MINIDISK OFFSET:   nnnnnnnn   EXTENT:  1

 MODULE NAME:     CPLOAD     LOAD ORIGIN:       1000

 --------------------------------IPL PARAMETERS-------------------------------
cons=consaddr


 ----------------------------------COMMENTS-----------------------------------




 -------------------------------------------------------------------------------


 9= FILELIST  10= LOAD  11= TOGGLE EXTENT/OFFSET
```

Figure 4. Sample Stand Alone Program Loader Panel

6. Move the cursor to the IPL PARAMETERS field and type

   cons=*consaddr*

   As shown in Figure 4, *consaddr* is the primary system console address. This statement defines the operator console. Spaces are not allowed around the equal sign.

7. Press **PF10** to load.

   PF10

8. The IPL of your z/VM system continues:

```
hh:mm:ss z/VM V5 R2.0
     SERVICE LEVEL 0000 (64-BIT)

hh:mm:ss SYSTEM NUCLEUS CREATED ON yyyy-mm-dd AT hh:mm:ss,
          LOADED FROM 520RES
hh:mm:ss ****************************************
hh:mm:ss * LICENSED MATERIALS - PROPERTY OF IBM*   *
hh:mm:ss * 5741-A05 (C) COPYRIGHT IBM CORP. 1983,  *
hh:mm:ss * 2005. ALL RIGHTS RESERVED.             *
hh:mm:ss * US GOVERNMENT USERS RESTRICTED RIGHTS - *
hh:mm:ss * USE, DUPLICATION OR DISCLOSURE         *
hh:mm:ss * RESTRICTED BY GSA ADP SCHEDULE CONTRACT *
hh:mm:ss * WITH IBM CORP.                         *
hh:mm:ss *                                        *
hh:mm:ss * * TRADEMARK OF INTERNATIONAL BUSINESS   *
hh:mm:ss *   MACHINES                             *
hh:mm:ss ****************************************
hh:mm:ss HCPZCO6718I Using parm disk 1 on volume 520RES (device xxxx).
hh:mm:ss HCPZCO6718I Parm disk resides on cylinders xxx through xxx.
```

```
    ⋮
```

You may receive an informational message, HCPISU951I, about volumes not mounted. If you are not using those volume labels, ignore this message.

Attention: If you receive informational message HCPIIS954I, you have duplicate volumes with the same label. You must return to the first-level CP environment (enter SHUTDOWN at the next prompt) and detach the duplicate volumes. Then go back to substep 1 on page 35.

```
hh:mm:ss Start ((Warm|Force|COLD|CLEAN) (DRain)
          (DIsable) (NODIRect) (NOAUTOlog)) or (SHUTDOWN)
```

cold drain noautolog

Because there is no data or accounting information to recover, use **cold drain** to request a cold start. Use **noautolog** at this point because you cannot have the servers and all user IDs logged on.

```
NOW hh:mm:ss {EST|EDT} weekday yyyy-mm-dd
Change TOD clock (yes|no)
```

no

9. CP logs on the primary system operator (user ID OPERATOR).

```
hh:mm:ss The directory on volume 520RES at address nnnn
           has been brought online.
hh:mm:ss HCPWRS2513I
hh:mm:ss HCPWRS2513I Spool files available    nnnn
```

Note: Depending on the type of spool files available, you may receive the following prompt:

Spool Files Prompt

```
hh:mm:ss HCPWRS2513I
hh:mm:ss HCPWRS2513I Spool files on offline volumes      {nnnn|NONE}
hh:mm:ss HCPWRS2513I Spool files with I/O errors         {nnnn|NONE}
hh:mm:ss HCPWRS2513I Spool files with control errors     {nnnn|NONE}
hh:mm:ss HCPWRS2513I Spool files to be discarded         {nnnn|NONE}
hh:mm:ss HCPWRS2513I                                      -------
hh:mm:ss HCPWRS2513I Total files to be deleted            nnnn
hh:mm:ss HCPWRS2511A
hh:mm:ss HCPWRS2511A Spool files will be deleted because of
                      COLD start.
hh:mm:ss HCPWRS2511A No files have been deleted yet.


hh:mm:ss HCPWRS2511A To continue COLD start and delete files,
                       enter GO.
hh:mm:ss HCPWRS2511A To stop COLD start without deleting
                       files, enter STOP.
```

go

Here the system gives you an opportunity to stop the cold start and save your spool files. You do not need to save any spool files at this time; answer **go**.

```
hh:mm:ss HCPWRS2512I Spooling initialization is complete.
hh:mm:ss DASD nnnn dump unit CP IPL pages nnnn
hh:mm:ss HCPAAU2700I System gateway ZVMV5R20 identified.
hh:mm:ss z/VM Version 5 Release 2.0, Service Level 0000 (64-bit),
hh:mm:ss built on IBM Virtualization Technology
hh:mm:ss There is no logmsg data
hh:mm:ss FILES:   NO RDR,   NO PRT,   NO PUN
hh:mm:ss LOGON AT hh:mm:ss EDT DAY mm/dd/yy
hh:mm:ss GRAF  nnnn LOGON  AS  OPERATOR USERS = n
hh:mm:ss HCPIOP952I nnnnM system storage
hh:mm:ss FILES: nnnnnnnn RDR, nnnnnnnn PRT,      NO PUN
hh:mm:ss HCPCRC8082I Accounting records are accumulating for userid DISKACNT
```

10. Disconnect from the OPERATOR user ID.

disconnect

```
DISCONNECT AT hh:mm:ss {EST|EDT} weekday mm/dd/yy

Press enter or clear key to continue
```

ENTER

11. Log on to the MAINT user ID.

ENTER The default password for MAINT is MAINT.

logon maint

```
z/VM Version 5 Release 2.0, Service Level 0000 (64-bit),
built on IBM Virtualization Technology
There is no logmsg data
FILES: nnnn RDR,   NO PRT,   NO PUN
LOGON AT hh:mm:ss EDT DAY yyyy-mm-dd
DMSIND2015W Unable to access the Y-disk, file mode Y(19E) not accessed
z/VM V5.2.0    yyyy-mm-dd hh:mm
```

ENTER

```
DMSACP113S B(5E5) not attached or invalid device address
DMSACP113S D(51D) not attached or invalid device address
```

Message DMSACP113S is not a problem at this time.

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

What to Do Next

Go to Chapter 4, “Load the System DDR,” on page 39.

Chapter 4. Load the System DDR

In this chapter, you will:

- Use INSTVM to load your new system
- Use SERVICE and PUT2PROD to install RSU service
- Configure TCP/IP (optional)
- Load new CPLOAD module
- Back up system to tape.

Step 1. Run INSTVM EXEC

In this step, you will:

- Run INSTVM to build the directory for your system and load the items from the z/VM System DDR.

Note: Running the INSTVM EXEC requires a full screen terminal with at least 24 lines.

1. If the tape drives are not already attached, attach the drives where the z/VM System DDR tapes are mounted. Repeat this substep for each tape drive needed.

   attach *tapeaddr* ***** *vtapeaddr*

   ```
   TAPE tapeaddr ATTACHED TO MAINT vtapeaddr
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

   tapeaddr

   - First level install: the real address of the tape drive.
   - Second level install: the 18*x* virtual address where the tape drive was attached to your first level userid.

   vtapeaddr is the virtual address where the tape drive will be attached. *vtapeaddr* must be attached at virtual addresses within the following ranges: 180 to 187 or 288 to 28F.

2. If the tapes are not already mounted, mount the z/VM System DDR tapes on the drives. If you are using 3480 or 3490 tapes, do not mount volume 1.
3. Run INSTVM to install the z/VM System DDRs.

   If installing from 3590 tape, enter:

   instvm 3590

   Otherwise, enter:

   instvm

   The exec responds with the following:

   ```
   DASD 0199 DETACHED
   The minidisks with the END option specified in this directory will not be includ
   ed in the following DISKMAP file.

   File USER DISKMAP A has been created.
   CPRELEASE request for disk A scheduled.
   HCPZAC6730I CPRELEASE request for disk A completed.
   HCPIND8392I INSTDIR EXEC ENDED SUCCESSFULLY
   HCPZAC6730I CPRELEASE request for disk B completed.
   z/VM USER DIRECTORY CREATION PROGRAM - VERSION 5 RELEASE 2.0
   EOJ DIRECTORY UPDATED AND ON LINE
   HCPDIR494I User directory occupies nn disk pages.
   HCPZAC6732I CPACCESS request for MAINT's 0CF1 in mode A completed.
   HCPZAC6732I CPACCESS request for MAINT's 0CF2 in mode B completed.
   HCPDOL8391I DIRONLIN EXEC ENDED SUCCESSFULLY
   ```

   The LOAD DEVICE MENU panel displays after issuing the INSTVM command.

```
                    LOAD DEVICE MENU

                  MEDIA SELECTED IS: media

                 MOUNT VOLUME          VADDR
                      2                ____________
                      3                ____________
                      4                ____________
                      5                ____________
                      6                ____________
                      7                ____________
                      8                ____________
                      9                ____________
                     10                ____________
                     11                ____________
                     12                ____________
                     13                ____________
                     14                ____________
          PF1 = HELP        PF3 = QUIT       PF5 = LOAD
```

4. Complete the LOAD DEVICE MENU panel.

   a. Check the **MEDIA SELECTED IS:** field. This is a required field that will contain either TAPE or 3590 depending on the parameter used to call the INSTVM exec. If the *media* specified is not correct, press **PF3** to quit and run the INSTVM exec with the correct parameter.

   b. This panel shows you which volumes you need based on the media from which you are loading. Type in the drive addresses where each volume of the z/VM System DDR is mounted.

      Each volume must have an associated drive. If you use one drive or tape stacker for multiple volumes, you must enter that drive address next to each volume for which it will be used.

      Note: If you use a unique drive for each volume, or use a tape stacker in automatic mode, the volumes will be loaded without interruption. If you must use one drive for multiple volumes, you will be prompted when a tape needs to be changed.

5. Press **PF5** to load.

   PF5

   The load starts with the following system messages:

```
HCPWIN8388I  CHECKING STATUS OF DRIVES
HCPWIN8381I  CHECKING TAPE VOLUME NUMBER FOR DRIVE vaddr
```

   You will receive this message for each tape drive you are using. The screen will clear after these messages are displayed.

```
HCPWIN8428I  TOTAL PERCENT LOADED -> nn%
```

   volid is the volume identifier.

```
HCPWIN8380I  RESTORING MINIDISK nnn TO volid
HCPDDR725D SOURCE DASD DEVICE WAS (IS) LARGER THAN OUTPUT DEVICE
RESTORING volid
DATA DUMPED   mm/dd/yy AT hh.mm.ss  GMT FROM volid RESTORED TO SCRATCH
INPUT CYLINDER EXTENTS      OUTPUT CYLINDER EXTENTS
      START       STOP         START        STOP
   nnnnnnnn   nnnnnnnn      nnnnnnnn    nnnnnnnn

END OF RESTORE
 BYTES RESTORED nnnnnnnn
END OF JOB
```

Tape prompt

```
.
.
.
    HCPWIN8433I  INSTALL PROCESSING CONTINUES
```

You receive this message when the next tape is being loaded.

```
    HCPWIN8372R  PLEASE MOUNT VOLUME n ON TAPE DRIVE
                 vaddr THEN PRESS ENTER TO CONTINUE
```

If you receive this message:

- Mount the required tape volume.
- Press enter.

Installation processing continues.

```
    HCPWIN8381I  CHECKING TAPE VOLUME NUMBER FOR DRIVE
                 vaddr
```

```
    HCPPLD8392I POSTLOAD EXEC ENDED SUCCESSFULLY

DMSACC724I 2CC replaces C (2CC)
AUTO LOGON  ***       VMSERVU  USERS = n
HCPCLS6056I XAUTOLOG information for VMSERVU: The IPL command is verified by the IPL
  command processor.
VMSERVU : z/VM V5.2.0    yyyy-mm-dd hh:mm
VMSERVU : DMSACP723I B (193) R/O
VMSERVU : DMSWFV1117I FILESERV processing begun at hh:mm:ss on dd month yyyy
VMSERVU : DMSWFV1121I VMSERVU DMSPARMS A1 will be used for FILESERV processing
VMSERVU : DMSWFV1121I VMSYSU POOLDEF A1 will be used for FILESERV processing
VMSERVU : DMS5BB3045I Ready for operator communications

AUTO LOGON  ***       VMSERVR  USERS = n
HCPCLS6056I XAUTOLOG information for VMSERVR: The IPL command is verified by the IPL
  command processor.
VMSERVR : z/VM V5.2.0    yyyy-mm-dd hh:mm
VMSERVR : DMSACP723I B (193) R/O
VMSERVR : DMSWFV1117I FILESERV processing begun at hh:mm:ss on dd month yyyy
VMSERVR : DMSWFV1121I VMSERVR DMSPARMS A1 will be used for FILESERV processing
VMSERVR : DMSWFV1121I VMSYSR POOLDEF A1 will be used for FILESERV processing
VMSERVR : DMS6LG3335I CRR log recovery begins at mm-dd-yy hh:mm:ss
VMSERVR : DMS6LG3335I CRR log recovery completes at mm-dd-yy hh:mm:ss
VMSERVR : DMS5BB3045I Ready for operator communications
```

Extra messages received if all products were loaded to minidisks

```
DASD 0804 DETACHED
AUTO LOGON  ***       VMSERVS  USERS = n
HCPCLS6056I XAUTOLOG information for VMSERVS: The IPL command is verified
  by the IPL command processor.
VMSERVS : z/VM V5.2.0    yyyy-mm-dd hh:mm
VMSERVS : DMSACP723I B (193) R/O
VMSERVS : DMSWFV1117I FILESERV
   processing begun at hh:mm:ss on dd month yyyy
VMSERVS : DMSWFV1121I VMSERVS DMSPARMS A1 will be used for FILESERV
 processing
VMSERVS : DMS4PD3400I Initializing begins for DDNAME = CONTROL
VMSERVS : DMS4PD3400I Initializing ends for DDNAME = CONTROL
VMSERVS : DMS4PD3400I Initializing begins for DDNAME = MDK00001
VMSERVS : DMS4PD3400I Initializing ends for DDNAME = MDK00001
VMSERVS : DMS4PD3400I Initializing begins for DDNAME = MDK00002
VMSERVS : DMS4PD3400I Initializing ends for DDNAME = MDK00002
VMSERVS : DMS4PD3400I Initializing begins for DDNAME = LOG1
VMSERVs : DMS4PD3400I Initializing ends for DDNAME = LOG1
VMSERVS : DMS4PD3400I Initializing begins for DDNAME = LOG2
VMSERVs : DMS4PD3400I Initializing ends for DDNAME = LOG2
VMSERVS : DMS5FD3032I File pool server has terminated
VMSERVS : DMSWFV1120I File VMSYS POOLDEF A1 created or replaced
VMSERVS : DMSWFV1117I FILESERV processing ended at hh:mm:ss on dd month yyyy
RDR FILE nnnn SENT FROM VMSERVS  PUN WAS 0001 RECS 0004 CPY  001 A NOHOLD
   NOKEEP
VMSERVS : File FILESERV VALID A3 sent to MAINT at ZVMV5R20 on
    mm/dd/yy hh:mm:ss
VMSERVS : Ready; T=n.nn/n.nn hh:mm:ss



HCPQCS150A User VMSERVS has issued a VM read
USER DSC   LOGOFF AS  VMSERVS  USERS = n     FORCED BY MAINT
DASD 0804 DETACHED
```

```
AUTO LOGON  ***       VMSERVS  USERS = n
HCPCLS6056I XAUTOLOG information for VMSERVS: The IPL command is verified by
  the IPL command processor.
VMSERVS : z/VM V5.2.0    yyyy-mm-dd hh:mm
VMSERVS : DMSACP723I B (193) R/O
VMSERVS : DMSWFV1117I FILESERV processing begun at hh:mm:ss on dd month yyyy
VMSERVS : DMSWFV1121I VMSERVS DMSPARMS A1 will be used for FILESERV processing
VMSERVS : DMSWFV1121I VMSYS POOLDEF A1 will be used for FILESERV processing
VMSERVS : DMS5BB3045I Ready for operator communications
RC=0 from EXEC OPENVM UNMOUNT /            You may not get this message

HCPIFP8392I INSTPOOL EXEC ENDED SUCCESSFULLY
HCPIVM8392I INSTVM EXEC ENDED SUCCESSFULLY
Ready; T=n.nn/n.nn hh:mm:ss
```

Step 2. Run SERVICE EXEC

In this step, you will:

- Run SERVICE to install the Recommended Service Upgrade (RSU).

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

   ENTER — The default password for MAINT is MAINT.

   logon maint
   ⋮
   Ready; T=*n.nn/n.nn hh:mm:ss*

2. If the RSU or COR media is tape, continue with this substep. Otherwise, skip to substep 3.
   a. Attach the tape drive used for the RSU or COR tape to MAINT as 181.

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

   b. Mount volume 1 on your 181 tape drive. If you are using an automated tape library (ATL), you must use a separate tape drive for each volume.

      If the RSU or COR has multiple volumes, either:
      - Stack the RSU or COR volumes on 181, **or**
      - Attach other tape drives and mount each volume.

   c. IPL CMS.

      ipl cms
      z/VM V5.2.0 *yyyy-mm-dd hh:mm*
      ENTER
      Ready; T=*n.nn/n.nn hh:mm:ss*

   d. If the volumes are mounted on 181, run SERVICE with no parameters.

      service
      VMFSRV2760I SERVICE processing started
      ⋮
      VMFSRV2760I SERVICE processing completed
      successfully
      Ready; T=*n.nn/n.nn hh:mm:ss*

   e. If the volumes are mounted on multiple tape drives, run SERVICE with the following parameters:

      service all *tapeaddr1 tapeaddr2 ...* — List the addresses of each tape volume. *tapeaddr1* is the tape address for tape volume 1, *tapeaddr2* is the tape address for tape volume 2, and so forth.

      VMFSRV2760I SERVICE processing started
      ⋮
      VMFSRV2760I SERVICE processing completed
      successfully
      Ready; T=*n.nn/n.nn hh:mm:ss*

   Go to substep 4 on page 45.

3. If the RSU or COR service is electronic or CD-ROM, continue with this substep.
   a. Retrieve the entire RSU or COR service.

Since as yet there is no TCPIP connection, load the servlink to a disk on your first-level userid and attach the disk maint on your second-level system. You can then either use the disk attached or copy the servlink to a minidisk on your second-level MAINT (MAINT's 500 minidisk can be used.)

- If your media is electronic, follow the instructions that were sent to you electronically.
- If your media is CD-ROM, follow the instructions in the README file on the CD-ROM.

Rule: You must preserve the file attribute of FIXED BINARY 1024 through all intermediary transports.

b. Access the minidisk containing the servlink and decompress the VMSES/E envelope file.

```
access diskaddr c
Ready;
```

deterse *envfn envft envfm* **= servlink =**

You need to enter the DETERSE command for every envelope file you receive with your order.

c. IPL CMS.

```
ipl cms
z/VM V5.2.0    yyyy-mm-dd hh:mm
 ENTER
Ready; T=n.nn/n.nn hh:mm:ss
```

d. Access the minidisk containing the servlink.

```
access diskaddr c
Ready;
```

e. Run SERVICE.

service all *envfn1 envfn2 ...*

```
VMFSRV2760I SERVICE processing started
:
VMFSRV2760I SERVICE processing completed
successfully
Ready; T=n.nn/n.nn hh:mm:ss
```

List the file names of each PTF or RSU envelope. *envfn1* is the file name for the first envelope, *envfn2* is the file name for the second envelope, and so forth. You can specify more than one envelope file only if the RSU or COR is multi-volume.

Go to substep 4.

4. View the SERVICE messages log (VMFVIEW SERVICE) and handle any non-zero return code, if necessary. Base your action on the following table:

	If you received . . .	Then . . .
	Return code 4	1. Issue **VMFVIEW SERVICE**. You can ignore any warning messages in the **Note** below in this table. Take appropriate action based on other warning messages you receive. 2. Go to "Step 3. Run PUT2PROD EXEC" on page 47.

If you received . . .	Then . . .
A return code greater than 4	1. Issue **VMFVIEW SERVICE** and check for warning and error messages. 2. You can ignore any warning messages in the **Note** below in this table. Take appropriate action based on other warning messages you receive. 3. Correct all errors reported in the error messages. 4. Restart by issuing the SERVICE command as displayed in the message VMFSRV2310W. 5. If you get a non-zero return code, repeat substep 4. 6. Go to “Step 3. Run PUT2PROD EXEC” on page 47.

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

- `DMSLIO201W The following names are undefined: ISPLINK ARIPRDI`
- `DMSLIO201W The following names are undefined: DMSDSCSC`
- `DMSLIO201W The following names are undefined:  DMSUSRX1 DMSUSRX2`
- `DMSLIO202W Duplicate identifier` messages associated with object IOACMAIN MODULE.
- `DMSLKD004W Warning messages issued` messages associated with objects ILBONBL, ILBONTR, ILBOREC, ILBORNT, ILBOSND, ILBOSNT, and ILBOSSN.
- `VMFSRV1221W The Stand Alone Dump Utility must be rebuilt.` (This message may be ignored at this time.)

5. Use the VMFUPDAT SYSMEMO command to review any memos that were received with this service.

Step 3. Run PUT2PROD EXEC

In this step, you will:

- Run PUT2PROD to place the product into production.

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

   ENTER **logon maint** — The default password for MAINT is MAINT.

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

2. IPL CMS.

   ipl cms

   ```
   z/VM V5.2.0    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 non-zero return code. Base your action on the following table:

If you received . . .	Then . . .
Return code 4	• Issue **VMFVIEW PUT2PROD**. You can ignore any warning messages in the **Note** below in this table. Take appropriate action based on other warning messages you receive.
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 **Note** below in this table. 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 get a non-zero 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.`
- `TCPMSM0002W File TCPIP DATA cannot be located`
- `TCPMSM0002W TCP/IP appears not to have been configured`

Step 4. Shutdown and Re-IPL Your System

In this step, you will:

- Shutdown your z/VM version 5 release 2 system
- Re-IPL your z/VM version 5 release 2 system using the new CP nucleus.

1. Shutdown and re-IPL the z/VM version 5 release 2 system.

```
shutdown reipl
SYSTEM SHUTDOWN STARTED                    This message is displayed on all enabled consoles.
Ready; T=n.nn/n.nn hh:mm:ss
```

First-Level Only

The real system console shows disabled PSW wait state.

```
HCPWRP963I STARTING SHUTDOWN STEP . . .    This will appear on the operator's console.
.
.
.
HCPWRP962I VM SHUTDOWN COMPLETED IN nn SEC
HCPWRP9277I SYSTEM TERMINATION COMPLETE,
            ATTEMPTING RESTART
```

2. The IPL of your z/VM system continues:

```
hh:mm:ss HCPWRP9277I SYSTEM TERMINATION COMPLETE.
          ATTEMPTING RESTART
hh:mm:ss z/VM SYSTEM RESTART FROM SHUTDOWN REIPL
hh:mm:ss z/VM V5 R2.0
          SERVICE LEVEL nnnn (64-BIT)

hh:mm:ss SYSTEM NUCLEUS CREATED ON yyyy-mm-dd AT hh:mm:ss,
          LOADED FROM 520RES
hh:mm:ss ******************************************
hh:mm:ss * LICENSED MATERIALS - PROPERTY OF IBM*   *
hh:mm:ss * 5741-A05 (C) COPYRIGHT IBM CORP. 1983,  *
hh:mm:ss * 2005. ALL RIGHTS RESERVED.              *
hh:mm:ss * US GOVERNMENT USERS RESTRICTED RIGHTS - *
hh:mm:ss * USE, DUPLICATION OR DISCLOSURE          *
hh:mm:ss * RESTRICTED BY GSA ADP SCHEDULE CONTRACT *
hh:mm:ss * WITH IBM CORP.                          *
hh:mm:ss *                                         *
hh:mm:ss * * TRADEMARK OF INTERNATIONAL BUSINESS   *
hh:mm:ss *   MACHINES                              *
hh:mm:ss ******************************************
hh:mm:ss HCPZCO6718I Using parm disk 1 on volume volid (device xxxx).
hh:mm:ss HCPZCO6718I Parm disk resides on cylinders xx through xx.
   ⋮                                       Attention: If you receive informational message
                                           HCPIIS954I, you have duplicate DASD with the same
                                           label and must correct this error before continuing.
hh:mm:ss The directory on volume 520RES at address nnnn
          has been brought online.
hh:mm:ss HCPWRS2513I
hh:mm:ss HCPWRS2513I Spool files available     {nnnn|none}
```

```
hh:mm:ss HCPWRS2512I Spooling initialization is complete.
   ⋮

hh:mm:ss FILES:     nnn RDR,     nnn PRT,     nnn PUN
hh:mm:ss LOGON AT hh:mm:ss {EST|EDT} weekday mm/dd/yy
   ⋮

hh:mm:ss HCPIOP952I nnnnM system storage
hh:mm:ss FILES: nnnnnnn RDR, nnnnnnn PRT,      NO PUN
```

This message tells you the amount of storage available.

The FILES message here refers to operator spool files.

CP automatically disconnects from the primary system operator (user ID OPERATOR).

```
hh:mm:ss HCPUSO967I Disconnect OPERATOR - system
          restarted SHUTDOWN and system console
          not VM operator console
hh:mm:ss HCPCRC8082I Accounting records are accumulating for userid DISKACNT
hh:mm:ss DISCONNECT AT hh:mm:ss {EST|EDT} weekday mm/dd/yy
hh:mm:ss Press enter or clear key to continue
 ENTER
```

Press enter or clear key to continue.

3. Log on to the MAINT user ID.

logon maint

The password for MAINT is MAINT.

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

What to do next

If you want to configure a basic IP network connection at this time, go on to “Step 5. Configure TCP/IP for an Initial Network Connection” on page 50. Otherwise, go to “Step 6. Back Up the Named Saved Systems and Segments” on page 54.

Step 5. Configure TCP/IP for an Initial Network Connection

You can optionally configure TCP/IP after you have completed your z/VM installation. 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.

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 6. Back Up the Named Saved Systems and Segments" on page 54.

For details about any DTCIPW messages you may receive while running IPWIZARD, refer to *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 System z9 and zSeries* to set up your Linux images, skip this step and go to "Step 6. Back Up the Named Saved Systems and Segments" on page 54.

If you came to this step from *z/VM: Getting Started with Linux on System z9 and zSeries*, continue with this step and then return to *z/VM: Getting Started with Linux on System z9 and zSeries*.

In this step, you will:

- Configure TCP/IP.

1. Gather the information from the TCP/IP Configuration Worksheet (Table 2 on page 10).
2. Access minidisk 193.

   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
   ```

4. Using the information you gathered in the TCP/IP Configuration Worksheet (Table 2 on page 10), fill in the panel and press **PF8** to continue.

5. Depending on whether you selected IPv4 or IPv6 addresses, fill in one of the following panels and press **PF8** to continue.

   Note: IPv6 is supported only for QDIO ethernet interfaces.

   For **IPv4** interfaces:

```
       *** General Interface Configuration Panel ***

  Interface name: _________________      Device Number: ____

  IP Address:     _______________
  Subnet mask:    _______________

  Interface Type (select one):

       __QDIO          __LCS        __HiperSockets
       __CLAW          __CTC
⋮
  PF1 = HELP PF3 = QUIT PF7 = Backward PF8 = Continue ENTER = Refresh
```

   For **IPv6** interfaces:

```
       *** General Interface Configuration Panel ***

  Note: IPv6 is only supported for QDIO Ethernet devices

  Interface name: _________________      Device Number: ____

  IP Address:  ________________________
  Prefix Length: ___
⋮
  PF1 = HELP PF3 = QUIT PF7 = Backward PF8 = Continue ENTER = Refresh
```

6. Depending on which interface type you selected, fill in one of the following panels, then press **PF5** to process.

   For the **QDIO** interface with **IPv6**:

```
            *** QDIO Interface Configuration Panel ***

  Port name (optional): ________

  Router type (Select one):
   __Primary  __Secondary __None

  Maximum Transmission Unit (MTU) size: ______

  Send Router Advertisements (Select One): __On  __Off
⋮
  PF1 = HELP PF3 = QUIT PF5 = Process PF7 = Backward ENTER = Refresh
```

   For the **QDIO** interface with **IPv4**:

```
            *** QDIO Interface Configuration Panel ***

  Network type (Select one):
  __Ethernet __Token Ring

  Port name (optional): ________

  Router type (Select one):
   __Primary  __Secondary __None

  Maximum Transmission Unit (MTU) size: ______
⋮
  PF1 = HELP PF3 = QUIT PF5 = Process PF7 = Backward ENTER = Refresh
```

For the **LCS** interface:

```
            *** LCS Interface Configuration Panel ***

  Network type (Select one):
  __Ethernet  __Token Ring __FDDI

  Port/Adapter number:  ___

  Maximum Transmission Unit (MTU) size: ______
⋮
  PF1 = HELP PF3 = QUIT PF5 = Process PF7 = Backward ENTER = Refresh
```

For the **HiperSockets** interface:

```
       *** HiperSockets Interface Configuration Panel ***

  Maximum Frame Size (MFS): __ K
⋮
  PF1 = HELP PF3 = QUIT PF5 = Process PF7 = Backward ENTER = Refresh
```

For the **CLAW** interface:

```
          *** CLAW Interface Configuration Panel ***

  The items that follow must match values configured on the  CLAW device.

  CLAW host name:    ________
  CLAW adapter name: ________

  Maximum Transmission Unit (MTU) size: ______
⋮
  PF1 = HELP PF3 = QUIT PF5 = Process PF7 = Backward ENTER = Refresh
```

For the **CTC** interface:

The write channel device numbers from which you can choose, *devnum1* and *devnum2*, automatically display in the CTC Interface Configuration Panel. *devnum1* is the device number specified on the General Interface Configuration panel. *devnum2* is the device number specified on the General Interface Configuration panel plus 1.

```
          *** CTC Interface Configuration Panel ***

  Write Channel Device Number (Select one):
  _ 03E0 _ 03E1

  Maximum Transmission Unit (MTU) size: ______

  Peer IP Address: _____________
⋮
  PF1 = HELP PF3 = QUIT PF5 = Process PF7 = Backward ENTER = Refresh
```

7. The IPWIZARD displays the following and, if the TCPIP userid is logged on, asks if you want to restart TCPIP and continue processing.

```
  DTCIPW2508I DTCIPWIZ EXEC is attempting to create the necessary
  DTCIPW2508I configuration files
  The TCP/IP stack (TCPIP) must be restarted as part of this procedure. Would
  you like to restart TCPIP and continue?
  Enter 0 (No), 1 (Yes)
```

If you continue, IPWIZARD tests the information you provided and returns any error that occurred. If no errors were encountered, TCP/IP configuration files containing the network information you provided is created. See *z/VM: TCP/IP Planning and Customization* for additional information on configuring TCP/IP.

Step 6. Back Up the Named Saved Systems and Segments

In this step, you will:

- Back up all the named saved systems and segments, including CMS, on tape.

1. Follow the First-Level or Second-Level steps that follow to attach a tape drive.

   First-Level Only

   a. Attach a tape drive to MAINT.

   Second-Level Only

   a. Attach the tape drive to the first-level system.

   b. Attach the tape drive to MAINT on a second-level system.

2. Mount a scratch tape in write mode.

3. Spool the console.

   spool console * start

4. Enter the SPXTAPE command to dump the named saved systems and segments to tape.

   spxtape dump *devno* **sdf all run**

   ```
   SPXTAPE DUMP   INITIATED ON VDEV devno
   ```

   Substitute the address of the tape drive for the value *devno*. *devno* is the address you used to define the device. The operand RUN specifies that the SPXTAPE rewinds and unloads the tape after the operation.

   ```
   Ready; T=n.nn/n.nn hh:mm:ss
   DUMPING  devno  :         nnn  FILES,  PAGES      nnnn   nn% COMPLETE
     ⋮
   DUMPING  devno  :         nnn  FILES,  PAGES      nnnn   nn% COMPLETE
   RDR FILE fileno1 SENT FROM MAINT    CON WAS fileno1 RECS nnnn CPY  001 T NOHOLD NOKEEP
   SPXTAPE DUMP COMMAND COMPLETED  ON VDEV devno
   TIME STARTED:        hh:mm:ss
   TIME ENDED:          hh:mm:ss
   TAPE COUNT:               nnn
   FILES PROCESSED:          nnn
   SPOOL PAGES:             nnnn

   RDR FILE fileno2 SENT FROM MAINT    CON WAS fileno2 RECS nnnn CPY  001 T NOHOLD NOKEEP
   ```

   The messages from SPXTAPE tell you that the files are being dumped to tape.

   fileno1 is the 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 is the file number of the command summary log file. The command summary log file records the progress and status of the SPXTAPE DUMP operation.

5. 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, see the *z/VM: CP Commands and Utilities Reference*. For information on how to restore this tape to your system, see Appendix G, “Restore Your Named Saved Systems and Segments from Tape,” on page 193.

Step 7. Store a Backup Copy of the z/VM System on Tape

In this step, you will:

- Load the DDRXA utility to tape
- Use DDRXA to store a backup copy of the z/VM system on tape.

Attention: You must back up **all** your installation volumes in order to back up the z/VM system. You may wish to check your Installation Worksheet. This example requires a full pack minidisk be defined in the CP directory, USER DIRECT, for each volume you are dumping to tape.

1. Mount a scratch tape in write mode.
2. Attach the tape drive to MAINT at virtual device address 181.

   attach *devno* *** 181**

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

   The ATTACH command attaches the device (*devno*) to MAINT's virtual machine at virtual device address 181.

3. Access the 193 minidisk in read/write mode.

   access 193 z

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

4. Load the DDRXA utility to tape.

   utility utiltape ddrxa

   ```
   Rewind complete
   HCPWUT8317I MOVING IPL DDRXA TO TAPE
   HCPWUT8318I THE IPL DDRXA PROGRAM IS
               ON TAPE FILE NUMBER 1
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

5. Rewind the scratch tape on virtual device number 181.

   rewind 181

   ```
   Rewind complete
   ```

6. 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

   Clear is necessary. Do not omit it.

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

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

   sysprint cons

   This first control statement tells DDRXA that you want program messages sent to your console.

   ```
   ENTER:
   ```

input *devno* **dasd** *volid*

```
ENTER:
```

The second control statement is the input control statement.

devno is the full pack minidisk address of the volume you are backing up. You must back up **all** your installation volumes.

The fullpack minidisk addresses for the default DASD are 122 (SPL), 123 (520RES), 124 (520W01), 125 (520W02), ...

By typing the word **dasd**, the device type (3390) is automatically identified by the DDRXA program.

volid is the label of this volume, for example 520RES.

output 181 tape (compact

```
ENTER:
```

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 to 181 and an alternate tape attached to 182, the OUTPUT control statement would be:

```
output 181 tape 182 (compact
```

By typing the word **tape**, the tape device type is automatically identified by the DDRXA program.

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
```

dump all

This control statement dumps the specified volume to the tape.

```
DUMPING volid
DUMPING DATA mm/dd/yy
  AT hh.mm.ss GMT FROM volid
```

These are informational messages that will vary according to your use of device types. GMT means Greenwich Mean Time.

The exact cylinder extents vary according to the device type.

```
INPUT CYLINDER EXTENTS           OUTPUT CYLINDER EXTENTS
      START       STOP                 START        STOP
   nnnnnnnn   nnnnnnnn             nnnnnnnn    nnnnnnnn

   :
   :
END OF DUMP
BYTES IN nnnnnnnnnn BYTES OUT nnnnnnnnnn
TRACKS NOT COMPACTED ON TAPE - nnnnnnnnnn
ENTER:
```

When DDRXA finishes dumping the volume, it prompts you with ENTER.

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.

7. If you have additional DASD volumes to back up, mount a new tape , if required, and repeat the INPUT, OUTPUT, and DUMP ALL statements for each volume.
8. To end the program, press the **Enter** key.

```
ENTER
END OF JOB
```

9. Re-IPL CMS.

```
#cp ipl cms
z/VM V5.2.0    yyyy-mm-dd hh:mm
ENTER                                   Press Enter to return to the command line.
Ready; T=n.nn/n.nn hh:mm:ss
```

For information on how to restore your system from tape, see Appendix F, “Restore the z/VM System Backup Copy from Tape,” on page 191.

Step 8. 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 9. Create an IPLable ICKDSF Utility Tape" on page 60.

1. Mount a scratch tape in write mode.
2. Attach the tape drive to MAINT at virtual device address 181.

   attach *devno* *** 181**

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

   The ATTACH command attaches the device (*devno*) to MAINT's virtual machine at virtual device address 181.

3. Access the 193 minidisk in read/write mode.

   access 193 z

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

4. Load the DDRXA utility to tape.

   utility utiltape ddrxa

   ```
   Rewind complete
   HCPWUT8317I MOVING IPL DDRXA TO TAPE
   HCPWUT8318I THE IPL DDRXA PROGRAM IS
                ON TAPE FILE NUMBER 1
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

5. Rewind the scratch tape on virtual device number 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 the *z/VM: CP Commands and Utilities Reference* and *z/VM: System Operation*.

   ipl 181 clear

   Clear is necessary. Do not omit it.

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

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

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

7. Re-IPL CMS.

   #cp ipl cms

   ```
   z/VM V5.2.0    yyyy-mm-dd hh:mm
   ENTER
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

   Press **Enter** to return to the command line.

8. Rewind the tape and store for future use.

   tape run

Step 9. 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 10. Create a Stand-alone Dump Tape” on page 62.

1. Mount a scratch tape in write mode.
2. Attach the tape drive to MAINT at virtual device address 181.

   attach *devno* * **181**

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

   The ATTACH command attaches the device (*devno*) to MAINT’s virtual machine at virtual device address 181.

3. Access the 193 minidisk in read/write mode.

   access 193 z

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

4. Load the ICKDSF utility to tape.

   utility utiltape ickdsf

   ```
   Rewind complete
   HCPWUT8317I MOVING IPL ICKDSF TO TAPE
   HCPWUT8318I THE IPL ICKDSF PROGRAM IS
                ON TAPE FILE NUMBER 1
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

5. Rewind the scratch tape on virtual device number 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 the *z/VM: CP Commands and Utilities Reference* and *z/VM: System Operation*.

   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 the **Enter** key.

   ```
   ICK005E DEFINE INPUT DEVICE, REPLY
            'DDDD,CUU' OR 'CONSOLE'
   ENTER INPUT/COMMAND:
   ```

   console

   ```
   CONSOLE
   ICK006E DEFINE OUTPUT DEVICE, REPLY
            'DDDD,CUU' or 'CONSOLE'
   ENTER INPUT/COMMAND:
   ```

   This message tells you that the Device Support Facilities (ICKDSF) is loaded and ready.

   console

   ```
   CONSOLE
   ICKDSF - SA/XA/ESA DEVICE SUPPORT FACILITIES
     nn.n TIME:hh:mm:ss mm/dd/yy    PAGE 1
   ENTER INPUT/COMMAND:
   ```

7. Re-IPL CMS.

   #cp ipl cms

   ```
   z/VM V5.2.0    yyyy-mm-dd hh:mm
   ENTER
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

   Press **Enter** to return to the command line.

8. Rewind the tape and store for future use.

   tape run

Step 10. Create a Stand-alone Dump Tape

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

Refer to *z/VM: CP Planning and Administration* Chapter 13. Using the Stand-Alone Dump Utility for instructions on creating a stand-alone dump utility on tape.

Note: Do not use a stand alone dump tape or DASD created from a previous release of z/VM to attempt to dump your z/VM 5.2.0 system. When the HCPSADMP utility asks if you want to create a new HCPSDC MODULE, be sure to answer YES to create a new one for z/VM Version 5.2.0.

What to Do Next

Go to Part 3, "Post z/VM System Installation," on page 123.

Part 2. z/VM System Image DVD Installation

Part 2 contains installation procedures for installing z/VM from DVD distribution media. If you are installing z/VM from tape distribution media, use Part 1, “z/VM System DDR Installation,” on page 1.

In this part, you will:

- Plan your installation from DVD
- Fill in worksheets
- Install the z/VM System image from DVD.

Chapter 5. Plan Your DVD Installation

In this chapter, you will

- Plan your installation
- Fill in the Installation Worksheet and the TCP/IP configuration worksheet.

Step 1. Understand the Requirements

Before you install z/VM version 5 release 2, you must satisfy the following requirements:

1. z/VM media deliverable
   - Be sure you have both the Installation DVD and the RSU DVD.
2. General
   - Be sure that you have the proper processor for your z/VM V5.2 system. For a list of processors supported by z/VM, see *z/VM: General Information*.
   - See the *z/VM Program Directory* to get the latest RSU available.
   - See the PSP Bucket, zvm520 upgrade, cp subset, installation information section, for the latest information affecting installation.
   - If you are planning to migrate from another z/VM system, review the *z/VM: Migration Guide*.
   - If you plan to deploy Linux on z/VM, see *z/VM: Getting Started with Linux on System z9 and zSeries* for important planning information about Linux virtual servers.
3. First-level installation
   - For a first-level installation you need exclusive access to your processor's Service Element (SE). It is used to load your VM starter system to RAM.
   - The integrated 3270 console on the HMC (CONS=SYSG) will be used as the console for a first-level install.
   - First-level installation requires that at least 512 MB of real storage be assigned to the LPAR where VM will be installed. Note that the storage required for installation is not necessarily the amount you should have assigned for running production workloads. Refer to *z/VM: CP Planning and Administration* for information on determining production storage requirements..
4. Second-level installation
   - A local non-SNA 3270 terminal or equivalent configured with at least 24 lines, or an Integrated 3270 Console is required for a second-level installation of z/VM.
   - For a second-level installation your first-level system must be running z/VM Version 5.
   - Userid requirements for a second-level installation:
     – Privilege classes of at least B and G
     – At least 64 MB of virtual storage
     – Access to MAINT's 2CC (must be Version 5 level)
     – A 22CC minidisk that is the SAME size as the new system's 2CC
       - 5 cylinders (3390) or
       - 7200 512-KB blocks (fba)
     – A 2CF1 minidisk that is the SAME size as the new system's CF1
       - 120 cylinders (3390) or
       - 172800 512-KB blocks (fba)
5. Additional first-level hardware requirements

   To install z/VM First-Level from DVD, on a zSeries system, your system must support this capability. Installing z/VM from DVD uses a task on your zSeries' Support Element called Load from CDROM or Server. This task will allow you to install the DVD media from a Hardware Management Console's DVD drive or from a DVD connected through your own FTP server.

   If you wish to use a Hardware Management Console's DVD drive, then the HMC must be communicating with the desired Support Element. Hardware Management Consoles can only communicate with versions of Support Elements that are equal to or lower than themselves. For example, a Hardware Management Console version 1.8.0 can communicate with a Support Element at version 1.7.3, or 1.8.0, but it can not communicate with a Support Element at version 1.8.2.

If you wish to use a DVD connected through your own FTP server, then the FTP server you supply must be able to read the z/VM installation DVD(s) and there must be a TCP/IP communication path between the Support Element and the FTP Server.

In addition to having a Hardware Management Console or FTP server that the Support Element can communicate with, your Support Element must also support this capability. The following Support Element versions support z/VM installation from DVD with the appropriate Hardware Management Console or FTP server:

- zSeries 800

  Support Element version 1.7.3. Engineering Change (EC) J11213, change level 146 or higher must be active.
- zSeries 890

  Support Element version 1.8.2. No Licensed Internal Code changes are required.
- zSeries 900
  - Support Element versions less than 1.7.3 - loading of z/VM from DVD is not possible
  - Support Element version 1.7.3. Engineering Change (EC) J11213, change level 146 or higher must be active.
- zSeries 990
  - Support Element version 1.8.0. Engineering Change (EC) J12560, change level 054 or higher must be active
  - Support Element version 1.8.2. No Licensed Internal Code changes are required.

6. Additional second-level hardware requirements

   To install z/VM Second-Level from DVD, you must use a DVD drive connected to an FTP server that has a TCP/IP communication path between the system you are using to install and the FTP server. If your first level system is running z/VM 5.1.0, the userid and password for this connection must contain alphanumeric characters only.

Step 2. Choose Your Installation Method

Choose your installation method based on the following:

If . . .	Then use the . . .
z/VM Version 5 is not running in the processor or LPAR on which you are installing z/VM version 5 release 2	**First-Level DVD Installation Method**
You are installing in a virtual machine on an existing z/VM Version 5 system.	**Second–Level DVD Installation Method**

Step 3. Choose the Document to Use for Installation

There are two sets of instructions for using either installation method:

- *z/VM: Summary for Automated Installation and Service (DVD Installation)* contains only the commands needed to install z/VM.

  The one-page installation and service summary is packaged with the *z/VM: Guide for Automated Installation and Service*.

  Attention: To use the one-page summary you need to be familar with using the HMC and SE. If installing to SCSI disk (FBA) you also need to be familiar with defining and using SCSI disks.
- *z/VM: Guide for Automated Installation and Service* (this guide) contains the commands needed to install z/VM, in addition to descriptions of the parameters used and messages received.

If you are using the procedure described in *z/VM: Summary for Automated Installation and Service (DVD Installation)*, leave this document and use the one-page document. Otherwise, continue to the next step.

Step 4. Complete the Installation and Basic IP Connectivity Worksheets

1. Record the installation method you selected to use to install z/VM in the Installation Worksheet (Table 8 on page 72). Your choices are First-Level DVD or Second-Level DVD.
2. Determine which products you will load into the VMSYS file pool and which products you will load to minidisks only. Each product on the z/VM System DVDs allows VMSYS file pool directories to be used in place of some minidisks. Record your choices in the Installation Worksheet (Table 8 on page 72).
3. Select your system default language and record your choice in the Installation Worksheet (Table 8 on page 72). The choices are:

   - Mixed Case English (AMENG)
   - Uppercase English (UCENG)
   - German (GERMAN)
   - Kanji (KANJI)
4. Select the DASD type and model you will use to install, and record the DASD information on the ″DASD Type and Model ″ line in the Installation Worksheet (Table 8 on page 72).
   - If you are using the SCSI (FBA) DVD, record FBA for the DASD model.
   - If you are using the 3390 DVD, record either 3390 Model 3 or 3390 Model 9.

   For performance reasons, IBM recommends using emulated 3390 Model 9s instead of real 3390 Model 9s.
5. Select the DASD addresses required to install.
   a. If you choose 3390 Mod 9:
      - You need one 3390 Mod 9 DASD (10017 cylinders) for the 520RES volume.
      - You need a separate volume for 520SPL. This DASD can be any model 3390. A 3390 Model 3 is suggested.
      - You need a separate volume for 520PAG. This DASD can be any model 3390. A 3390 Model 3 is suggested.

   b. If you choose 3390 Mod 3:
      - You need one 3390 Mod 3 DASD (3339 cylinders) for the 520RES volume.
      - You need a separate volume for 520SPL. This DASD can be any model 3390. A 3390 Model 3 is suggested.
      - You need a separate volume for 520PAG. This DASD can be any model 3390. A 3390 Model 3 is suggested.
      - You need one 3390 Mod 3 DASD (3339 cylinders) for the 520W01 volume.
      - You need one 3390 Mod 3 DASD (3339 cylinders) for the 520W02 volume.

   c. If you choose SCSI (FBA), INSTPLAN will ask for the size you want to use for your 520RES SCSI disk. The size may be 3.5 to 10.0 GB. If you are using a disk larger than 10.0 GB, you must enter 10.0G on the panel. Installation will only use up to 10.0 GB. IBM suggests that you do not use any space left over on the 520RES. Record the size on the ″DASD Type and Model ″ line in the Installation Worksheet (Table 8 on page 72).
      - You need one SCSI disk (3.5G to 10.0GB) for the 520RES volume.
      - You need a separate volume for SPOOL space. This disk can be any size (minimum of 1GB) and the entire volume will be allocated as spool space.
      - You need a separate volume for PAGE space. This disk can be any size (minimum of 1GB) and the entire volume will be allocated as page space.

- You may need 1 to 2 additional work volumes depending on the size you use for your 520RES. The installation program assumes the 520RES and the work volume(s) are the same size so these work volumes must be at least as large as the 520RES volume.

Note: The SCSI disks you use must be defined using the ″SET EDEVICE...″ command. SCSI disks defined on a larger volume (disk overlays) are not supported for installation.

6. Record the DASD addresses for each DASD you selected in the Installation Worksheet (Table 8 on page 72) under the ***DASD Address*** column. Record your first address in the row with the label ″520RES″ and continue recording addresses corresponding to the labels. If you need fewer than all the DASD labels in the table, disregard the extra labels.
7. If you are changing the installation pack labels, record the new pack labels in the Installation Worksheet (Table 8 on page 72).

   For each default label you wish to change, record the new label in the Installation Worksheet (Table 8 on page 72) under the **New Label** column. The 520RES label cannot be changed.
8. If you are using SCSI disks and the disks are already defined to the system, you only need the DASD address (as used the previous substeps). If, however, the SCSI disks are not already defined, you need to know the WWPN and LUN address for each disk, as well as either the valid FCP addresses or the channel path (CHPID) they belong to. Record each LUN and its corresponding WWPN in the SCSI Device Definition Worksheet (Table 9 on page 72). Also make a note of the valid FCP addresses or the CHPID.
9. If, after you install z/VM, you want to establish a minimal TCP/IP configuration that establishes basic connectivity to your IP network, fill in the IP worksheets beginning with Table 10 on page 73.
10. Proceed according to the installation method you chose:

If you chose the . . .	Then go to . . .
First-Level DVD Installation Method	Chapter 6, “First-Level DVD Installation Method,” on page 75
Second-Level Installation Method	Chapter 7, “Second–Level DVD Installation Setup,” on page 81

Complete the Installation and Basic IP Conectivity Worksheets

Table 8. Installation Worksheet

Installation method (First-Level or Second–Level): _____

Below, in the ***Install to*** column, record an “M” if you will load the product to a minidisk, or an “F” if you will load the product to the VMSYS file pool.

Install to	***Product***	***Install to***	***Product***	***Install to***	***Product***
	VM		RSCS		TCPIP
	OSA		ICKDSF		DIRM
	RACF		PERFTK		VMHCD

System Default Language: _____

DASD Type and Model: _____

SCSI Disk Size: _____ GB

Pack Type	***DASD Label***	***New Label***	***DASD Address***
RES	520RES	520RES	
SPOOL	520SPL		
PAGE	520PAG		
USER1	520W01		
USER2	520W02		

Table 9. SCSI Device Definition Worksheet

DASD	***edevice address***	***fcp address***	***WWPN***	***LUN***
520RES				
520W01				
520W02				
520SPL				
520PAG				

Channel Path (CHPID) _____

Valid FCP Addresses _____

Complete the Installation and Basic IP Conectivity Worksheets

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 following information from your network system administrator and record the information in the TCP/IP Configuration Worksheet (Table 10) and the appropriate interface worksheet. In these worksheets, a number in parentheses following a field description, for example Host name (20), is the maximum length for that field.

Table 10. TCP/IP Configuration Worksheet

VM user ID of the VM TCP/IP stack virtual machine: (Default value is TCPIP. If you change this userid, you must define the userid in your user directory before running the IPWIZARD)	
Host name (20):	
Domain name (40):	
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):	
Choose the interface you will be using (check one):	__ QDIO __ LCS __ HiperSockets™ __ CLAW __ CTC Refer to the appropriate interface worksheet to record more information. IPv6 is available only for QDIO devices.

Table 11. QDIO Interface Worksheet

Network type (select one):	__ Ethernet __ Token Ring IPv6 is not available for Token Ring adaptors.
Port name (optional) (8):	
Router type (select one):	__ Primary __ Secondary __ None
Maximum Transmission Unit (MTU) size:	

Table 12. LCS Interface Worksheet

Network type (select one):	__ Ethernet __ Token Ring __ FDDI
Port/Adapter number:	
Maximum Transmission Unit (MTU) size:	

Complete the Installation and Basic IP Conectivity Worksheets

Table 13. HiperSockets Interface Worksheet

Maximum Frame Size (MFS): (in kilobytes)	

Table 14. CLAW Interface Worksheet

CLAW host name (8): (This name must match the host-name configured on the CLAW device)	
CLAW adapter name (8): (This name must match the device-name configured on the CLAW device)	
Maximum Transmission Unit (MTU) size:	

Table 15. CTC Interface Worksheet

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 1.
Maximum Transmission Unit (MTU) size:	
Peer IP Address:	

Note: When you have completed the IP Worksheets, return to substep 10 on page 71.

Chapter 6. First-Level DVD Installation Method

In this chapter, you will:

- Use step-by-step procedures to install the z/VM System Image DVD in a new system environment.

Step 1. Load the RAMDISK from the Processor HMC

In this step, you will:

- Load down the RAM disk from DVD.

Note: Make sure that any DASD with the same labels you are using for installation are **not** attached to your system.

1. Before you begin, fill out the Installation Worksheet (Table 8 on page 72) in Chapter 5, “Plan Your DVD Installation.”
2. On the Hardware Management Console, bring up an Integrated 3270 console for the LPAR you are using to install.
   a. From the Hardware Management Console Workplace window, double click on Groups.
   b. From the GROUPS WORK AREA window, double click on CPC IMAGES.
   c. From the CPC IMAGES WORK AREA window, highlight the LPAR on which you are going to install.
   d. From the CPC RECOVERY window, double click on Integrated 3270 console. The Integrated 3270 console window is displayed, which is where the messages are displayed when the system IPLs.
3. On the Hardware Management Console bring up the Primary Support Element (SE) for the LPAR you are using to install.
   a. From the Hardware Management Console Workplace window, double click on Groups.
   b. From the GROUPS WORK AREA window, double click on DEFINED CPCs.
   c. From the DEFINED CPCs WORK AREA window, highlight the processor on which you are going to install.
   d. From the CPC RECOVERY window, double click on Single Object Operations icon. The Single Operation Task Confirmation Box is displayed. Click Yes when prompted to continue. The Primary Support Element Workplace window is displayed. You now have control of the SE
4. Load the z/VM System DVD in the DVD Drive you will use to install. The DVD can be loaded from the DVD Drive attached to the HMC or from a DVD Drive with an FTP connection to the HMC.
5. On the Primary Support Element (SE) select Load from CD-ROM or Server from the CPC Recovery area of the LPAR use are using to install.
   a. On the Primary Support Element Workplace window, double click on TASKLIST.
   b. From the Task List work area, double click on CPC Recovery.
   c. On the Primary Support Element Workplace window, double click on GROUPS.
   d. From GROUPS WORK AREA of the Primary Support Element Workplace window, double click on IMAGES. All of the available LPARS are displayed. Highlight the LPAR you are going to use.
   e. From CPC RECOVERY of the Primary Support Element Workplace window, double click on Load from CD-ROM or Server. Click Yes when the Load from CD-Rom or Server Task confirmation box is displayed.
6. Select one of the following radio buttons from the Load from CD-ROM or Server window:
   - Hardware Management Console CD-ROM
   - Local CD_ROM
   - FTP Source

   If you are loading from the DVD Drive attached to the HMC , select the Hardware Management Console CD-ROM radio button.

If you are loading from a DVD Drive with an FTP connection to the HMC, select the FTP Source radio button.

7. Fill in the fields in the Load from CD-Rom or Server window:

   If you selected to load from the Hardware Management Console CD-ROM , fill in file location with /CPDVD

   If you selected to load from FTP Source, fill in the following fields with your ftp connection and fill in file location with the ftp path to your DVD drive according to the conventions used by your server, followed by CPDVD.

   - Hardware Management Console CD-rom
   - Local CD-ROM
   - FTP Source
     Host Computer_____
     User ID _____
     password _____
     account (can be blank) _____
     file location (can be blank) _____

   Wait until the light on the DVD drive goes out or stops blinking, then click on Continue.

8. Load the RAMDISK:

   a. From the Load from CD-ROM or Server - Select the software to load window, select 520VM.ins, and click on continue.
   b. From the Confirm the action window, click on yes.
   c. Messages are displayed in the Load from CD-ROM or Server Progress window indicating the status of the load. When the message is displayed indicating the load is successful, click OK to close and go to the Integrated 3270 console window for the LPAR you are using to install.

Step 2. IPL of the z/VM RAMDISK

In this step, you will:

- Bring up the RAMDISK system.

1. The RAMDISK IPLs and the system comes up with the userid MAINT logged on. System messages are displayed in the Integrated 3270 console Window.
2. The IPL of your z/VM system continues:

```
hh:mm:ss z/VM V5 R2.0
          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 * LICENSED MATERIALS - PROPERTY OF IBM*   *
hh:mm:ss * 5741-A05 (C) COPYRIGHT IBM CORP. 1983,  *
hh:mm:ss * 2005. ALL RIGHTS RESERVED.              *
hh:mm:ss * US GOVERNMENT USERS RESTRICTED RIGHTS - *
hh:mm:ss * USE, DUPLICATION OR DISCLOSURE          *
hh:mm:ss * RESTRICTED BY GSA ADP SCHEDULE CONTRACT *
hh:mm:ss * WITH IBM CORP.                          *
hh:mm:ss *                                         *
hh:mm:ss * * TRADEMARK OF INTERNATIONAL BUSINESS   *
hh:mm:ss *   MACHINES                              *
hh:mm:ss ******************************************
hh:mm:ss HCPZCO6718I Using parm disk 1 on volume $RAMD$ (device xxxx).
hh:mm:ss HCPZCO6718I Parm disk resides on blocks xxx through xxx.
```

3. The system logs on the MAINT userid.

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



hh:mm:ss HCPWRS2512I Spooling initialization is complete.
hh:mm:ss No dump unit - Dump function is SET OFF
hh:mm:ss HCPAAU2700I System gateway IBMVMRAM identified.
hh:mm:ss z/VM Version 5 Release 2.0, Service Level 0000 (64-bit),
hh:mm:ss built on IBM Virtualization Technology
hh:mm:ss There is no logmsg data
hh:mm:ss FILES:   NO RDR,   NO PRT,   NO PUN
hh:mm:ss LOGON AT hh:mm:ss EDT DAY mm/dd/yy
hh:mm:ss SYSG LOGON AS MAINT USERS = n
hh:mm:ss HCPIOP952I nnnnM system storage
hh:mm:ss FILES: nnnnnnnn RDR, nnnnnnnn PRT,      NO PUN
HCPCRC8082I Accounting records are accumulating for userid OPERACCT
HCPCRC8082I EREP records are accumulating for userid OPERACCT


DMSIND2015W Unable to access the Y-disk. Filemode Y (19E)not accessed
DMSWSP327I The installation saved segment could not be loaded
z/VM V5.2.0    yyyy-mm-dd hh:mm
DMSDCS1083E Saved segment CMSPIPES does not exist
DMSDCS1083E Saved segment CMSPIPES does not exist
DMSDCS1083E Saved segment CMSVMLIB does not exist
Ready; T=n.nn/n.nn hh:mm:ss
```

4. Once the system is up with the userid MAINT logged on, you can log off the Primary Support Element (SE).

   From the Primary Support Element Workplace window, left click the upper left corner and select logoff from the drop down list or right click on the 'X' in the upper right corner.

5. Continue the install of z/VM from the Integrated 3270 console Window.

What to Do Next

Go to Chapter 8, "Load the System Image," on page 85.

Chapter 7. Second–Level DVD Installation Setup

In this chapter, you will:
Set up the userid for installation.

Step 1. Set up the Userid for Installation

In this step, you will

- Log on to a first-level user ID
- Verify this userid has the required resources
- Load the z/VM System DVD in the DVD drive

1. Before you begin, fill out the Installation Worksheet (Table 8 on page 72) in Chapter 5, “Plan Your DVD Installation.”
2. From your current operating system, log on to the first-level user ID that you will use to install z/VM version 5 release 2. This userid must meet the following requirements:
   - 64 MB virtual storage.
   - Privilege classes B and G
   - R/W A-disk
   - Access to MAINT’s 2CC disk
   - A 22CC minidisk defined that is the SAME size as the new system's 2CC
     – 5 cylinders for 3390 or
     – 7200 512-KB blocks for FBA
   - A 2CF1 minidisk defined that is the SAME size as the new system's CF1
     – 120 cylinders 3390 or
     – 172800 512-KB blocks for FBA
3. Access MAINTs 2CC as C.

   access 2cc c

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

4. Load the z/VM System 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.

Step 2. Run the DVDPRIME EXEC to Define the ftp Connection to Your DVD

In this step, you will:

- Run the DVDPRIME EXEC.

1. Run DVDPRIME.

   dvdprime *dasdtype* where *dasdtype* is either 3390 or FBA

```
                      *** DVDPRIME PANEL ***

 Enter information in empty fields and press PF5 to process.

HOSTNAME OR IP ADDRESS:      ____________________________________

FTP USERID:                  ________________

FTP PASSWORD:                ________________

DVD PATHNAME:                ____________________________________

     PF1 = HELP   PF3/PF12 = QUIT   PF5 = Process   ENTER = Refresh
```

Figure 5. Installation Planning Panel

a. HOSTNAME OR IP ADDRESS:

   This field should be filled in with the IP ADDRESS or FTP HOSTNAME of your z/VM system. 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**

b. USERID:

   Userid used to log onto the FTP server. Must be 16 or less alphanumneric characters.

c. PASSWORD:

   Password used to log onto the FTP server. Must be 16 or less alphanumneric characters.

d. DVD PATHNAME

   Enter the path to the DVD drive according to the conventions used by your server with CPDVD appended to the end. For example:

   mydvddrive/CPDVD
   cpdvd
   e:/cpdvd

e. After filling in the panel, press **PF5** to process.

Run the DVDPRIME EXEC to Define the ftp Connection to Your DVD

```
HCPDVP8440I NOW LOADING 22CC DISK
{FBA222* | CKD222*}
DMSRXS1408W File TCPIP DATA * not found     You may not get this message
{MDREST|ECKDREST}: WROTE nnnn {BLOCKS|TRACKS} ON 22CC, RC=0


HCPDVP8440I NOW LOADING 2CF1 DISK
{FBACF1* | CKDCF1*}
DMSRXS1408W File TCPIP DATA * not found     You may not get this message
PROCESSING {FBACF100 | CKDCF100}
.
.
.
PROCESSING  {FBACF10n | CKDCF10n}
{MDREST|ECKDREST}: WROTE nnnn {BLOCKS|TRACKS} ON 2CF1, RC=0

HCPDVP8392I DVDPRIME EXEC ENDED SUCCESSFULLY
Ready; T=11.94/12.46 10:31:20
```

Chapter 8. Load the System Image

In this chapter, you will:

- Use INSTPLAN to enter your installation plan
- Use INSTDVD to load the System Image and RSU image files
- IPL your new system
- Use INSTVM to finish the install of z/VM
- Use SERVICE and PUT2PROD to install RSU service
- Configure TCP/IP (optional)
- Load new CPLOAD module
- Back up system to tape.

Step 1. Run the INSTPLAN EXEC

In this step, you will:

- Run INSTPLAN.

1. Run INSTPLAN.

   instplan

```
                    *** z/VM INSTALLATION PLANNING ***

Mark the product(s) selected to be installed into the VMSYS filepool with an
"F" and those selected to be installed to minidisks with an "M"

Install To   Product     Install To   Product     Install To   Product
----------   ---------   ----------   ---------   ----------   ---------
    M        VM              M        RSCS            M        TCPIP
    M        OSA             M        ICKDSF          M        DIRM
    M        RACF            M        PERFTK          M        VMHCD

Place a nonblank character in front of the System Default Language you would
like for your system.

    _ AMENG        _ UCENG        _ KANJI        _ GERMAN

Place a nonblank character in front of the DASD model onto which your
z/VM system will be loaded.  Only one model may be selected.

    _ 3390 Mod 3        _ 3390 Mod 9      _ FBA DASD 3.5

    PF1 = HELP   PF3/PF12 = QUIT   PF5 = Process   ENTER = Refresh
```

Figure 6. Installation Planning Panel

a. Refer to the Installation Worksheet (Table 8 on page 72) and enter:
   - An “M” in the **Install to** column for each product you selected to be installed onto minidisks.
   - An “F” in the **Install to** column for each product you selected to be installed into the VMSYS file pool.

b. Place a non-blank character next to the System Default Language you selected for your system (see the Installation Worksheet, Table 8 on page 72).

c. Place a nonblank character in front of the DASD model that matches the ***Device Model*** in the Installation Worksheet (Table 8 on page 72). If you are installing to FBA, the DASD model shown is _ **FBA DASD** Your SCSI (FBA) disk can be defined between 3.5G and 10.0 GB inclusive.

d. After completing Steps a, b, and c, press **PF5** to complete the planning step.

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

```
HCPIPX8475I THE PRODUCTS YOU SELECTED TO LOAD TO MINIDISK ARE:
            VM  RSCS  TCPIP  OSA ICKDSF
              DIRM  RACF PERFTK  VMHCD

            THE PRODUCTS YOU SELECTED TO LOAD TO SFS ARE:
            NONE

            THE SYSTEM DEFAULT LANGUAGE SELECTED:
            AMENG

            THE DASD TYPE YOU SELECTED TO LOAD ON IS:
            type

            THE DASD NEEDED TO LOAD z/VM ARE:
            520RES 520SPL 520PAG...
HCPINP8392I INSTPLAN EXEC ENDED SUCCESSFULLY
Ready; T=n.nn/n.nn hh:mm:ss
```

2. Make sure the number of DASD selected on the Installation worksheet (Table 8 on page 72), matches the number of DASD listed in the HCPIPX8475I message.

Step 2. Verify the Volumes Needed for Installation are Available

In this step, you will:

- Attach the volumes needed for installation.

1. If you are installing to 3390 skip to substep 7 on page 89
2. If the SCSI disks you are installing to have already been defined using the 'SET EDEVICE...' command and are already online, skip to substep 6 on page 89. If they are defined but offline skip to substep 5 on page 89. If not yet defined continue with the next substep.
3. To define the SCSI disks, you need to know which fcp addresses are valid for your SCSI disks.

   If you know the FCP addresses associated with your SCSI disk addresses skip to substep 4.

   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:

   q chpid 66

   ```
   Path 66 online to devices 517C 5319 550D 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
   ```

4. To define the SCSI disks, use the information recorded in the Installation Worksheet (Table 8 on page 72) and SCSI Device Definition Worksheet (Table 9 on page 72).

   For each DASD

   a. Refer to the Installation Worksheet (Table 8 on page 72) and query each DASD address to verify it is not already defined for a different device. If the address is already in use, choose a different dasdaddr and record the new address in the Installation worksheet (Table 8 on page 72) and in the edevice column of the SCSI Device Definition Worksheet (Table 9 on page 72).

      For each SCSI address:

      query virtual *edevaddr*

      ```
      HCPQVD040E Device edevaddr does not exist
      Ready(00040);
      ```

   b. Select a free FCP address and record the FCP address in Table 9 on page 72. You should use one FCP device for the 520RES and a different (or multiple different) FCPs for the other disks.

      query fcp free

      Choose a device from the Query FCP Free output.

   c. Define the device address:

      set edevice *dasdaddr* **type fba attr scsi fcp_dev** *fcpn* **wwpn** *www* **lun** *lll*

      where:

      - *dasdaddr* is the edevice address
      - *fcpn* is the FCP address (you should use one FCP device for the 520RES and a different (or multiple different) FCPs for the other disks)
      - *www* is the World Wide Port Number
      - *lll* is the LUN address.

5. Vary on the devices:

   vary on *dasdaddr*

6. Note changes needed to SYSTEM CONFIG for future IPLs.

   When installing to SCSI disk First Level, INSTDVD updates the SYSTEM CONFIG file to include EDEV statements that define the SCSI disks you used to install. If you are going to IPL these disks second level, the EDEV statements need to be commented out of the SYSTEM CONFIG file before attempting to IPL second level. When installing to SCSI disk Second Level, the EDEV statements are added to the SYSTEM CONFIG as comments. If you want to IPL the system First Level, you must remove the '/*...*/' pairs from the EDEV statements in the SYSTEM CONFIG file. Refer to *z/VM: CP Planning and Administration* for information on updating the SYSTEM CONFIG file.

7. Refer to the Installation Worksheet (Table 8 on page 72). Attach all the DASD listed in the worksheet that are not already attached. Enter the following ATTACH command for each DASD:

   attach *dasdaddr* *****

   dasdaddr is the address of the DASD.

   ```
   DASD dasdaddr ATTACHED TO userID dasdaddr
     ⋮
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

Step 3. Run the INSTDVD EXEC to load the z/VM System DVD

In this step, you will:

- Run INSTDVD.

1. Run INSTDVD to load the DVD to DASD.

   ```
   instdvd
   ```

```
       *** z/VM DVD INSTALL FORMAT/RESTORE PANEL ***


PACK    DASD         DASD               DO NOT
TYPE    LABEL       ADDRESS           FORMAT DASD
 ==================================================
RES     520RES       ____                 __
SPOOL   520SPL       ____
PAGE    520PAG       ____
USER    520W01       ____
USER    520W02       ____




 PF1 = HELP    PF3/PF12 = QUIT    PF5 = Process    ENTER = Refresh
```

Figure 7. z/VM DVD Install Format and Restore Panel (3390 Model Layout)

a. If you want to change the labels of the SPOOL, PAGE, or USER packs, fill in the DASD LABEL field with the new labels. You cannot change the 520RES label. If you are installing Second Level and you wish to use the function to change the installation pack labels, the userid you are using to install must be able to issue the DEFINE MDISK command. The IBM default privilege class for this command is class A. The DEFINE MDISK command also requires the userid to have DEVMAINT on its OPTION directory statement.

b. Fill in the DASD addresses using the information from the Installation Worksheet (Table 8 on page 72). For detailed information, press **PF1** for HELP.

c. Place a non-blank character in the **DO NOT FORMAT DASD** column only if you have already formatted your DASD for installation, in which case the DASD will be labeled, but not formatted.

d. Press **PF5** to process.

```
HCPDCX8377R YOU HAVE SELECTED TO FORMAT THE FOLLOWING DASD:

HCPDCX8483R YOU HAVE SELECTED NOT TO FORMAT YOUR DASD.
            THIS ASSUMES YOU HAVE ALREADY FORMATTED THE
            DASD AND THIS EXEC WILL ONLY RELABEL AS
            FOLLOWS
```

Depending on whether you chose to format your DASD, you will receive either message HCPDCX8377R or HCPDCX8483R.

```
520RES dasdaddr
lblspl dasdaddr
lblpag dasdaddr
lblW01 dasdaddr

DO YOU WANT TO CONTINUE ? (Y|N)
```

y

```
HCPDCX8490I NOW {FORMATTING|LABELING} DASD dasdaddr
HCPDCX8490I NOW {FORMATTING|LABELING} DASD dasdaddr
   ⋮
HCPDCX8380I RESTORING IIS TO 520RES and lblspl
```

2. If this is a **first-level HMC installation**, the following is displayed:

```
DVDLOAD: LOADING FILE '{FBAIIS00 | CKDIIS00} IMAGE *'
{ECKDREST|MDREST}: WROTE nnnn {TRACKS|BLOCKS} ON addr, RC=0
DVDLOAD: RC=0
DVDLOAD: LOADING FILE '{FBASPL00 | CKDSPL00} IMAGE *'
   ⋮
DVDLOAD: LOADING FILE '{FBASPLnn | CKDSPLnn} IMAGE *'
{ECKDREST|MDREST}: WROTE nnnn {TRACKS|BLOCKS} ON addr, RC=0
DVDLOAD: RC=0

HCPDCX8490I NOW ALLOCATING DASD addr (RES PACK)
HCPDCX8490I NOW ALLOCATING DASD addr (SPOOLING)
HCPDCX8490I NOW ALLOCATING DASD addr (PAGING)

The minidisks with the END option specified in this directory will not be includ
ed in the following DISKMAP file.

File USER DISKMAP A has been created.
HCPIND8392I INSTDIR EXEC ENDED SUCCESSFULLY
```

Messages received for each minidisk loaded

```
HCPILB8440I NOW LOADING {FBAcuu | CKDcuu}, DISK xxx  OF yyy
DVDLOAD: LOADING FILE '{FBAcuu00 | CKDcuu00} IMAGE *'
    .
    .
    .
DVDLOAD: LOADING FILE '{FBAcuunn|CKDcuunn} IMAGE *'
{ECKDREST|MDREST}: WROTE nnnn {TRACKS|BLOCKS} ON addr, RC=0
DVDLOAD: RC=0
```

If the install fails while processing disks in this box, you can restart INSTDVD by entering INSTDVD (RESTART.

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

If you are using an RSU on DVD, place it in the DVD drive and wait until the light on the DVD drive goes out or stops blinking, then enter 'go'. If you are using an RSU that you received from IBM Support instead of the RSU on DVD, just enter 'go' to continue.

If you enter EXIT to quit, your installation will NOT complete successfully. You will need to run the INSTDVD command and enter 'go' to load the RSU files before you can continue with the installation procedures.

go

```
DVDLOAD: LOADING FILE '{FBA500000|CKD50000} IMAGE *'
```

If the install fails while loading the RSU, enter INSTDVD to retry (enter only INSTDVD; do not use the restart option).

```
   .
   .
   .
DVDLOAD: LOADING FILE '{FBA500nn|CKD500nn} IMAGE *'
DVDLOAD: RC=0
{ECKDREST|MDREST}: WROTE nnnn {TRACKS|BLOCKS} ON addr, RC=0


z/VM USER DIRECTORY CREATION PROGRAM - VERSION 5 RELEASE 2.0
EOJ DIRECTORY UPDATED
HCPDIR494I User directory occupies nn disk pages
HCPSAL6798I VOLUME ID IS 520RES
HCPSAL6797I MINIDISK VOLID AT OFFSET nn IS MNTCF1
hh:mm:ss  DASD nnnn ATTACHED TO SYSTEM 520RES BY MAINT
hh:mm:ss  DASD nnnn DETACHED SYSTEM BY MAINT
hh:mm:ss  DASD nnnn ATTACHED TO MAINT
HCPIDV8376I INSTDVD EXEC ENDED SUCCESSFULLY
Ready;
```

Go to “Step 4. IPL the new z/VM System” on page 94

3. If this is a **second-level installation**, the following is displayed:

```
{FBAIIS* | CKDIIS*}
DMSRXS1408W File TCPIP DATA * not found      (You may not get this message)
{ECKDREST|MDREST}: WROTE nnnn {TRACKS|BLOCKS} ON addr, RC=0


{FBASPL* | CKDSPL*}
DMSRXS1408W File TCPIP DATA * not found      (You may not get this message)
PROCESSING  {fbaspl00|ckdspl00}
:
PROCESSING {fbasplnn|ckdsplnn}
{MDREST|ECKDREST}: WROTE nnnn {BLOCKS|TRACKS} ON addr, RC=0

HCPDCX8490I NOW ALLOCATING DASD addr (RES PACK)
HCPDCX8490I NOW ALLOCATING DASD addr (SPOOLING)
HCPDCX8490I NOW ALLOCATING DASD addr (PAGING)

The minidisks with the END option specified in this directory will not be included
in the following DISKMAP file.

File USER DISKMAP A has been created.
HCPIND8392I INSTDIR EXEC ENDED SUCCESSFULLY
```

Messages received for each minidisk loaded

```
HCPILB8440I NOW LOADING {FBAcuu | CKDcuu}, DISK xxx  OF yyy
{FBAcuu* | CKDcuu*}
DMSRXS1408W File TCPIP DATA * not found
PROCESSING {FBAcuu00|CKDcuu00}
      .
      .
      .
      .
      .
PROCESSING {FBAcuunn|CKDcuunn}

{MDREST|ECKDREST}: WROTE nnnn {BLOCKS|TRACKS} ON addr, RC=0
```

If the install fails while processing disks in this box, you can restart INSTDVD by entering INSTDVD (RESTART.

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

If you are using an RSU on DVD, place it in the DVD drive and wait until the light on the DVD drive goes out or stops blinking, then enter 'go'. If you are using an RSU that you received from IBM Support instead of the RSU on DVD, just enter 'go' to continue.

If you enter EXIT to quit, your installation will NOT complete successfully. You will need to run the INSTDVD command and enter 'go' to load the RSU files before you can continue with the installation procedures.

go

```
{FBA500* | CKD500*}
DMSRXS1408W File TCPIP DATA * not found
```

If the install fails while loading the RSU, enter INSTDVD to retry

```
{MDREST|ECKDREST}: WROTE nnnn {BLOCKS|TRACKS} ON addr, RC=0

z/VM USER DIRECTORY CREATION PROGRAM - VERSION 5 RELEASE 2.0
EOJ DIRECTORY UPDATED
HCPDIR494I User directory occupies nn disk pages
HCPSAL6798I VOLUME ID IS 520RES
HCPSAL6797I MINIDISK VOLID AT OFFSET nnnn IS MNTCF1

{MDDUMP|ECKDDUMP}: {READ} nnnn {BLOCKS|TRACKS} FROM 22CC, RC=0
{MDREST|ECKDREST}: WROTE nnnn {BLOCKS|TRACKS} ON addr, RC=0
{MDDUMP|ECKDDUMP}: {READ} nnnn {BLOCKS|TRACKS} FROM 2CF1, RC=0
{MDREST|ECKDREST}: WROTE nnnn {BLOCKS|TRACKS} ON addr, RC=0
HCPIDV8392I INSTDVD EXEC ENDED SUCCESSFULLY
Ready; T=0.73/1.01 19:34:04
```

Step 4. IPL the new z/VM System

In this step, you will:

- IPL the new z/VM system

  When you IPL second-level note the following:

  – Contention for service by the devices on shared control units may result in this substep taking longer than it would when you are installing a first-level system.

1. If you are installing First-Level from the HMC, skip to substep 11 on page 95.
2. If you are installing Second-Level, continue with substep 3.
3. Enter the following commands to clear your virtual machine and make sure the z/VM system will recognize your terminal as a 3277, 3278, or 3279:

   system clear

   Reset and clear your virtual machine storage.

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

   terminal conmode 3270

   Attention: Issue the QUERY DASD ATTACH * command to make sure that any DASD with the same labels that you are using for installation are **not** already attached. You must detach any other DASD with these labels **now** to prevent bringing them online.
4. Determine the amount of your virtual storage. If it is less than 64MB, define your storage to 64MB.

   query virtual storage

   Run the DEFINE command **only** if you have less than 64M of storage.

   ```
   STORAGE = nnnnM
   ```

   define storage 64m

   ```
   STORAGE =   64M
   Storage cleared - system reset
   ```
5. Set virtual machine mode to XA.

   set machine xa

   Setting the virtual machine to XA architecture causes a reset as if you entered SYSTEM CLEAR. If your machine is already in XA mode, you will not get a response.

   ```
   SYSTEM RESET
   SYSTEM = XA
   ```
6. 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       MDFY       0 FCB       LPP OFF
        consaddr 3270   NOEOF OPEN nnnn NOKEEP NOMSG NONAME
        consaddr SUBCHANNEL = nnnn
   ```

   where *consaddr* is the address of your virtual console.
7. IPL the new z/VM system you loaded to the system residence device (520RES).

ipl *dasdaddr* **clear loadparm** *consaddr*

Clear is necessary. Do not omit it.

dasdaddr is the address of the system residence device (520RES).

consaddr is the address of your virtual console. If you get a CP READ, it is possible the console is not defined correctly. Go back to substep 6 on page 94 to make sure the console is defined as a 3270 and the *consaddr* is correct.

8. The stand alone program loader panel displays after issuing the IPL.

```
 STAND ALONE PROGRAM LOADER: z/VM VERSION 5 RELEASE 2.0

 DEVICE NUMBER:   dasdaddr   MINIDISK OFFSET:   nnnnnnnn   EXTENT:  1

 MODULE NAME:     CPLOAD     LOAD ORIGIN:       2000

 --------------------------------IPL PARAMETERS--------------------------------
cons=consaddr

 -----------------------------------COMMENTS-----------------------------------




 ------------------------------------------------------------------------------


 9= FILELIST  10= LOAD  11= TOGGLE EXTENT/OFFSET
```

Figure 8. Sample Stand Alone Program Loader Panel

9. Move the cursor to the IPL PARAMETERS field and type

cons=*consaddr*

As shown in Figure 8, *dasdaddr* is the device address of the 520RES.

consaddr is the address of your console. Spaces are not allowed around the equal sign.

10. Press **PF10** to load.

PF10

Skip to substep 15 on page 97

11. First-level install: IPL the new z/VM system you loaded to the system residence device (520RES)
    a. From the Hardware Management Console Workplace window, double click on Groups.
    b. From the GROUPS WORK AREA window, double click on CPC IMAGES.
    c. From the CPC IMAGES WORK AREA window, hilight the LPAR you are using
    d. From the CPC RECOVERY WINDOW, double click on LOAD
    e. From the LOAD window:
       - If installing to a 3390:
         1) Select the NORMAL radio button
         2) Fill in load address (the address of the 520RES)
         3) Fill in load parameter with SYSG

4) Click OK.

- If installing on SCSI DASD (FBA) :
  1) Select the SCSI radio button
  2) Fill in Load address with the address of the fcp used to define the 520RES (this is the fcp address not the edev address)
  3) Fill in Load Parameter with **SYSG**
  4) Fill in the World Wide port name with the WWPN used to define the 520RES
  5) Fill in Logical unit number with the 16 character LUN address of the 520RES
  6) Fill in Boot program selector with **0**
  7) Fill in Boot record logical block address with the 16 character value of **00000000000000C8**
  8) Click OK.

From the LOAD TASK CONFIRMATION window:

1) Click YES.

f. Messages are displayed in the Load from CD-ROM or Server Progress window indicating the status of the load. When the message is displayed indicating the load is successful, click OK to close and go to the Integrated 3270 console window for the LPAR you are using to install.

12. The stand alone program loader panel displays on the Integrated 3270 console after issuing the IPL.

```
 STAND ALONE PROGRAM LOADER: z/VM VERSION 5 RELEASE 2.0

 DEVICE NUMBER:   dasdaddr   MINIDISK OFFSET:   nnnnnnnn   EXTENT:  1

 MODULE NAME:     CPLOAD     LOAD ORIGIN:       2000

 --------------------------------IPL PARAMETERS--------------------------------
cons=consaddr pdvol=edevaddr


 ----------------------------------COMMENTS----------------------------------




 --------------------------------------------------------------------------------


 9= FILELIST  10= LOAD  11= TOGGLE EXTENT/OFFSET
```

Figure 9. Sample Stand Alone Program Loader Panel

13. Move the cursor to the IPL PARAMETERS field and type

cons=*consaddr* **pdvol=***edevaddr*

As shown in Figure 9, *dasdaddr* is the device address of the 520RES for 3390 or the fcp address for the SCSI (FBA).

consaddr is SYSG for first-level IPL.

If using a 3390, do not use **pdvol=***edevaddr*

edevaddr is the device address of the 520RES for SCSI (FBA). .

14. Press **PF10** to load.

PF10

15. The IPL of your z/VM system continues:

```
hh:mm:ss z/VM V5 R2.0
          SERVICE LEVEL nnnn (64-BIT)

hh:mm:ss SYSTEM NUCLEUS CREATED ON yyyy-mm-dd AT hh:mm:ss,
          LOADED FROM 520RES
hh:mm:ss ******************************************
hh:mm:ss * LICENSED MATERIALS - PROPERTY OF IBM*   *
hh:mm:ss * 5741-A05 (C) COPYRIGHT IBM CORP. 1983,  *
hh:mm:ss * 2005. ALL RIGHTS RESERVED.             *
hh:mm:ss * US GOVERNMENT USERS RESTRICTED RIGHTS - *
hh:mm:ss * USE, DUPLICATION OR DISCLOSURE          *
hh:mm:ss * RESTRICTED BY GSA ADP SCHEDULE CONTRACT *
hh:mm:ss * WITH IBM CORP.                         *
hh:mm:ss *                                        *
hh:mm:ss * * TRADEMARK OF INTERNATIONAL BUSINESS   *
hh:mm:ss *   MACHINES                             *
hh:mm:ss ******************************************
hh:mm:ss HCPZCO6718I Using parm disk 1 on volume 520RES (device xxxx).
hh:mm:ss HCPZCO6718I Parm disk resides on blocks/cylinders xxx through xxx.
  ⋮
```

You may receive an informational message, HCPISU951I, about volumes not mounted. If you are not using those volume labels, ignore this message.

Attention: If you receive informational message HCPIIS954I for your 520RES volume (for example, DASD 5516 VOLID 520RES IS A DUPLICATE OF DASD 5516), you can ignore this message and proceed. For any other occurrence of HCPIIS954I, you have duplicate volumes with the same label. Make a note of the duplicate volumes and enter SHUTDOWN at the next prompt. Second-level install, detach the duplicate volumes. First level install, relabel the duplicate volumes. Then go back to substep 1 on page 94.

```
hh:mm:ss Start ((Warm|Force|COLD|CLEAN) (DRain)
          (DIsable) (NODIRect) (NOAUTOlog)) or (SHUTDOWN)
```

cold drain noautolog

Because there is no data or accounting information to recover, use **cold drain** to request a cold start. Use **noautolog** at this point because you cannot have the servers and all user IDs logged on.

```
NOW hh:mm:ss {EST|EDT} weekday yyyy-mm-dd
Change TOD clock (yes|no)
```

no

16. CP logs on the primary system operator (user ID OPERATOR).

```
hh:mm:ss The directory on volume 520RES at address nnnn
           has been brought online.
hh:mm:ss HCPWRS2513I
hh:mm:ss HCPWRS2513I Spool files available    nnnn
```

Note: Depending on the type of spool files available, you may receive the following prompt:

Spool Files Prompt

```
hh:mm:ss HCPWRS2513I
hh:mm:ss HCPWRS2513I Spool files on offline volumes      {nnnn|NONE}
hh:mm:ss HCPWRS2513I Spool files with I/O errors         {nnnn|NONE}
hh:mm:ss HCPWRS2513I Spool files with control errors     {nnnn|NONE}
hh:mm:ss HCPWRS2513I Spool files to be discarded         {nnnn|NONE}
hh:mm:ss HCPWRS2513I                                      -------
hh:mm:ss HCPWRS2513I Total files to be deleted            nnnn
hh:mm:ss HCPWRS2511A
hh:mm:ss HCPWRS2511A Spool files will be deleted because of
                     COLD start.
hh:mm:ss HCPWRS2511A No files have been deleted yet.


hh:mm:ss HCPWRS2511A To continue COLD start and delete files,
                       enter GO.
hh:mm:ss HCPWRS2511A To stop COLD start without deleting
                       files, enter STOP.
```

go

Here the system gives you an opportunity to stop the cold start and save your spool files. You do not need to save any spool files at this time; answer **go**.

```
hh:mm:ss HCPWRS2512I Spooling initialization is complete.
hh:mm:ss DASD nnnn dump unit CP IPL pages nnnn
hh:mm:ss HCPAAU2700I System gateway ZVMV5R20 identified.
hh:mm:ss z/VM Version 5 Release 2.0, Service Level 0000 (64-bit),
hh:mm:ss built on IBM Virtualization Technology
hh:mm:ss There is no logmsg data
hh:mm:ss FILES:   NO RDR,   NO PRT,   NO PUN
hh:mm:ss LOGON AT hh:mm:ss EDT DAY mm/dd/yy
hh:mm:ss GRAF  nnnn LOGON  AS  OPERATOR USERS = n
hh:mm:ss HCPIOP952I nnnnM system storage
hh:mm:ss FILES: nnnnnnnn RDR, nnnnnnnn PRT,      NO PUN
HCPCRC8082I Accounting records are accumulating for userid DISKACNT.
```

17. Disconnect from the OPERATOR user ID.

disconnect

```
DISCONNECT AT hh:mm:ss {EST|EDT} weekday mm/dd/yy

Press enter or clear key to continue
```

ENTER

18. Log on to the MAINT user ID.

ENTER

The default password for MAINT is MAINT.

logon maint

```
HCPLNM102E 080D DASD force R/O; R/W by operator
HCPLNM101E 080E DASD force R/O; R/O by operator
z/VM Version 5 Release 2.0, Service Level 0000 (64-bit),
built on IBM Virtualization Technology
There is no logmsg data
FILES: nnnn RDR,   NO PRT,   NO PUN
LOGON AT hh:mm:ss EDT DAY yyyy-mm-dd
```

```
z/VM V5.2.0    yyyy-mm-dd hh:mm
 ENTER
Ready; T=n.nn/n.nn hh:mm:ss
```

Step 5. Run INSTVM EXEC

In this step, you will:

- Run INSTVM with the DVD option to complete installation tasks.

Note: Running the INSTVM EXEC requires a full screen terminal with at least 20 lines.

1. IPL CMS to verify the CMS saved system is available..

   ipl cms

   ```
   z/VM V5.2.0    yyyy-mm-dd hh:mm
   ENTER
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

   Note: If the CMS saved system does not exist, there is a problem with spool space, resolve the problem BEFORE you attempt to continue.

2. Run INSTVM to complete the installation of z/VM from DVD.

   Enter:

   instvm dvd

   ```
   HCPPLD8392I POSTLOAD EXEC ENDED SUCCESSFULLY


   DMSACC724I 2CC replaces C (2CC)
   AUTO LOGON  ***       VMSERVU  USERS = n
   HCPCLS6056I XAUTOLOG information for VMSERVU: The IPL command is verified by the IPL
     command processor.
   VMSERVU : z/VM V5.2.0    yyyy-mm-dd hh:mm
   VMSERVU : DMSACP723I B (193) R/O
   VMSERVU : DMSWFV1117I FILESERV processing begun at hh:mm:ss on dd month yyyy
   VMSERVU : DMSWFV1121I VMSERVU DMSPARMS A1 will be used for FILESERV processing
   VMSERVU : DMSWFV1121I VMSYSU POOLDEF A1 will be used for FILESERV processing
   VMSERVU : DMS5BB3045I Ready for operator communications
   AUTO LOGON  ***       VMSERVR  USERS = n
   HCPCLS6056I XAUTOLOG information for VMSERVR: The IPL command is verified by the IPL
     command processor.
   VMSERVR : z/VM V5.2.0    yyyy-mm-dd hh:mm
   VMSERVR : DMSACP723I B (193) R/O
   VMSERVR : DMSWFV1117I FILESERV processing begun at hh:mm:ss on dd month yyyy
   VMSERVR : DMSWFV1121I VMSERVR DMSPARMS A1 will be used for FILESERV processing
   VMSERVR : DMSWFV1121I VMSYSR POOLDEF A1 will be used for FILESERV processing
   VMSERVR : DMS6LG3335I CRR log recovery begins at mm-dd-yy hh:mm:ss
   VMSERVR : DMS6LG3335I CRR log recovery completes at mm-dd-yy hh:mm:ss
   VMSERVR : DMS5BB3045I Ready for operator communications
   ```

Extra messages received if all products were loaded to minidisks

```
DASD 0804 DETACHED
AUTO LOGON  ***       VMSERVS  USERS = n
HCPCLS6056I XAUTOLOG information for VMSERVS: The IPL command is verified
  by the IPL command processor.
VMSERVS : z/VM V5.2.0    yyyy-mm-dd hh:mmVMSERVS : DMSACP723I B (193) R/O
VMSERVS : DMSWFV1117I FILESERV processing begun at hh:mm:ss on dd month yyyy
VMSERVS : DMSWFV1121I VMSERVS DMSPARMS A1 will be used for FILESERV
 processing
VMSERVS : DMS4PD3400I Initializing begins for DDNAME = CONTROL
VMSERVS : DMS4PD3400I Initializing ends for DDNAME = CONTROL
VMSERVS : DMS4PD3400I Initializing begins for DDNAME = MDK00001
VMSERVS : DMS4PD3400I Initializing ends for DDNAME = MDK00001
VMSERVS : DMS4PD3400I Initializing begins for DDNAME = MDK00002
VMSERVS : DMS4PD3400I Initializing ends for DDNAME = MDK00002
VMSERVS : DMS4PD3400I Initializing begins for DDNAME = LOG1
VMSERVs : DMS4PD3400I Initializing ends for DDNAME = LOG1
VMSERVS : DMS4PD3400I Initializing begins for DDNAME = LOG2
VMSERVs : DMS4PD3400I Initializing ends for DDNAME = LOG2
VMSERVS : DMS5FD3032I File pool server has terminated
VMSERVS : DMSWFV1120I File VMSYS POOLDEF A1 created or replaced
VMSERVS : DMSWFV1117I FILESERV processing ended at hh:mm:ss on dd month yyyy
RDR FILE nnnn SENT FROM VMSERVS  PUN WAS nnnn RECS nnnn CPY  001 A NOHOLD
   NOKEEP
VMSERVS : File FILESERV VALID A3 sent to MAINT at ZVMV5R20 on
    mm/dd/yy hh:mm:ss
VMSERVS : Ready; T=n.nn/n.nn hh:mm:ss



HCPQCS150A User VMSERVS has issued a VM read
USER DSC   LOGOFF AS  VMSERVS  USERS = 2     FORCED BY MAINT
DASD 0804 DETACHED
```

```
AUTO LOGON  ***       VMSERVS  USERS = n
HCPCLS6056I XAUTOLOG information for VMSERVS: The IPL command is verified by
  the IPL command processor.
VMSERVS : z/VM V5.2.0    yyyy-mm-dd hh:mm
VMSERVS : DMSACP723I B (193) R/O
VMSERVS : DMSWFV1117I FILESERV processing begun at hh:mm:ss on dd month yyyy
VMSERVS : DMSWFV1121I VMSERVS DMSPARMS A1 will be used for FILESERV processing
VMSERVS : DMSWFV1121I VMSYS POOLDEF A1 will be used for FILESERV processing
VMSERVS : DMS5BB3045I Ready for operator communications
RC=0 from EXEC OPENVM UNMOUNT /                  You may not get this message.

HCPIFP8392I INSTPOOL EXEC ENDED SUCCESSFULLY
HCPIVM8392I INSTVM EXEC ENDED SUCCESSFULLY
Ready; T=n.nn/n.nn hh:mm:ss
```

Step 6. Run SERVICE EXEC

In this step, you will:

- Load the service files from the Recommended Service Upgrade (RSU) servlink.

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

   ENTER

   The default password for MAINT is MAINT.

   logon maint
   ⋮
   Ready; T=*n.nn/n.nn hh:mm:ss*

2. IPL CMS.

   ipl cms
   z/VM V5.2.0 *yyyy-mm-dd hh:mm*
   ENTER
   Ready; T=*n.nn/n.nn hh:mm:ss*

3. Access the disk containing the RSU servlink as (C):

   access 500 c
   DMSACC724I 500 replaces C (2CC)
   Ready;

   Note: If you did not load the RSU during Step 3, because you are using more current service from IBM Support, skip to 4 on page 167. Return here after receiving your service envelope(s) and continue with substep 5.

4. Get the filenames of the RSU envelopes on the 500 disk:

   listfile * servlink c
   520*x*RSU*n* servlink c
   520*x*RSU*n* servlink c

   520*x*RSU*n*
   where *x* is the RSU number and *n* is the volume number

5. Run SERVICE:

   service all *envfn1 envfn2 ...*
   VMFSRV2760I SERVICE processing started
   ⋮
   VMFSRV2760I SERVICE processing completed successfully
   Ready; T=*n.nn/n.nn hh:mm:ss*

   If the only file on the 500 disk was 5201RSU SERVLINK, *envfn1* is 5201RSU. If there are other 520*x*RSU*n* files on the 500 disk, *envfn1* is the file name for the first envelope 520*x*RSU1, *envfn2* is the file name for the second envelope 520*x*RSU2, and so forth.

6. View the SERVICE messages log (VMFVIEW SERVICE) and handle any non-zero return code, if necessary. Base your action on the following table:

If you received . . .	Then . . .
Return code 4	1. Issue **VMFVIEW SERVICE**. You can ignore any warning messages in the **Note** below in this table. Take appropriate action based on other warning messages you receive. 2. Go to “Step 7. Run PUT2PROD EXEC” on page 104.
A return code greater than 4	1. Issue **VMFVIEW SERVICE** and check for warning and error messages. 2. You can ignore any warning messages in the **Note** below in this table. Take appropriate action based on other warning messages you receive. 3. Correct all errors reported in the error messages. 4. Restart by issuing the SERVICE command as displayed in the message VMFSRV2310W. 5. If you get a non-zero return code, repeat substep 6. 6. Go to “Step 7. Run PUT2PROD EXEC” on page 104.

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

- `DMSLIO201W The following names are undefined: ISPLINK ARIPRDI`
- `DMSLIO201W The following names are undefined: DMSDSCSC`
- `DMSLIO201W The following names are undefined:  DMSUSRX1 DMSUSRX2`
- `DMSLIO202W Duplicate identifier` messages associated with object IOACMAIN MODULE.
- `DMSLKD004W Warning messages issued` messages associated with objects ILBONBL, ILBONTR, ILBOREC, ILBORNT, ILBOSND, ILBOSNT, and ILBOSSN.
- `VMFSRV1221W The CP Stand Alone Dump Utility must be rebuilt.` (This message may be ignored at this time.)

7. Use the VMFUPDAT SYSMEMO command to review any memos that were received with this service.

Step 7. Run PUT2PROD EXEC

In this step, you will:

- Run PUT2PROD to place the product into production.

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

   ENTER logon maint The default password for MAINT is MAINT.

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

2. IPL CMS.

   ipl cms

   ```
   z/VM V5.2.0    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 non-zero return code. Base your action on the following table:

If you received . . .	Then . . .
Return code 4	• Issue **VMFVIEW PUT2PROD**. You can ignore any warning messages in the **Note** below in this table. Take appropriate action based on other warning messages you receive.
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 **Note** below in this table. 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 get a non-zero 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.`
- `TCPMSM0002W File TCPIP DATA cannot be located`
- `TCPMSM0002W TCP/IP appears not to have been configured`

Step 8. Shutdown and Re-IPL Your System

In this step, you will:

- Shutdown your z/VM version 5 release 2 system
- Re-IPL your z/VM version 5 release 2 system using the new CP nucleus.

1. Shutdown and re-IPL the z/VM version 5 release 2 system.

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

This message is displayed on all enabled consoles.

First-Level Only

The real system console shows disabled PSW wait state.

```
HCPWRP963I STARTING SHUTDOWN STEP . . .
.
.
.
HCPWRP962I VM SHUTDOWN COMPLETED IN n SEC
HCPWRP9277I SYSTEM TERMINATION COMPLETE,
             ATTEMPTING RESTART
```

This will appear on the operator's console.

2. The IPL of your z/VM system continues:

```
hh:mm:ss HCPWRP9277I SYSTEM TERMINATION COMPLETE.
          ATTEMPTING RESTART
hh:mm:ss z/VM SYSTEM RESTART FROM SHUTDOWN REIPL
hh:mm:ss z/VM V5 R2.0
          SERVICE LEVEL nnnn (64-BIT)

hh:mm:ss SYSTEM NUCLEUS CREATED ON yyyy-mm-dd AT hh:mm:ss,
          LOADED FROM 520RES
hh:mm:ss ******************************************
hh:mm:ss * LICENSED MATERIALS - PROPERTY OF IBM*   *
hh:mm:ss * 5741-A05 (C) COPYRIGHT IBM CORP. 1983,  *
hh:mm:ss * 2005. ALL RIGHTS RESERVED.              *
hh:mm:ss * US GOVERNMENT USERS RESTRICTED RIGHTS - *
hh:mm:ss * USE, DUPLICATION OR DISCLOSURE          *
hh:mm:ss * RESTRICTED BY GSA ADP SCHEDULE CONTRACT *
hh:mm:ss * WITH IBM CORP.                          *
hh:mm:ss *                                         *
hh:mm:ss * * TRADEMARK OF INTERNATIONAL BUSINESS   *
hh:mm:ss *   MACHINES                              *
hh:mm:ss ******************************************
hh:mm:ss HCPZCO6718I Using parm disk 1 on volume volid (device xxxx).
hh:mm:ss HCPZCO6718I Parm disk resides on cylinders xx through xx.
   ⋮
```

Attention: If you receive informational message HCPIIS954I for your 520RES volume (for example, DASD 5516 VOLID 520RES IS A DUPLICATE OF DASD 5516), you can ignore this message and proceed. For any other occurrence of HCPIIS954I, you have duplicate DASD with the same label and must correct this error before continuing.

```
hh:mm:ss The directory on volume 520RES at address nnnn
          has been brought online.
hh:mm:ss HCPWRS2513I
hh:mm:ss HCPWRS2513I Spool files available     {nnnn|none}


hh:mm:ss HCPWRS2512I Spooling initialization is complete.
   ⋮
hh:mm:ss FILES:     nnn RDR,     nnn PRT,     nnn PUN
hh:mm:ss LOGON AT hh:mm:ss {EST|EDT} weekday mm/dd/yy
   ⋮

hh:mm:ss HCPIOP952I nnnnM system storage
hh:mm:ss FILES: nnnnnnn RDR, nnnnnnn PRT,      NO PUN
```

This message tells you the amount of storage available.

The FILES message here refers to operator spool files.

CP automatically disconnects from the primary system operator (user ID OPERATOR).

```
hh:mm:ss HCPUSO967I Disconnect OPERATOR - system
          restarted SHUTDOWN and system console
          not VM operator console
HCPCRC8082I Accounting records are accumulating for userid DISKACNT
hh:mm:ss DISCONNECT AT hh:mm:ss {EST|EDT} weekday mm/dd/yy
hh:mm:ss Press enter or clear key to continue
ENTER
```

Press enter or clear key to continue.

3. Log on to the MAINT user ID.

ENTER

The password for MAINT is MAINT.

logon maint

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

What to do next

If you want to configure a basic IP network connection at this time, go on to “Step 9. Configure TCP/IP for an Initial Network Connection” on page 107. Otherwise, go to “Step 10. Back Up the Named Saved Systems and Segments on Tape” on page 111.

Step 9. Configure TCP/IP for an Initial Network Connection

You can optionally configure TCP/IP after you have completed your z/VM installation. 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.

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 10. Back Up the Named Saved Systems and Segments on Tape” on page 111.

For details about any DTCIPW messages you may receive while running IPWIZARD, refer to *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 System z9 and zSeries* to set up your Linux images, skip this step and go to “Step 10. Back Up the Named Saved Systems and Segments on Tape” on page 111.

If you came to this step from *z/VM: Getting Started with Linux on System z9 and zSeries*, continue with this step and then return to *z/VM: Getting Started with Linux on System z9 and zSeries*.

In this step, you will:

- Configure TCP/IP.

1. Gather the information from the TCP/IP Configuration Worksheet (Table 10 on page 73).
2. Access minidisk 193.

   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
```

4. Using the information you gathered in the TCP/IP Configuration Worksheet (Table 10 on page 73), fill in the panel and press **PF8** to continue.
5. Depending on whether you selected IPv4 or IPv6 addresses, fill in one of the following panels and press **PF8** to continue.

   Note: IPv6 is supported only for QDIO ethernet interfaces.

   For **IPv4** interfaces:

```
       *** General Interface Configuration Panel ***

  Interface name: _________________      Device Number: ____

  IP Address:     _______________
  Subnet mask:    _______________

  Interface Type (select one):

       __QDIO           __LCS        __HiperSockets
       __CLAW           __CTC
⋮
  PF1 = HELP PF3 = QUIT PF7 = Backward PF8 = Continue ENTER = Refresh
```

   For **IPv6** interfaces:

```
       *** General Interface Configuration Panel ***

  Note: IPv6 is only supported for QDIO Ethernet devices

  Interface name: _________________      Device Number: ____

  IP Address:  ____________________________
  Prefix Length: ___
⋮
  PF1 = HELP PF3 = QUIT PF7 = Backward PF8 = Continue ENTER = Refresh
```

6. Depending on which interface type you selected, fill in one of the following panels, then press **PF5** to process.

   For the **QDIO** interface with **IPv6**:

```
            *** QDIO Interface Configuration Panel ***

  Port name (optional): ________

  Router type (Select one):
   __Primary  __Secondary __None

  Maximum Transmission Unit (MTU) size: ______

  Send Router Advertisements (Select One): __On  __Off
⋮
  PF1 = HELP PF3 = QUIT PF5 = Process PF7 = Backward ENTER = Refresh
```

   For the **QDIO** interface with **IPv4**:

```
           *** QDIO Interface Configuration Panel ***  Page 3 of 3

  Network type (Select one):
  __Ethernet __Token Ring

  Port name: ________

  Router type (Select one):
   __Primary  __Secondary __None

  Maximum Transmission Unit (MTU) size: ______
:
  PF1 = HELP PF3 = QUIT PF5 = Process PF7 = Backward ENTER = Refresh
```

For the **LCS** interface:

```
            *** LCS Interface Configuration Panel ***

  Network type (Select one):
  __Ethernet  __Token Ring __FDDI

  Port/Adapter number:  ___

  Maximum Transmission Unit (MTU) size: ______
:
  PF1 = HELP PF3 = QUIT PF5 = Process PF7 = Backward ENTER = Refresh
```

For the **HiperSockets** interface:

```
       *** HiperSockets Interface Configuration Panel ***

  Maximum Frame Size (MFS): __ K
:
  PF1 = HELP PF3 = QUIT PF5 = Process PF7 = Backward ENTER = Refresh
```

For the **CLAW** interface:

```
           *** CLAW Interface Configuration Panel ***

  The items that follow must match values configured on the CLAW device.

  CLAW host name:    ________

  CLAW adapter name: ________

  Maximum Transmission Unit (MTU) size: ______
:
  PF1 = HELP PF3 = QUIT PF5 = Process PF7 = Backward ENTER = Refresh
```

For the **CTC** interface:

The write channel device numbers from which you can choose, *devnum1* and *devnum2*, automatically display in the CTC Interface Configuration Panel. *devnum1* is the device number specified on the General Interface Configuration panel. *devnum2* is the device number specified on the General Interface Configuration panel plus 1.

```
           *** CTC Interface Configuration Panel ***

  Write Channel Device Number (Select one):
  _ 03E0 _ 03E1

  Maximum Transmission Unit (MTU) size: ______

  Peer IP Address: _____________
:
  PF1 = HELP PF3 = QUIT PF5 = Process PF7 = Backward ENTER = Refresh
```

7. The IPWIZARD displays the following and, if the TCPIP userid is logged on, asks if you want to restart TCPIP and continue processing.

```
DTCIPW2508I DTCIPWIZ EXEC is attempting to create the necessary
DTCIPW2508I configuration files
The TCP/IP stack (TCPIP) must be restarted as part of this procedure. Would
you like to restart TCPIP and continue?
Enter 0 (No), 1 (Yes)
```

If you continue, IPWIZARD tests the information you provided and returns any error that occurred. If no errors were encountered, TCP/IP configuration files containing the network information you provided will be created. See *z/VM: TCP/IP Planning and Customization* for additional information on configuring TCP/IP.

Step 10. Back Up the Named Saved Systems and Segments on Tape

In this step, you will:

- Back up all the named saved systems and segments, including CMS, on tape.

1. Follow the First-Level or Second-Level steps that follow to attach a tape drive.

First-Level Only

a. Attach a tape drive to MAINT.

Second-Level Only

a. Attach the tape drive to the first-level system.

b. Attach the tape drive to MAINT on a second-level system.

2. Mount a scratch tape in write mode.

3. Spool the console.

   spool console * start

4. Enter the SPXTAPE command to dump the named saved systems and segments to tape.

   spxtape dump *devno* **sdf all run**

   Substitute the address of the tape drive for the value *devno*. *devno* is the address you used to define the device. The operand RUN specifies that the SPXTAPE rewinds and unloads the tape after the operation.

```
SPXTAPE DUMP   INITIATED ON VDEV devno

Ready; T=n.nn/n.nn hh:mm:ss
DUMPING  devno  :         nnn  FILES,  PAGES      nnnn   nn% COMPLETE
   :
DUMPING  devno  :         nnn  FILES,  PAGES      nnnn   nn% COMPLETE
RDR FILE fileno1 SENT FROM MAINT    CON WAS fileno1 RECS nnnn CPY  001 T NOHOLD NOKEEP
SPXTAPE DUMP COMMAND COMPLETED  ON VDEV devno
TIME STARTED:        hh:mm:ss
TIME ENDED:          hh:mm:ss
TAPE COUNT:               nnn
FILES PROCESSED:          nnn
SPOOL PAGES:             nnnn

RDR FILE fileno2 SENT FROM MAINT    CON WAS fileno2 RECS nnnn CPY  001 T NOHOLD NOKEEP
```

   The messages from SPXTAPE tell you that the files are being dumped to tape.

   fileno1 is the 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 is the file number of the command summary log file. The command summary log file records the progress and status of the SPXTAPE DUMP operation.

5. 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, see the *z/VM: CP Commands and Utilities Reference*. For information on how to restore this tape to your system, see Appendix G, “Restore Your Named Saved Systems and Segments from Tape,” on page 193.

Step 11. Store a Backup Copy of the z/VM System on Tape

In this step, you will:

- Load the DDRXA utility to tape
- Use DDRXA to store a backup copy of the z/VM system on tape.

Attention: You must back up **all** your installation volumes in order to back up the z/VM system. You may wish to check your Installation Worksheet. This example requires a full pack minidisk be defined in the CP directory, USER DIRECT, for each volume you are dumping to tape.

Note: If you do not have a tape drive available, back up the system to alternate DASD using DDR with the COPY function.

1. Mount a scratch tape in write mode.
2. Attach the tape drive to MAINT at virtual device address 181.

   attach *devno* *** 181**

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

   The ATTACH command attaches the device (*devno*) to MAINT's virtual machine at virtual device address 181.

3. Access the 193 minidisk in read/write mode.

   access 193 z

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

4. Load the DDRXA utility to tape.

   utility utiltape ddrxa

   ```
   Rewind complete
   HCPWUT8317I MOVING IPL DDRXA TO TAPE
   HCPWUT8318I THE IPL DDRXA PROGRAM IS
                ON TAPE FILE NUMBER 1
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

5. Rewind the scratch tape on virtual device number 181.

   rewind 181

   ```
   Rewind complete
   ```

6. 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

   Clear is necessary. Do not omit it.

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

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

   sysprint cons

   This first control statement tells DDRXA that you want program messages sent to your console.

   ```
   ENTER:
   ```

input *devno* **dasd** *volid*
ENTER:

The second control statement is the input control statement.

devno is the full pack minidisk address of the volume you are backing up. You must back up **all** your installation volumes.

The fullpack minidisk addresses for the default DASD are 122 (520SPL), 123 (520RES), 124 (520W01), 125 (520W02), ...

By typing the word **dasd**, the device type (3390) is automatically identified by the DDRXA program.

volid is the label of this volume, for example 520RES.

output 181 tape (compact
ENTER:

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 to 181 and an alternate tape attached to 182, the OUTPUT control statement would be:

```
output 181 tape 182 (compact
```

By typing the word **tape**, the tape device type is automatically identified by the DDRXA program.

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
```

dump all

This control statement dumps the specified volume to the tape.

```
DUMPING volid
DUMPING DATA mm/dd/yy
  AT hh.mm.ss GMT FROM volid
```

These are informational messages that will vary according to your use of device types. GMT means Greenwich Mean Time.

The exact cylinder extents vary according to the device type.

```
INPUT CYLINDER EXTENTS          OUTPUT CYLINDER EXTENTS
      START       STOP                START        STOP
   nnnnnnnn   nnnnnnnn             nnnnnnnn    nnnnnnnn

   ⋮
END OF DUMP
BYTES IN nnnnnnnnnn BYTES OUT nnnnnnnnnn
TRACKS NOT COMPACTED ON TAPE - nnnnnnnnnn
ENTER:
```

When DDRXA finishes dumping the volume, it prompts you with ENTER.

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.

7. 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.
8. To end the program, press the **Enter** key.

```
ENTER
END OF JOB
```

9. Re-IPL CMS.

```
#cp ipl cms
z/VM V5.2.0    yyyy-mm-dd hh:mm
ENTER                                   Press Enter to return to the command line.
Ready; T=n.nn/n.nn hh:mm:ss
```

For information on how to restore your system from tape, see Appendix F, “Restore the z/VM System Backup Copy from Tape,” on page 191.

Step 12. 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 13. Create an IPLable ICKDSF Utility Tape" on page 117.

1. Mount a scratch tape in write mode.
2. Attach the tape drive to MAINT at virtual device address 181.

   attach *devno* * **181**

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

   The ATTACH command attaches the device (*devno*) to MAINT's virtual machine at virtual device address 181.

3. Access the 193 minidisk in read/write mode.

   access 193 z

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

4. Load the DDRXA utility to tape.

   utility utiltape ddrxa

   ```
   Rewind complete
   HCPWUT8317I MOVING IPL DDRXA TO TAPE
   HCPWUT8318I THE IPL DDRXA PROGRAM IS
                ON TAPE FILE NUMBER 1
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

5. Rewind the scratch tape on virtual device number 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 the *z/VM: CP Commands and Utilities Reference* and *z/VM: System Operation*.

   ipl 181 clear

   Clear is necessary. Do not omit it.

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

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

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

7. Re-IPL CMS.

   #cp ipl cms

   ```
   z/VM V5.2.0    yyyy-mm-dd hh:mm
   ENTER
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

   Press **Enter** to return to the command line.

8. Rewind the tape and store for future use.

   tape run

Step 13. 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 14. Create a Stand-alone Dump Tape” on page 119.

1. Mount a scratch tape in write mode.
2. Attach the tape drive to MAINT at virtual device address 181.

   attach *devno* *** 181**

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

   The ATTACH command attaches the device (*devno*) to MAINT’s virtual machine at virtual device address 181.

3. Access the 193 minidisk in read/write mode.

   access 193 z

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

4. Load the ICKDSF utility to tape.

   utility utiltape ickdsf

   ```
   Rewind complete
   HCPWUT8317I MOVING IPL ICKDSF TO TAPE
   HCPWUT8318I THE IPL ICKDSF PROGRAM IS
                ON TAPE FILE NUMBER 1
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

5. Rewind the scratch tape on virtual device number 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 the *z/VM: CP Commands and Utilities Reference* and *z/VM: System Operation*.

   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 the **Enter** key.

   ```
   z/VM DASD DUMP/RESTORE PROGRAM
   ENTER CARD READER ADDRESS OR CONTROL STATEMENTS
   ENTER:
   ICK005E DEFINE INPUT DEVICE, REPLY
            'DDDD,CUU' OR 'CONSOLE'
   ENTER INPUT/COMMAND:
   ```

   This message tells you that the Device Support Facilities (ICKDSF) is loaded and ready.

   console

   ```
   CONSOLE
   ICK006E DEFINE OUTPUT DEVICE, REPLY
            'DDDD,CUU' or 'CONSOLE'
   ENTER INPUT/COMMAND:
   ```

7. Re-IPL CMS.

   #cp ipl cms

   ```
   z/VM V5.2.0    yyyy-mm-dd hh:mm
   ```

ENTER

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

Press **Enter** to return to the command line.

8. Rewind the tape and store for future use.

   tape run

Step 14. Create a Stand-alone Dump Tape

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

Refer to *z/VM: CP Planning and Administration* Chapter 13. Using the Stand-Alone Dump Utility for instructions on creating a stand-alone dump utility on tape.

Note: Do not use a stand alone dump tape or DASD created from a previous release of z/VM to attempt to dump your z/VM 5.2.0 system. When the HCPSADMP utility asks if you want to create a new HCPSDC MODULE, be sure to answer YES to create a new one for z/VM Version 5.2.0.

Step 15. Store a Backup Copy of the z/VM System on DASD

In this step, you will:

- If you do not have a tape drive available, use DDR to store a backup copy of the z/VM system on DASD.

Attention: You must back up **all** your installation volumes in order to back up the z/VM system. You may wish to check your Installation Worksheet. This example requires a full pack minidisk be defined in the CP directory, USER DIRECT, for each volume you are dumping to tape.

1. Access the 193 minidisk in read/write mode.

   access 193 z

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

2. 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:
   ```

   sysprint cons

   ```
   ENTER:
   ```

   This first control statement tells DDR that you want program messages sent to your console.

   input *devno* **dasd** *volid*

   ```
   ENTER:
   ```

   The second control statement is the input control statement.

   devno is the full pack minidisk address of the volume you are backing up. You must back up **all** your installation volumes.

   The fullpack minidisk addresses for the default DASD are 122 (520SPL), 123 (520RES), 124 (520W01), 125 (520W02), ...

   By typing the word **dasd**, the device type (3390) is automatically identified by the DDR program.

   volid is the label of this volume, for example 520RES.

   output *devno* **dasd scratch**

   ```
   ENTER:
   ```

   devno is the full pack minidisk address of the volume you are using to backup, you need a separate volume for each volume you are backing up.

   copy all

   This control statement dumps the specified volume to the new DASD.

   ```
   DUMPING volid
   DUMPING DATA mm/dd/yy
     AT hh.mm.ss GMT FROM volid
   ```

   These are informational messages that will vary according to your use of device types. GMT means Greenwich Mean Time.

   The exact cylinder extents vary according to the device type.

```
INPUT CYLINDER EXTENTS           OUTPUT CYLINDER EXTENTS
      START       STOP                 START        STOP
   nnnnnnnn    nnnnnnnn             nnnnnnnn     nnnnnnnn

   .
   .
   .
END OF DUMP
BYTES IN nnnnnnnnnn BYTES OUT nnnnnnnnnn
TRACKS NOT COMPACTED ON TAPE - nnnnnnnnnn
ENTER:
```

When DDR finishes dumping the volume, it prompts you with ENTER.

3. If you have any more DASD volumes to back up, repeat the INPUT, OUTPUT, and COPY ALL statements for each volume.
4. To end the program, press the **Enter** key.

```
ENTER
END OF JOB
```

What to Do Next

Go to Part 3, “Post z/VM System Installation,” on page 123.

Part 3. Post z/VM System Installation

Part 3 contains the following:

- 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 9. Plan Your Migration

This chapter contains:

Step 1. Overview

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

Information you may want to transfer includes:

- Customized files
- Local mods
- Service
- User-created files
- Saved segment definitions
- Spool files
- User directory entries
- SFS file pool servers
- Application programs.

This migration procedure automates the transfer of the following types of files from your current system to your new system:

- Customized files as defined in the product's migration part table (*prodid* MIGP*vrm*)
- Local mods 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* MIGD*vrm*).

This migration procedure supports only the components and products that comprise the z/VM deliverable and can be used only to transfer files from a z/VM 5.1.0 system to a z/VM 5.2.0 system.

As this migration procedure is used, you will be advised of further actions required to complete the migration procedure (such as reworking local mods 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. Refer to the *z/VM: Migration Guide* and product-specific Program Directories.

- 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.

If you are currently running a level of VM older than z/VM 5.1.0, you cannot use these migration procedures.

If you want to use these procedures in a future release of z/VM you need to do the following:

- 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 shared file system (SFS) for your own data, use VMSYSU. Do not use VMSYS or VMSYSR.
- Additional minidisks should not be defined on the DASD volumes used for the installation defined packs (default labels are 520RES, 520W01 and 520W02).

If you do not want to use this Migration procedure:
Go to Chapter 13, “Preinstalled Licensed Products and Features,” on page 159.

Step 2. Requirements

Note: These migration procedures support only the components and products that comprise the z/VM deliverable. You should run this migration procedure immediately after completing your installation, prior to enabling or customizing any components on your new system.

1. To use this migration procedure you must meet these requirements on your first level 510 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 local modifications, has been provided with past releases of VM to assist with such changes.
     – If you use a storage management tool (for example DFSMS) you need to make sure that the autorecall function is turned on so that stored files are available before running these procedures.
   - PPFs
     – The variable labels in the DCL section of a product's PPF must not be changed.
     – 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 you have changed a disk or SFS directory definition for a given component, your changes must be reflected in all PPFs that contain that disk or SFS directory.
   - If any preinstalled products reside in SFS on your current system
     – You must have APAR VM63814 for CMS installed on your current system.
     – A TSAF collection will be used to allow filepool access.
     – 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 filemode A. An SFS directory cannot be used.
2. Requirements for the user ID on your current system where you will run these procedures
   - 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 filemode A. An SFS directory cannot be used.
   - If any preinstalled products reside in SFS, the user ID must have SFS administration authority to all filepools that contains these products.
3. Considerations for the 520 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 you have increased the size of any disk shipped on the VM Installation media on the current system (unless instructed to do so by IBM Service), you may need to increase the size of that disk on the new system before migration.
   - Do not make any changes to your new 520 system before using these migration procedures other than applying an RSU. Do not customize servers or filepools. 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. If you want to use these procedures in a future release of z/VM you need to do the following:

- 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 creating and reworking local modifications is provided with VMSES/E.
- If you want to use an IBM-supplied shared file system (SFS) for your own data, use VMSYSU. Do not use VMSYS or VMSYSR.
- Additional minidisks should not be defined on the DASD volumes used for the installation defined packs (For your current system, the default labels were 510RES, 510W01 and 510W02. For your new system, the default labels were 520RES, 520W01 and 520W02).

Step 3. Complete the Migration Worksheet

1. Record the addresses of your 520 DASD on the Migration Worksheet Table 16.
2. Select the current system user ID you will use to run these procedures. Verify that this user ID meets the following requirements, and then record the user ID in the Migration Table.
   - 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 filemode 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 filepools that contain these products.
3. If no preinstalled products reside in SFS on your current system, record a **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 autorecall question; Otherwise record a **No** in the table

Table 16. Migration Worksheet

520 System DASD Addresses	_____	
Current system user ID you will use to run these procedures	_____	
SFS Section:		
Pre-installed products reside in SFS (Yes or No)	_____	If Yes, fill out the rest of the SFS Section
Is APAR VM63814 for CMS installed on your 510 System (Yes or No)	_____	If No, STOP here and return when the APAR is installed
TSAF collection user ID	_____	
TSAF user ID has a 191 (A) on minidisk not in SFS (Yes or No)	_____	If No, a 191 disk must be defined before continuing
End SFS Section		
Do you use a storage management tool? (Yes or No)	_____	
If Yes, is the autorecall function turned on so that stored files are available? (Yes or No)	_____	If No, the function must be turned on before continuing

Chapter 10. Set Up for Migration

This chapter contains:

- Step 1. IPL your newly installed 5.2.0 system
- Step 2. Run MIGSETUP
- Step 3. Run MIGLINK
- Step 4. IPL your 5.2.0 system.

Step 1. IPL Your Newly Installed 5.2.0 System

1. Make sure you have filled out the migration worksheet and reviewed all the requirements listed in Chapter 9, “Plan Your Migration,” on page 125
2. Log on to the current system user ID you selected to use for the migration procedures
3. Verify that this user ID has met the requirements listed in Chapter 9 Step 2 substep 2 on page 128
4. Attach the DASD used to install your new 520 system.

   Enter the following ATTACH command for each DASD listed in the migration worksheet:

   attach *dasdaddr* *****

   ```
    DASD dasdaddr ATTACHED TO userID dasdaddr
   ⋮
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

5. IPL your new 5.2.0 system

   a. Clear your virtual machine and make sure the z/VM system will recognize your terminal as a 3277, 3278, or 3279. This puts your virtual machine into a CP READ state.

   system clear

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

   Reset and clear your virtual machine storage.

   terminal conmode 3270

   b. Determine the amount of your virtual storage. If it is less than 64MB, define your storage to 64MB.

   query virtual storage

   ```
   STORAGE = nnnnM
   ```

   Run the DEFINE command **only** if you have less than 64M of storage.

   define storage 64m

   ```
   STORAGE =   64M
   Storage cleared - system reset
   ```

   c. Set virtual machine mode to XA.

   set machine xa

   ```
   SYSTEM RESET
   SYSTEM = XA
   ```

   Setting the virtual machine to XA architecture causes a reset as if you entered SYSTEM CLEAR. If your machine is already in XA mode, you will not get a response.

   d. 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       MDFY       0 FCB       LPP OFF
     consaddr 3270   NOEOF OPEN nnnn NOKEEP NOMSG NONAME
     consaddr SUBCHANNEL = nnnn
```

consaddr is the address of your virtual console.

e. IPL the system residence device (520RES) of your newly installed 5.2.0 system.

ipl *dasdaddr* **clear loadparm** *consaddr*

Clear is necessary. Do not omit it.

dasdaddr is the address of the system residence device (520RES).

consaddr is the address of your virtual console.

The stand alone program loader panel displays after issuing the IPL command.

```
 STAND ALONE PROGRAM LOADER: z/VM VERSION 5 RELEASE 2.0

 DEVICE NUMBER:   dasdaddr   MINIDISK OFFSET:   nnnnnnnn   EXTENT:  1

 MODULE NAME:     CPLOAD     LOAD ORIGIN:       1000

 --------------------------------IPL PARAMETERS-------------------------------
cons=consaddr


 ----------------------------------COMMENTS----------------------------------




 --------------------------------------------------------------------------------


 9= FILELIST  10= LOAD  11= TOGGLE EXTENT/OFFSET
```

Figure 10. Sample Stand Alone Program Loader Panel

f. Move the cursor to the IPL PARAMETERS field and type

cons=*consaddr*

As shown in Figure 10, *consaddr* is the primary system console address. This statement defines the operator console. Spaces are not allowed around the equal sign.

g. Press **PF10** to load.

PF10

h. The IPL of your z/VM system continues:

```
hh:mm:ss z/VM V5 R2.0
          SERVICE LEVEL nnnn (64-BIT)

hh:mm:ss SYSTEM NUCLEUS CREATED ON yyyy-mm-dd AT hh:mm:ss,
          LOADED FROM 520RES
hh:mm:ss ******************************************
hh:mm:ss * LICENSED MATERIALS - PROPERTY OF IBM*   *
hh:mm:ss * 5741-A05 (C) COPYRIGHT IBM CORP. 1983,  *
hh:mm:ss * 2005. ALL RIGHTS RESERVED.             *
hh:mm:ss * US GOVERNMENT USERS RESTRICTED RIGHTS - *
hh:mm:ss * USE, DUPLICATION OR DISCLOSURE          *
hh:mm:ss * RESTRICTED BY GSA ADP SCHEDULE CONTRACT *
hh:mm:ss * WITH IBM CORP.                         *
hh:mm:ss *                                        *
hh:mm:ss * * TRADEMARK OF INTERNATIONAL BUSINESS   *
hh:mm:ss *   MACHINES                             *
hh:mm:ss ******************************************
hh:mm:ss HCPZCO6718I Using parm disk 1 on volume 520RES (device xxxx).
hh:mm:ss HCPZCO6718I Parm disk resides on cylinders xxx through xxx.
   ⋮
```

You may receive an informational message, HCPISU951I, about volumes not mounted. If you are not using those volume labels, ignore this message.

Attention: If you receive informational message HCPIIS954I, you have duplicate volumes with the same label. You must return to the first-level CP environment (enter SHUTDOWN at the next prompt) and detach the duplicate volumes. Then go back to substep 5a on page 131.

```
hh:mm:ss Start ((Warm|Force|COLD|CLEAN) (DRain)
          (DIsable) (NODIRect) (NOAUTOlog)) or (SHUTDOWN)
force noautolog


NOW hh:mm:ss {EST|EDT} weekday yyyy-mm-dd
Change TOD clock (yes|no)
no
```

i. CP logs on the primary system operator (user ID OPERATOR).

```
hh:mm:ss The directory on volume 520RES at address nnnn
           has been brought online.
hh:mm:ss HCPWRS2513I
hh:mm:ss HCPWRS2513I Spool files available    nnnn


hh:mm:ss HCPWRS2512I Spooling initialization is complete.
hh:mm:ss DASD nnnn dump unit CP IPL pages nnnn
hh:mm:ss HCPAAU2700I System gateway ZVMV5R20 identified.
hh:mm:ss z/VM Version 5 Release 2.0, Service Level 0000 (64-bit),
hh:mm:ss built on IBM Virtualization Technology
hh:mm:ss There is no logmsg data
hh:mm:ss FILES:   NO RDR,   NO PRT,   NO PUN
hh:mm:ss LOGON AT hh:mm:ss EDT DAY mm/dd/yy
hh:mm:ss GRAF  nnnn LOGON  AS  OPERATOR USERS = n
hh:mm:ss HCPIOP952I nnnnM system storage
hh:mm:ss FILES: nnnnnnnn RDR, nnnnnnnn PRT,      NO PUN
hh:mm:ss HCPCRC8082I Accounting records are accumulating for userid DISKACNT
```

j. Disconnect from the OPERATOR user ID.

disconnect

```
DISCONNECT AT hh:mm:ss {EST|EDT} weekday mm/dd/yy

Press enter or clear key to continue
ENTER
```

k. Log on to the MAINT user ID.

ENTER The default password for MAINT is MAINT.

logon maint

```
z/VM Version 5 Release 2.0, Service Level nnnn (64-bit),
built on IBM Virtualization Technology
There is no logmsg data
FILES: nnnn RDR,   nnnn PRT,   nnnn PUN
LOGON AT hh:mm:ss EDT DAY yyyy-mm-dd
z/VM V5.2.0    yyyy-mm-dd hh:mm
ENTER
Ready; T=n.nn/n.nn hh:mm:ss
```

Step 2. Run MIGSETUP

1. Run the MIGSETUP exec 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*, take the appropriate action and rerun the command.

```
access 193 c
Ready;
migsetup
Ready;
```

2. Shut down the 520 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 00020000 00000000 00000000 00000961
```

3. IPL CMS on your current system user ID

```
ipl cms
   z/VM V5.1.0
    ENTER
   Ready;
```

Step 3. Run MIGLINK

1. Run the MIGLINK exec 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*, take the appropriate action and rerun the command.

```
miglink

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

HCPMLK8309R 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}
Ready;
```

   Note: If you logoff 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 reestablish your environment.

Step 4. IPL Your 520 System

1. IPL your 520 system

   system clear

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

   terminal conmode 3270

   query virtual storage

   ```
   STORAGE = nnnnM
   ```

   define storage 64m

   ```
   STORAGE =   64M
   Storage cleared - system reset
   ```

   set machine xa

   ```
   SYSTEM RESET
   SYSTEM = XA
   ```

2. 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       MDFY       0 FCB       LPP OFF
        consaddr 3270   NOEOF OPEN nnnn NOKEEP NOMSG NONAME
        consaddr SUBCHANNEL = nnnn
   ```

   consaddr is the address of your virtual console.

   ipl *dasdaddr* **clear loadparm** *consaddr*

   Clear is necessary. Do not omit it.

   dasdaddr is the address of the system residence device (520RES).

   consaddr is the address of your virtual console.

   The stand alone program loader panel displays after issuing the IPL command.

Step 4. IPL your 520 system

```
 STAND ALONE PROGRAM LOADER: z/VM VERSION 5 RELEASE 2.0

 DEVICE NUMBER:   dasdaddr   MINIDISK OFFSET:   nnnnnnnn   EXTENT:  1

 MODULE NAME:     CPLOAD     LOAD ORIGIN:       1000

 --------------------------------IPL PARAMETERS-------------------------------
cons=consaddr


 ----------------------------------COMMENTS--------------------------------------




 --------------------------------------------------------------------------------


 9= FILELIST  10= LOAD  11= TOGGLE EXTENT/OFFSET
```

Figure 11. Sample Stand Alone Program Loader Panel

3. Move the cursor to the IPL PARAMETERS field and type

   cons=*consaddr*

   As shown in Figure 11, *consaddr* is the primary system console address. This statement defines the operator console. Spaces are not allowed around the equal sign.

4. Press **PF10** to load.

   PF10

5. The IPL of your z/VM system continues:

```
hh:mm:ss z/VM V5 R2.0
          SERVICE LEVEL nnnn (64-BIT)

hh:mm:ss SYSTEM NUCLEUS CREATED ON yyyy-mm-dd AT hh:mm:ss,
          LOADED FROM 520RES
hh:mm:ss ******************************************
hh:mm:ss * LICENSED MATERIALS - PROPERTY OF IBM*   *
hh:mm:ss * 5741-A05 (C) COPYRIGHT IBM CORP. 1983,  *
hh:mm:ss * 2005. ALL RIGHTS RESERVED.              *
hh:mm:ss * US GOVERNMENT USERS RESTRICTED RIGHTS - *
hh:mm:ss * USE, DUPLICATION OR DISCLOSURE          *
hh:mm:ss * RESTRICTED BY GSA ADP SCHEDULE CONTRACT *
hh:mm:ss * WITH IBM CORP.                          *
hh:mm:ss *                                         *
hh:mm:ss * * TRADEMARK OF INTERNATIONAL BUSINESS   *
hh:mm:ss *   MACHINES                              *
hh:mm:ss ******************************************
hh:mm:ss HCPZCO6718I Using parm disk 1 on volume 520RES (device xxxx).
hh:mm:ss HCPZCO6718I Parm disk resides on cylinders xxx through xxx.
```

```
⋮
```

You may receive an informational message, HCPISU951I, about volumes not mounted. If you are not using those volume labels, ignore this message.

Attention: If you receive informational message HCPIIS954I, you have duplicate volumes with the same label. You must return to the first-level CP environment (enter SHUTDOWN at the next prompt) and detach the duplicate volumes. Then go back to substep 1 on page 137.

```
hh:mm:ss Start ((Warm|Force|COLD|CLEAN) (DRain)
          (DIsable) (NODIRect) (NOAUTOlog)) or (SHUTDOWN)
```

force drain noautolog

Attention: Use **noautolog** at this point because you cannot have the servers and all user IDs logged on.

```
NOW hh:mm:ss {EST|EDT} weekday yyyy-mm-dd
Change TOD clock (yes|no)
```
no

6. CP logs on the primary system operator (user ID OPERATOR).

```
hh:mm:ss The directory on volume 520RES at address nnnn
           has been brought online.
hh:mm:ss HCPWRS2513I
hh:mm:ss HCPWRS2513I Spool files available    nnnn


hh:mm:ss HCPWRS2512I Spooling initialization is complete.
hh:mm:ss DASD nnnn dump unit CP IPL pages nnnn
hh:mm:ss HCPAAU2700I System gateway ZVMV5R20 identified.
hh:mm:ss z/VM Version 5 Release 2.0, Service Level 0000 (64-bit),
hh:mm:ss built on IBM Virtualization Technology
hh:mm:ss There is no logmsg data
hh:mm:ss FILES:   NO RDR,   NO PRT,   NO PUN
hh:mm:ss LOGON AT hh:mm:ss EDT DAY mm/dd/yy
hh:mm:ss GRAF  nnnn LOGON  AS  OPERATOR USERS = n
hh:mm:ss HCPIOP952I nnnnM system storage
hh:mm:ss FILES: nnnnnnnn RDR, nnnnnnnn PRT,      NO PUN
hh:mm:ss HCPCRC8082I Accounting records are accumulating for userid DISKACNT
```

7. Disconnect from the OPERATOR user ID.

disconnect

```
DISCONNECT AT hh:mm:ss {EST|EDT} weekday mm/dd/yy

Press enter or clear key to continue
```
ENTER

8. Log on to the MAINT user ID.

ENTER

The default password for MAINT is MAINT.

logon maint

Step 4. IPL your 520 system

```
z/VM Version 5 Release 2.0, Service Level 0000 (64-bit),
built on IBM Virtualization Technology
There is no logmsg data
FILES: nnnn RDR,   NO PRT,   NO PUN
LOGON AT hh:mm:ss EDT DAY yyyy-mm-dd

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

Chapter 11. Run Migrate

In this chapter you will:

- Step 1. Run the MIGRATE exec
- Step 2. View the MIGRATE message log

Step 1. Run the MIGRATE Exec

1. Run the MIGRATE exec to move minidisk and shared file data for all preinstalled products.

```
access 193 c
Ready;
migrate all 510Ready;
```

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

If you receive a return code of zero, skip to Chapter 12, “Place Migrated Parts into Production,” on page 145. Otherwise, continue on to “Step 2. View the MIGRATE Message Log” on page 143.

Step 2. View the MIGRATE Message Log

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

If you received . . .	Then . . .
Return code 4	1. Issue **VMFVIEW MIGRATE**. You can ignore any warning messages that appear in the **Note** below in this table. Take appropriate action based on other warning messages you receive. Messages are documented in *z/VM: Other Components Messages and Codes* or by issuing HELP on the message number. 2. Go to Chapter 12, “Place Migrated Parts into Production,” on page 145.
Return code 6	1. Issue **VMFVIEW MIGRATE**. You can ignore any warning messages that appear in the **Note** below in this table. Take appropriate action based on other warning messages you receive. Messages are documented in *z/VM: Other Components Messages and Codes* or by issuing HELP on the message number. For CP messages VMFMGR2308I/VMFSUI2308W for local modification 99999 all you have to do is mark them reworked with the VMFUPDAT SYSLMOD command. 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 *z/VM: VMSES/E Introduction and Reference*. 3. After you complete the rework, use the VMFUPDAT SYSLMOD command to flag the customized parts and local modification as REWORKED. 4. Return to “Step 1. Run the MIGRATE Exec” on page 142 and reissue MIGRATE ALL 510.
A return code greater than 6	1. Issue **VMFVIEW MIGRATE** and check for warning and error messages. You can ignore any warning messages in the **Note** below in this table. Take appropriate action based on other warning messages you receive. Messages are documented in *z/VM: Other Components Messages and Codes* or by issuing HELP on the message number. 2. Correct all errors reported in the error messages. 3. Return to “Step 1. Run the MIGRATE Exec” on page 142 and reissue MIGRATE ALL 510.

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

- `DMSLIO201W The following names are undefined: ISPLINK ARIPRDI`
- `DMSLIO201W The following names are undefined: DMSDSCSC`
- `DMSLIO201W The following names are undefined:  DMSUSRX1 DMSUSRX2`
- `DMSLIO202W Duplicate identifier` messages associated with object IOACMAIN MODULE.
- `DMSLKD004W Warning messages issued` messages associated with objects ILBONBL, ILBONTR, ILBOREC, ILBORNT, ILBOSND, ILBOSNT, and ILBOSSN.
- `DMSLIO994W Restrictive RMODE encountered in CSECT CEEM@VOU`
- `DMSLIO994W Restrictive RMODE encountered in CSECT CEEBLIIA`

Step 2. View the MIGRATE message log

Chapter 12. Place Migrated Parts into Production

This chapter contains:

Step 1. Run PUT2PROD

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

   ENTER **logon maint** The default password for MAINT is MAINT.

   ⋮

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

2. IPL CMS.

   ipl cms

   `z/VM V5.2.0 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 non-zero return code. Base your action on the following table:

If you received . . .	Then . . .
Return code 4	• Issue **VMFVIEW PUT2PROD**. You can ignore any warning messages in the **Note** below in this table. Take appropriate action based on other warning messages you receive.
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 **Note** below in this table. 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 get a non-zero 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.`

Step 2. Shut Down Your New System

1. Shut down your new 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 00000961
```

2. IPL CMS on your current system user ID

```
ipl cms
   z/VM V5.1.0
    ENTER
   Ready;
```

Step 3. Run MIGCLEAN

1. Run MIGCLEAN to reestablish your original minidisk and SFS environment. If you receive any error messages during MIGCLEAN processing, look up the message in *z/VM: CP Messages and Codes*, take the appropriate action and rerun the command.

```
migclean
Ready;
```

Step 4. Access Current System Software Inventory Disk

If you are using MAINT to run these migration procedures, do the following:

1. Detach and link to your current system Software Inventory (SI) Disk. The default disk address for the SI disk is 51D:

   detach 51d

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

   link maint 51d fff rr

   If your SI disk has an address different than 51D, substitute that disk address in the **link** command.

2. Skip to "Step 5. IPL Your New System" on page 150.

If you are using another user ID to run these procedures, do the following:

1. Link to your current system Software Inventory Disk. The default owner and disk address are MAINT and 51D:

   link maint 51d fff rr

   If you use a user ID different than MAINT for system support on your current system, substitute that user ID in the **link** command. If your Software Inventory Disk has an address different than 51D, substitute that disk address in the **link** command.

Step 5. IPL Your New System

1. IPL your new system

   system clear

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

   terminal conmode 3270

   query virtual storage

   ```
   STORAGE = nnnnM
   ```

   define storage 64m

   ```
   STORAGE =   64M
   Storage cleared - system reset
   ```

   set machine xa

   ```
   SYSTEM RESET
   SYSTEM = XA
   ```

2. 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       MDFY       0 FCB       LPP OFF
        consaddr 3270   NOEOF OPEN nnnn NOKEEP NOMSG NONAME
        consaddr SUBCHANNEL = nnnn
   ```

   consaddr is the address of your virtual console.

   ipl *dasdaddr* **clear loadparm** *consaddr*

   Clear is necessary. Do not omit it.

   dasdaddr is the address of the system residence device (520RES).

   consaddr is the address of your virtual console.

   The stand alone program loader panel displays after issuing the IPL command.

```
 STAND ALONE PROGRAM LOADER: z/VM VERSION 5 RELEASE 2.0

 DEVICE NUMBER:   dasdaddr   MINIDISK OFFSET:   nnnnnnnn   EXTENT:  1

 MODULE NAME:     CPLOAD     LOAD ORIGIN:       1000

 --------------------------------IPL PARAMETERS--------------------------------
cons=consaddr


 -----------------------------------COMMENTS-----------------------------------




 --------------------------------------------------------------------------------


 9= FILELIST  10= LOAD  11= TOGGLE EXTENT/OFFSET
```

Figure 12. Sample Stand Alone Program Loader Panel

3. Move the cursor to the IPL PARAMETERS field and type

   cons=*consaddr*

   As shown in Figure 11 on page 138, *consaddr* is the primary system console address. This statement defines the operator console. Spaces are not allowed around the equal sign.

4. Press **PF10** to load.

   PF10

5. The IPL of your z/VM system continues:

```
hh:mm:ss z/VM V5 R2.0
          SERVICE LEVEL nnnn (64-BIT)

hh:mm:ss SYSTEM NUCLEUS CREATED ON yyyy-mm-dd AT hh:mm:ss,
          LOADED FROM 520RES
hh:mm:ss ****************************************
hh:mm:ss * LICENSED MATERIALS - PROPERTY OF IBM*   *
hh:mm:ss * 5741-A05 (C) COPYRIGHT IBM CORP. 1983,  *
hh:mm:ss * 2005. ALL RIGHTS RESERVED.              *
hh:mm:ss * US GOVERNMENT USERS RESTRICTED RIGHTS - *
hh:mm:ss * USE, DUPLICATION OR DISCLOSURE          *
hh:mm:ss * RESTRICTED BY GSA ADP SCHEDULE CONTRACT *
hh:mm:ss * WITH IBM CORP.                          *
hh:mm:ss *                                         *
hh:mm:ss * * TRADEMARK OF INTERNATIONAL BUSINESS   *
hh:mm:ss *   MACHINES                              *
hh:mm:ss ****************************************
hh:mm:ss HCPZCO6718I Using parm disk 1 on volume 520RES (device xxxx).
hh:mm:ss HCPZCO6718I Parm disk resides on cylinders xxx through xxx.
```

```
⋮
```

You may receive an informational message, HCPISU951I, about volumes not mounted. If you are not using those volume labels, ignore this message.

Attention: If you receive informational message HCPIIS954I, you have duplicate volumes with the same label. You must return to the first-level CP environment (enter SHUTDOWN at the next prompt) and detach the duplicate volumes. Then go back to substep 1 on page 150.

```
hh:mm:ss Start ((Warm|Force|COLD|CLEAN) (DRain)
          (DIsable) (NODIRect) (NOAUTOlog)) or (SHUTDOWN)
```

force drain

```
NOW hh:mm:ss {EST|EDT} weekday yyyy-mm-dd
Change TOD clock (yes|no)
```

no

6. CP logs on the primary system operator (user ID OPERATOR).

```
hh:mm:ss The directory on volume 520RES at address nnnn
           has been brought online.
hh:mm:ss HCPWRS2513I
hh:mm:ss HCPWRS2513I Spool files available    nnnn


hh:mm:ss HCPWRS2512I Spooling initialization is complete.
hh:mm:ss DASD nnnn dump unit CP IPL pages nnnn
hh:mm:ss HCPAAU2700I System gateway ZVMV5R20 identified.
hh:mm:ss z/VM Version 5 Release 2.0, Service Level 0000 (64-bit),
hh:mm:ss built on IBM Virtualization Technology
hh:mm:ss There is no logmsg data
hh:mm:ss FILES:   NO RDR,   NO PRT,   NO PUN
hh:mm:ss LOGON AT hh:mm:ss EDT DAY mm/dd/yy
hh:mm:ss GRAF  nnnn LOGON  AS  OPERATOR USERS = n
hh:mm:ss HCPIOP952I nnnnM system storage
hh:mm:ss FILES: nnnnnnnn RDR, nnnnnnnn PRT,      NO PUN
hh:mm:ss HCPCRC8082I Accounting records are accumulating for userid DISKACNT
```

7. Disconnect from the OPERATOR user ID.

disconnect

```
DISCONNECT AT hh:mm:ss {EST|EDT} weekday mm/dd/yy

Press enter or clear key to continue
```

ENTER

8. Log on to the MAINT user ID.

ENTER

The default password for MAINT is MAINT.

logon maint

```
z/VM Version 5 Release 2.0, Service Level 0000 (64-bit),
built on IBM Virtualization Technology
There is no logmsg data
FILES: nnnn RDR,   NO PRT,   NO PUN
LOGON AT hh:mm:ss EDT DAY yyyy-mm-dd
```

ENTER

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

Step 6. Run MIGR51D

In this step, you will migrate your 51D disk from your current system.

1. Create a backup copy of the your new system Software Inventory (SI) disk (default is 51D) using your site's normal backup procedures.
2. Access the SI disk (linked on your current system userid as FFF) from your current system.

   attach fff *

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

   access fff z

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

3. Access the new system 51D minidisk as file mode D.

   access 51D d

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

4. Access the 493 minidisk as file mode W.

   access 493 w

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

5. Use the MIGR51D EXEC to update the System Software Inventory files.

   migr51d

   ```
   HCPMIX8478R Please enter filemode letter of the
               Software Inventory Disk (51D) from
               the previous release.  Press enter
               to Exit.
   ```

   z

   The following VM Software Inventory Disk (51D) Product and Segment Migration panels will be displayed:

```
          *** VM Software Inventory Disk (51D) 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 51D and cannot be migrated.


AC Compname         Prodid   Status    Description
-- ---------------- -------- --------- --------------------------------
D  SHELL            2VMVMZ30 APPLIED   Shell and Utilities for VM/ESA
                                       2.3.0
M  DITTO            5654029C NONE      DITTO/ESA VM 1.2.0

D                   5735NFSQ ENABLED

D  CMS              5VMCMS10 BUILT     CMS component for z/VM 5.1.0

D  CP               5VMCPR10 BUILT     CP component for z/VM 5.1.0

D  TCPIP            5VMTCP10 BUILT     TCP/IP LEVEL 510 - TCP/IP Feature

I  ICKDSF           5684042J BUILT     ICKDSF DEVICE SUPPORT FACILITIES
                                       R17 for CMS

                                                          Page 1 of 1

             PF1=HELP  PF3/PF12=Quit  PF5=Process  PF8=Forward
```

a. Enter an action code (AC) for each product listed. For information about the panel and action codes, press **PF1** for HELP.

   Notes:

   1) Products that are preselected as **D** (Do Not Migrate) should not be changed.
   2) If a product is not supported on the new z/VM release, you should enter **D** (Do Not Migrate) for that product.
   3) 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.
   4) This Product Migration panel is only a sample. Your panels will not list the same products, action codes, status, and description.
   5) Press **PF8** to select action codes for all Software Inventory Migration panels before continuing to the next step.

b. Press **PF5** 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.

```
          *** VM Software Inventory Disk (51D) Segment Migration ***

Set action code AC to D = Do Not Migrate or to M = Migrate segment. Action
code P means segment will be migrated due to product migration.  If ========
or ******** appears under Segname, enter a new name to change the segment
name upon migration ( ======== Must be changed, ******** May be changed ).

AC Segname        Prodid   Compname         Defparms         Bldparms
-- --------       -------- ---------------- ---------------- ----------------
D  CMSBAM   Old-> 5VMCMS10 CMS              B0D-B37 SR       PPF(ESA
            New-> 5VMCMS20 CMS              B0D-B37 SR       PPF(ZVM
   ******** Mig-> 5VMCMS20 CMS              B0D-B37 SR       PPF(ZVM
D  CMSDOS   Old-> 5VMCMS10 CMS              B00-B0C SR       PPF(ESA
            New-> 5VMCMS20 CMS              B00-B0C SR       PPF(ZVM
   ******** Mig-> 5VMCMS20 CMS              B00-B0C SR       PPF(ZVM
D  CMSFILES Old-> 5VMCMS10 CMS              1900-1BFF SR     PPF(ESA
            New-> 5VMCMS20 CMS              1900-1BFF SR     PPF(ZVM
   ******** Mig-> 5VMCMS20 CMS              1900-1BFF SR     PPF(ZVM
D  CMSPIPES Old-> 5VMCMS10 CMS              1800-18FF SR     PPF(ESA
            New-> 5VMCMS20 CMS              1800-18FF SR     PPF(ZVM
   ******** Mig-> 5VMCMS20 CMS              1800-18FF SR     PPF(ZVM
                                                            Page 1 of 4

            PF1=HELP  PF3/PF12=Quit  PF5=Process  PF8=Forward
```

a. Enter an action code for each segment listed. For information about the panel and action codes, press **PF1** for HELP.

   This Segment Migration panel is only a sample. Your panels will not list the same segments, action codes, status, and description.

b. Press **PF5** to process. Depending on the size of your software inventory files, it may take several minutes to process.

c. Press **PF8** to select action codes for all Software Inventory Segment Migration panels before continuing to the next step.

6. MIGR51D updated the z/VM version 5 release 2 VMSES/E System Software Inventory files on your new 51D disk 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. Refer to 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 any one of the licensed product installation user IDs, or MAINT, and enter the following to update some of the other segment files on the System Software Inventory disk:

   a. Enter:

      vmfsgmap segbld esasegs segblist

      At this time, you can make further changes to any segment.

   b. On the first panel, enter:

      segmerge

   c. Press the **PF5** key to exit from VMFSGMAP.

   These three steps 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 ppf segbld esasegs segblist myseg (serviced

To rebuild the CMS segments, see the ″Using the COR Service Procedure″ chapter of *z/VM: Service Guide*, and follow ″Rebuild the Saved Segments″ under the ″Place Your Serviced Components into Production″ step.

For example:

vmfbld list segbld esasegs zvmsegs blddata (serviced

Note: You need to rebuild the segments on the new system to get the SYSTEM SEGID file updated.

Step 7. Additional Information

You have completed the automated migration procedure. Additional information that you should be aware of :

1. In addition to the customizable files that were moved from your current system to your new 520 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.

   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 (LE, RSCS, OSASF, ICKDSF, DIRMAINT, RACF), 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, VMSES, TSAF/AVS, GCS, TCPIP, PERFTK, VMHCD), 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. Refer to *z/VM: Migration Guide* and product-specific Program Directories for additional information on migration:
   - 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.

Chapter 13. Preinstalled Licensed Products and Features

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 17. Preinstalled Licensed Products and Features

Product name	Release level	Program number	Is product or feature installed disabled or enabled?	Do I need to configure before using the product or feature?
EREP	3.5.0	5654-260	Enabled	No
ICKDSF	1.17.0	5684-042	Enabled	No
RSCS	3.2.0	5684-096	Disabled[1]	Yes[2]
TCP/IP	520	5741-A05	Enabled	Yes[2]
OSA/SF	440	5741-A05	Enabled	Yes[2]
DirMaint™	510	5741-A05	Disabled[1]	Yes[2]
RACF	1.10.0	5740-XXH	Disabled[1]	Yes[2]
Performance Toolkit for VM	520	5741-A05	Disabled[1]	Yes[2]
HCD and HCM for z/VM	520	5741-A05	Enabled	No[3]

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, refer to its own documentation. See the “Bibliography” on page 207.

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.

Device Support Facilities

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.

VM Remote Spooling Communications Subsystem Networking

VM Remote Spooling Communications Subsystem Networking (RSCS) lets z/VM 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, 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/VMspool 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.

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. Refer to section “6.0 Installation Instructions” in *Virtual Machine Remote Spooling Communications Subsystem Networking Version 3 Release 2 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. Refer to section "6.0 Installation" in *TCP/IP for z/VM Level 520 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.

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 Resource Access Control Facility (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, refer to section "6.0 Installation Instructions" in the *Open Systems Adapter Support Facility for VM Function Level 4.4.0 Program Directory* and follow the installation instructions.

Directory Maintenance Facility

Directory Maintenance Facility (DIRM) 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. Refer to section "6.0 Installation Instructions" in *IBM z/VM Directory Maintenance Facility Feature Function Level 510 Program Directory*.

Resource Access Control Facility for z/VM

Resource Access Control Facility 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. Refer to section "6.0 Installation Instructions" in *Resource Access Control Facility Feature for z/VM Version 1 Release 10.0 Program Directory*.

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. Refer to section "6.0 Installation Instructions" in *Performance Toolkit for VM Function Level 520 Program Directory*.

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 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 System z9 or zSeries or S/390® 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 System z9 or zSeries or S/390 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, refer to section "6.0 Installation Instructions" in the *Hardware Configuration Definition and Hardware Configuration Manager for z/VM Function Level 5.2.0 Program Directory* and follow the installation instructions.

Congratulations!

You have completed z/VM installation. Your VM system will need to be tailored. There are several Planning and Administration Guides to refer to for these tasks. See "Bibliography" on page 207.

Part 4, "Service Procedure," on page 163 contains the procedures for servicing your system and should be used to apply service when required.

Return to the *SDO Program Directory* when you are ready to install other Licensed Products.

Part 4. Service Procedure

In this part, you will:

- Run SERVICE to install preventive (Recommended Service Upgrade–RSU) or corrective (COR) service
- Run PUT2PROD to place the service into production.

The SERVICE EXEC automates the steps for installing preventive (RSU) and corrective (COR) service, while the PUT2PROD EXEC automates the steps for placing service into production. These EXECs apply to the following components, features, and products:

Table 18. Components, features, and products supported by SERVICE and PUT2PROD

Product	COMPNAME
VMSES/E	VMSES
REXX/VM	REXX
Language Environment	LE
CMS	CMS
CP	CP
GCS	GCS
Dump Viewing Facility	DV
TSAF	TSAF
AVS	AVS
RSCS	RSCS
TCP/IP	TCPIP
OSA/SF	OSA
Directory Maintenance Facility	DIRM
RACF	RACF
Performance Toolkit for VM	PERFTK
HCD and HCM for z/VM	VMHCD

The steps that SERVICE and PUT2PROD automate are documented in *z/VM: Service Guide* and applicable product program directories. The EXECs themselves are documented in *z/VM: VMSES/E Introduction and Reference*. If you need information more detailed than provided in this part, refer to those sources for more information.

To use the SERVICE EXEC to service VMSES/E-formatted program products that are not preinstalled on the z/VM System DDRs, see Appendix A, “Setting up VMSES/E Licensed Products to use the SERVICE EXEC,” on page 171.

Rule: You **cannot** use the PUT2PROD EXEC for products other than those listed in Table 18.

Chapter 14. Install Preventive (RSU) or Corrective (COR) Service and Place the Service into Production

In this chapter, you will:

- Run the SERVICE EXEC to receive, apply, and build the preventive (RSU) or corrective (COR) service.

  Note: The SERVICE EXEC processes only one RSU or COR per invocation. The EXEC does, however, process all volumes of a multiple-volume RSU or COR in a single invocation.
- Run PUT2PROD to place the products into production when you are satisfied with the service.

Install and Place Service Into Production

Use the following steps to receive, apply, and build the preventive (RSU) or corrective (COR) service and then place the service into production.

Step 1. Load the Service Files from the RSU or COR

In this step, you will:

- Run the SERVICE EXEC to receive, apply, and build the preventive (RSU) or corrective (COR) service.

Note: The SERVICE EXEC processes only one RSU or COR per invocation. The EXEC does, however, process all volumes of a multiple-volume RSU or COR in a single invocation.

1. Make sure you have a current backup of your system. For information about backing up your system, see "Step 7. Store a Backup Copy of the z/VM System on Tape" on page 56.
2. Log on to the MAINT user ID. From the VM logon screen, type:

   ENTER

   logon maint The default password for MAINT is MAINT.

   ```
   ⋮
   z/VM V5.2.0    yyyy-mm-dd hh:mm
   ENTER
   ⋮
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

3. If the RSU or COR media is tape, continue with this substep. Otherwise, skip to substep 4 on page 167.
   a. Attach the tape drive used for the RSU or COR tape to MAINT as 181.

      attach *tapeaddr* * 181

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

   b. Mount volume 1 on your 181 tape drive. If you are using an automated tape library (ATL), you must use a separate tape drive for each volume.

      If the RSU or COR has multiple volumes, either:
      - Stack the RSU or COR volumes on 181, **or**
      - Attach other tape drives and mount each volume.

   c. IPL CMS.

      ipl cms

      ```
      z/VM V5.2.0    yyyy-mm-dd hh:mm
      ENTER
      Ready; T=n.nn/n.nn hh:mm:ss
      ```

   d. If the volumes are mounted on 181, run SERVICE with no parameters.

service

```
VMFSRV2760I SERVICE processing started
⋮
VMFSRV2760I SERVICE processing completed
successfully
Ready; T=n.nn/n.nn hh:mm:ss
```

e. If the volumes are mounted on multiple tape drives, run SERVICE with the following parameters:

service all *tapeaddr1 tapeaddr2 ...*

List the addresses of each tape volume. *tapeaddr1* is the tape address for tape volume 1, *tapeaddr2* is the tape address for tape volume 2, and so forth.

```
VMFSRV2760I SERVICE processing started
⋮
VMFSRV2760I SERVICE processing completed
successfully
Ready; T=n.nn/n.nn hh:mm:ss
```

Go to substep 5 on page 168.

4. If the RSU or COR service is electronic or CD-ROM, continue with this substep.

   a. Retrieve the entire RSU or COR service. (MAINT's 500 minidisk can be used to load the servlink.)
      - If your media is electronic, follow the instructions that were sent to you electronically.
      - If your media is CD-ROM, follow the instructions in the README file on the CD-ROM.

      Rule: You must preserve the file attribute of FIXED BINARY 1024 through all intermediary transports.

   b. Decompress the VMSES/E envelope file.

```
access 5E5 b
```

deterse *envfn envft envfm* **= servlink =**

You need to enter the DETERSE command for every envelope file you receive with your order.

   c. IPL CMS.

ipl cms

```
z/VM V5.2.0    yyyy-mm-dd hh:mm
```

ENTER

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

   d. Run SERVICE against the COR documentation envelope file. This step is only for COR service as the RSU documentation envelope file is a text readable file.

service all *docenvfn*

docenvfn is the file name of the documentation envelope

vmfupdat sysmemo

Displays the memos that were in the documentation envelope

   e. Run SERVICE against PTF or RSU envelope.

service all *envfn1 envfn2 ...*

List the file names of each PTF or RSU envelope. *envfn1* is the file name for the first envelope, *envfn2* is the file name for the second envelope, and so forth. You can specify more than one envelope file only if the RSU or COR is multi-volume.

```
VMFSRV2760I SERVICE processing started
⋮
VMFSRV2760I SERVICE processing completed
successfully
Ready; T=n.nn/n.nn hh:mm:ss
```

Go to substep 5 on page 168.

5. View the SERVICE messages log (VMFVIEW SERVICE) and handle any non-zero return codes, if necessary. Base your actions on the following table:

If you received . . .	Then . . .
Return code 4	1. Issue **VMFVIEW SERVICE**. You can ignore any warning messages in the **Note** below in this table. Take appropriate action based on other warning messages you receive. 2. Go to substep 6.
Return code 6 and the message: `VMFSUII2760I VMFSUFIN PROCESSING INCOMPLETE DUE TO LOCAL MODIFCATIONS`	1. Issue **VMFVIEW SERVICE**. You can ignore any warning messages in the **Note** below in this table. Take appropriate action based on other warning messages you receive. 2. Use the VMFUPDAT SYSLMOD command to see which local modifications you need to rework. Rework the local modifications that were affected by service. For more information, see *z/VM: VMSES/E Introduction and Reference*. 3. After you complete the rework, use the VMFUPDAT SYSLMOD command to flag the local modification as reworked. 4. Restart by issuing **SERVICE RESTART**. 5. If you get a non-zero return code, repeat substep 5. 6. Go to substep 6.
A return code greater than 6	1. Issue **VMFVIEW SERVICE** and check for warning and error messages. 2. You can ignore any warning messages in the **Note** below in this table. Take appropriate action based on other warning messages you receive. 3. Correct all errors reported in the error messages. 4. Restart by issuing the SERVICE command as displayed in the message VMFSRV2310W. 5. If you get a non-zero return code, repeat substep 5. 6. Go to substep 6.

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

- `DMSLIO201W The following names are undefined: ISPLINK ARIPRDI`
- `DMSLIO201W The following names are undefined: DMSDSCSC`
- `DMSLIO201W The following names are undefined: DMSUSRX1 DMSUSRX2`
- `DMSLIO202W Duplicate identifier` messages associated with object IOACMAIN MODULE.
- `DMSLKD004W Warning messages issued` messages associated with objects ILBONBL, ILBONTR, ILBOREC, ILBORNT, ILBOSND, ILBOSNT, and ILBOSSN.
- `DMSLIO994W Restrictive RMODE encountered in CSECT CEEM@VOU`
- `DMSLIO994W Restrictive RMODE encountered in CSECT CEEBLIIA`

6. Use the **VMFUPDAT SYSMEMO** command to review any memos that were received with this service.

You are done installing service. Continue with “Step 2. Place the Service into Production” on page 169.

Step 2. Place the Service into Production

In this step, you will:

- Run PUT2PROD to place the products that were processed by the SERVICE EXEC into production. Do this step only after you are satisfied with the service.

Attention: PUT2PROD logs off some virtual machines(for example, DIRMAINT, TCPIP stacks and DTCVSWn vswitch controller protocol servers) in your environment in order to write to minidisks or SFS directories that they own. Therefore, you may want to perform this substep as part of a planned system outage.

Rule: You **cannot** use the PUT2PROD EXEC for products other than those listed in Table 18 on page 163.

1. Log on to the MAINT user ID. From the VM logon screen, type:

   ```
   ENTER

   logon maint                                  The default password for MAINT is MAINT.
      :
   z/VM V5.2.0    yyyy-mm-dd hh:mm
   ENTER
      :
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

2. IPL CMS.

   ```
   ipl cms
   z/VM V5.2.0    yyyy-mm-dd hh:mm
   ENTER
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

3. Run PUT2PROD.

   Attention:

   a. PUT2PROD logs off some virtual machines (for example, DIRMAINT, TCPIP stacks and DTCVSWn vswitch controller protocol servers) in your environment in order to write to minidisks or SFS directories that they own. Therefore, you may want to perform this substep as part of a planned system outage.

   b. If you are running RACF and you receive the message VMFP2P1219E while running PUT2PROD, then you need to IPL the VM system using the CF2 PARM disk with NOAUTOLOG and then XAUTOLOG your backup RACF server machine, RACMAINT, before attempting to put RACF service into production. For more information, see *Resource Access Control Facility Feature for z/VM Version 1 Release 10.0 Program Directory*.

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

   If you receive a non-zero return code, go to substep 4. Otherwise, go to substep 5.

4. Handle a non-zero return code. Base your action on the following table:

If you received . . .	Then . . .
Return code 4	1. Issue **VMFVIEW PUT2PROD**. You can ignore any warning messages in the **Note** below in this table. Take appropriate action based on other warning messages you receive. 2. Go to substep 5.
A return code greater than 4	1. Issue **VMFVIEW PUT2PROD** and check for warning and error messages. 2. Take appropriate action based on warning messages. 3. Correct all errors reported in the error messages. 4. Issue **ipl cms**. 5. Issue **PUT2PROD**. 6. If you get a non-zero return code, repeat substep 4. 7. Go to substep 5.

Note: You can ignore the following messages:

- `DMSDCS1083E Saved segment $$DMY$$ does not exist`
- `DMSWLG292W Text data will be loaded at '20000'x in user area; user data may be overwritten.`

5. Shutdown and re-IPL your system

```
shutdown reipl
Enter
```

You have now completed the service procedure.

Appendix A. Setting up VMSES/E Licensed Products to use the SERVICE EXEC

You can use the SERVICE EXEC to automate the apply, receive, and build service steps for installed VMSES/E licensed products that are not preinstalled on the z/VM System DDRs. To use the SERVICE EXEC on these products after you have installed them, you must set up the System-Level Service Update Facility (VM SYSSUF) software inventory file through the VMFUPDAT EXEC, as follows.

For a list of the preinstalled products, see Table 18 on page 163.

Rule: You **cannot** use the PUT2PROD EXEC for VMSES/E Licensed Products that are not preinstalled on the z/VM system. Instead, see the steps for placing a product into production in that product's Program Directory.

Steps for Setting up VMSES/E Licensed Products to use the SERVICE EXEC

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.

Perform the following steps to setting up the licensed products:

1. Log on to the MAINT user ID.

   ENTER The default password for MAINT is MAINT.

   logon maint

   ⋮

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

---

2. Invoke VMFUPDAT to update the VM SYSSUF file.

   vmfupdat syssuf

   Result: You see a panel like the following:

```
                    *** Update SYSSUF Table Entries ***

Update any PPF/component name or YES|NO field.  To change all occurrences
of a PPF name in the table replace both ******** fields with PPF names.

Compname         Prodid   Servlev  Description
---------------- -------- -------- -------------------------------------
ADSM             5654A09A RSU-0101 ADSTAR Distributed Storage Manager for
 :INSTALL   YES     :INSPPF   SERVP2P ADSM
 :BUILD     YES     :BLDPPF   SERVP2P ADSM
 :INCLUDE   YES     :P2PPPF   SERVP2P ADSMP2P
AVS              5VMAVS20 000-0000 AVS for z/VM 5.1.0
 :INSTALL   YES     :INSPPF   SERVP2P AVS
 :BUILD     YES     :BLDPPF   SERVP2P AVS
 :INCLUDE   YES     :P2PPPF   SERVP2P AVSP2P
CMS              5VMCMS20 000-0000 CMS for z/VM 5.1.0
 :INSTALL   YES     :INSPPF   SERVP2P CMS
 :BUILD     YES     :BLDPPF   SERVP2P CMS
 :INCLUDE   YES     :P2PPPF   SERVP2P CMSP2P

Change PPF name ******** to ********
                                                          Page 1 of 9

      PF1=HELP  PF3/PF12=Quit  PF5=Process  PF6=VMFSUFTB  PF8=Forward
```

3. Press **PF6** to refresh the VM SYSSUF table from the information on your system inventory disk (51D). This adds the new product(s) you installed in to the VM SYSSUF table and displays the table again.

4. Locate the product to be used with SERVICE EXEC by scrolling forward.

   Example: In the following example, HLASM was added, then the user scrolled to it.

```
                    *** Update SYSSUF Table Entries ***

Update any PPF/component name or YES|NO field.  To change all occurrences
of a PPF name in the table replace both ******** fields with PPF names.

Compname         Prodid   Servlev  Description
---------------- -------- -------- -------------------------------------
HLASM            5696234E 000-0000 HIGH LEVEL ASSEMBLER FOR MVS & VM &
 :INSTALL   YES     :INSPPF   5696234E HLASM
 :BUILD     YES     :BLDPPF   5696234E HLASM
 :INCLUDE   YES     :P2PPPF
ICKDSF           5684042J 011-0011 ICKDSF DEVICE SUPPORT FACILITIES R17
 :INSTALL   YES     :INSPPF   SERVP2P ICKDSF
 :BUILD     YES     :BLDPPF   SERVP2P ICKDSF
 :INCLUDE   YES     :P2PPPF   SERVP2P ICKDSFP2P
LE               4VMVMQ40 000-0000 IBM Language Environment for z/VM 4.4.0
 :INSTALL   YES     :INSPPF   SERVP2P LE
 :BUILD     YES     :BLDPPF   SERVP2P LE
 :INCLUDE   YES     :P2PPPF   SERVP2P LEP2P

Change PPF name ******** to ********
                                                         Page 4 of 10

      PF1=HELP  PF3/PF12=Quit  PF5=Process  PF7=Backward  PF8=Forward
```

5. If necessary, change the :INSPPF and :BLDPPF fields to the PPF name you are using to service this product.

6. Press **PF5** to process. The VM SYSSUF table is updated and you exit VMFUPDAT.

Rule: You **cannot** use the PUT2PROD EXEC for VMSES/E Licensed Products that are not preinstalled on the z/VM system. Instead, see the steps for placing a product into production in that product's Program Directory.

You are done with the set up. You can now use the SERVICE EXEC to apply service for new product(s) you added. For more information on using the SERVICE EXEC, see "Step 1. Load the Service Files from the RSU or COR" on page 166.

Appendix B. 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 or components that are installed on the system.

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.

Perform the following step to determine the RSU level of a component:

- Issue the SERVICE command, which has the following format:

  service *compname* **status**

  where *compname* is a component defined in Table 18 on page 163 or any other component defined in the VM SYSSUF table.

  Example:

```
service cp status
VMFSRV2760I SERVICE processing started
VMFSRV1225I CP (5VMCPR20%CP) is at service level RSU-0501
VMF2760I SERVICE processing completed successfully
```

  In the example, “0501” is the RSU level that you would use when ordering service for CP.

You are done when you receive the RSU level output from the SERVICE command.

For more information, see SERVICE EXEC in *z/VM: VMSES/E Introduction and Reference*.

Appendix C. Migrate 51D from Old System

In this appendix, you will:

- Migrate your 51D disk from your old system.

  Note: Your old system must be VM/ESA® Version 2 or z/VM.

1. Create a backup copy of the z/VM version 5 release 2 System Software Inventory disk (default is 51D) using your site's normal backup procedures.
2. Obtain access to the System Software Inventory Files (51D) from your old system. For information on how to obtain access to these files, see your System Programmer.
3. Access the minidisk or SFS directory containing the System Software Inventory files from your old system as file mode Z.

   access *old51d* **z**

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

   old51d is the minidisk address or the SFS directory ID containing the old System Software Inventory files.

4. Access the 51D minidisk as file mode D.

   access 51D d

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

5. Access the 493 minidisk as file mode W.

   access 493 w

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

6. Use the MIGR51D EXEC to update the System Software Inventory files.

   migr51d

   ```
   HCPMIX8478R Please enter filemode letter of the
               Software Inventory Disk (51D) from
               the previous release.  Press enter
               to Exit.
   ```

   Z

   The following VM Software Inventory Disk (51D) Product and Segment Migration panels will be displayed:

```
          *** VM Software Inventory Disk (51D) 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 51D and cannot be migrated.


AC Compname         Prodid   Status    Description
-- ---------------- -------- --------- --------------------------------
D  SHELL            2VMVMZ30 APPLIED   Shell and Utilities for VM/ESA
                                       2.3.0
M  DITTO            5654029C NONE      DITTO/ESA VM 1.2.0

D                   5735NFSQ ENABLED

D  CMS              4VMVMA40 BUILT     CMS component for z/VM 4.4.0

D  CP               4VMVMB40 BUILT     CP component for z/VM 4.4.0

D  TCPIP            4TCPIP40 BUILT     TCP/IP LEVEL 440 - TCP/IP Feature

I  ICKDSF           5684042J BUILT     ICKDSF DEVICE SUPPORT FACILITIES
                                       R17 for CMS

                                                          Page 1 of 1

            PF1=HELP  PF3/PF12=Quit  PF5=Process  PF8=Forward
```

a. Enter an action code (AC) for each product listed. For information about the panel and action codes, press **PF1** for HELP.

   Notes:

   1) Products that are preselected as **D** (Do Not Migrate) should not be changed.
   2) If a product is not supported on the new z/VM release, you should enter **D** (Do Not Migrate) for that product.
   3) 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.
   4) This Product Migration panel is only a sample. Your panels will not list the same products, action codes, status, and description.
   5) Press **PF8** to select action codes for all Software Inventory Migration panels before continuing to the next step.

b. Press **PF5** 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.

```
          *** VM Software Inventory Disk (51D) Segment Migration ***

Set action code AC to D = Do Not Migrate or to M = Migrate segment. Action
code P means segment will be migrated due to product migration.  If ========
or ******** appears under Segname, enter a new name to change the segment
name upon migration ( ======== Must be changed, ******** May be changed ).

AC Segname        Prodid   Compname         Defparms         Bldparms
-- --------       -------- ---------------- ---------------- ----------------
D  CMSBAM   Old-> 4VMVMA40 CMS              B0D-B37 SR       PPF(ESA
            New-> 5VMCMS20 CMS              B0D-B37 SR       PPF(ZVM
   ******** Mig-> 5VMCMS20 CMS              B0D-B37 SR       PPF(ZVM
D  CMSDOS   Old-> 4VMVMA40 CMS              B00-B0C SR       PPF(ESA
            New-> 5VMCMS20 CMS              B00-B0C SR       PPF(ZVM
   ******** Mig-> 5VMCMS20 CMS              B00-B0C SR       PPF(ZVM
D  CMSFILES Old-> 4VMVMA40 CMS              1900-1BFF SR     PPF(ESA
            New-> 5VMCMS20 CMS              1900-1BFF SR     PPF(ZVM
   ******** Mig-> 5VMCMS20 CMS              1900-1BFF SR     PPF(ZVM
D  CMSPIPES Old-> 4VMVMA40 CMS              1800-18FF SR     PPF(ESA
            New-> 5VMCMS20 CMS              1800-18FF SR     PPF(ZVM
   ******** Mig-> 5VMCMS20 CMS              1800-18FF SR     PPF(ZVM
                                                            Page 1 of 4

             PF1=HELP  PF3/PF12=Quit  PF5=Process  PF8=Forward
```

a. Enter an action code for each segment listed. For information about the panel and action codes, press **PF1** for HELP.

   This Segment Migration panel is only a sample. Your panels will not list the same segments, action codes, status, and description.

b. Press **PF5** to process. Depending on the size of your software inventory files, it may take several minutes to process.

c. Press **PF8** to select action codes for all Software Inventory Segment Migration panels before continuing to the next step.

7. MIGR51D updated the z/VM version 5 release 2 VMSES/E System Software Inventory files on your new 51D disk 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. Refer to 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 any one of the licensed product installation user IDs, or MAINT, and enter the following to update some of the other segment files on the System Software Inventory disk:

   a. Enter:

      vmfsgmap segbld esasegs segblist

      At this time, you can make further changes to any segment.

   b. On the first panel, enter:

      segmerge

   c. Press the **PF5** key to exit from VMFSGMAP.

   These three steps 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 ppf segbld esasegs segblist myseg (serviced

Migrate 51D from Old System

To rebuild the CMS segments, see the ″Using the COR Service Procedure″ chapter of *z/VM: Service Guide*, and follow ″Rebuild the Saved Segments″ under the ″Place Your Serviced Components into Production″ step.

For example:

vmfbld list segbld esasegs zvmsegs blddata (serviced

Note: You need to rebuild the segments on the new system to get the SYSTEM SEGID file updated.

Appendix D. Apply or Rework a Local Modification

You can use the LOCALMOD command to create and apply or rework local modifications to any component or product defined in the System-Level Service Update Facility (VM SYSSUF) software inventory table.

Apply or Create a Local Modification

You can use the LOCALMOD command to create and apply local modifications to any component or product defined in the System-Level Service Update Facility (VM SYSSUF) software inventory 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.

1. Create and apply the local modification.
   a. Run LOCALMOD:

      localmod *compname partfn partft*

      compname is the component name associated with the product you are modifying (for example one of the COMPNAME values in Table 18 on page 163)
      partfn and *partft* are the file name and file type of the source part that is to be modified

   b. Reply to any prompt messages.
   c. Make your changes to the displayed file.
   d. File your changes:

      ====> **file**

      Enter **file** on the XEDIT command line.

   e. Repeat this entire step for any additional local modifications that you need to make.
2. Run SERVICE, for each component processed, to build the local modification(s).

   service *compname* **build**

3. Run PUT2PROD to put the local modification(s) into production.

   put2prod

   Note: You can only use PUT2PROD for products listed in Table 18 on page 163. If you have created a local modification for a product that you added to the VM SYSSUF table then you need to follow that product's service place into production steps in its Program Directory.

Rework a Local Modification

You can use the LOCALMOD command to rework a local modification to any component or product defined in the System-Level Service Update Facility (VM SYSSUF) software inventory 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.

1. Rework the local modification.

a. Run LOCALMOD:

localmod *compname partfn partft* **(rework**	*compname* is the component name associated with the product you are reworking (for example one of the COMPNAME values in Table 18 on page 163). *partfn* and *partft* are the file name and file type of the source part that is to be reworked

b. Reply to any prompt messages.

c. Make your changes to the displayed file.

d. File your changes:

====> **file**	Enter **file** on the XEDIT command line.

e. Repeat this entire step for any additional local modifications that you need to rework.

2. Run SERVICE, for each component processed, to build the local modification(s).

   If you received a return code 6 (rework local modifications) from a SERVICE invocation, enter the following:

   service restart

   Otherwise, enter the following:

   service *compname* **build**

3. Run PUT2PROD to put the local modification(s) into production.

   put2prod

   Note: You can only use PUT2PROD for products listed in Table 18 on page 163. If you have reworked a local modification for a product that you added to the VM SYSSUF table then you need to follow that product's service place into production steps in its Program Directory.

Appendix E. Contents of Your z/VM System

This chapter contains:

- Products loaded from the z/VM installation media
- CP, CMS, and GCS default information
- Saved Segment and filepool default information.

Products Loaded from the z/VM System Installation Media

Products installed on your 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)
  - 3800 Model-3 Printer Image Library
  - UCENG Help - Uppercase English Help minidisk
  - German Help - German Help minidisk
  - Kanji Help - Japanese Help minidisk
- Environmental Record Editing and Printing Program (EREP)
- Device Support Facilities (ICKDSF)
- VM Remote Spooling Communications Subsystem Networking (RSCS)
- Transmission Control Protocol/Internet Protocol (TCPIP)
- Open Systems Adapter Support Facility (OSA)
- Directory Maintenance Facility (DIRM)
- Resource Access Control Facility for VM (RACF®)
- Performance Toolkit for VM (PERFTK)
- Hardware Configuration Definition and Hardware Configuration Manager for z/VM (VMHCD)

CMS Defaults

1. 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 primary parm disk (CF1). A shadow of these files resides on the secondary parm disk (CF2) and backup parm disk (CF3). These files contain the system configuration data used by CP.
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 parm disks (CF1, CF2, and CF3).
4. The CP nucleus is IPLed with the system default language, mixed case American English (AMENG), Uppercase English (UCENG), Kanji (KANJI), or German (GER), which was selected during installation.
5. The USER DIRECT file on MAINT's 2CC minidisk contains entries defining each virtual machine (user) permitted to log on to your system.

   The default machine mode definition for user IDs in the directory is XA. However, any SET MACHINE statement issued for a user ID overrides the default setting. The USER DIRECT file built during installation contains a SET MACH XA, SET MACH ESA, or SET MACH 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 four help disks.
7. The z/VM System contains system definition files with sample information and default parameters. You can modify the following files to define your system configuration.
   - The logo configuration file (LOGO CONFIG) defines both the logo that appears on your terminal screen when you log on your system and the logo that appears on separator pages for printers. This file also provides information to the system about status areas on the terminal screens.

     Note: Status areas are normally in the lower right side of the terminal and contain such informational messages as RUNNING, VM READ, CP READ, MORE..., and HOLDING.
   - The CP system control file (SYSTEM CONFIG) describes the system residence device (520RES) and various system parameters, defining the configuration of your system.
8. CP ships several CP Sample Utility Programs to help you configure your system once installation is complete. They are located on the MAINT 2C2 minidisk. See *z/VM: CP Planning and Administration*, appendix A, for additional information on these programs.

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 procedure within the local modification example for CMSINST, found in the *z/VM: Service Guide*. 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.
2. The QUERY NSS ALL MAP command displays the saved segments and saved systems defined on your system. The segments may be displayed in a different order.

query nss all map

Enter the QUERY NSS ALL MAP command to list all defined saved segments and their addresses.

```
⋮
FILE FILENAME FILETYPE MINSIZE  BEGPAG ENDPAG TYPE CL #USERS PARMREGS VMGROUP
nnnn CMS      NSS      0000256K 00000  0000D   EW  A  00000   00-15     NO
                                00020  00023   EW
                                00F00  013FF   SR
nnnn GCS      NSS      0000256K 00000  0000C   EW  R  00000   OMITTED   YES
                                00400  0044E   SR
                                0044F  0044F   SW
                                00450  005FF   SN
                                01000  0101A   SR
                                0101B  011FF   SN
nnnn CMSDOS   DCSS-M     N/A    00B00  00B0C   SR  A  00000   N/A       N/A
nnnn CMSBAM   DCSS-M     N/A    00B0D  00B37   SR  A  00000   N/A       N/A
nnnn DOSBAM   DCSS-S     N/A    00B00  00B37   --  A  00000   N/A       N/A
nnnn MONDCSS  CPDCSS     N/A    09000  097FF   SC  R  00000   N/A       N/A
nnnn GUICSLIB DCSS       N/A    01F00  01FFF   SR  A  00000   N/A       N/A
nnnn CMSFILES DCSS       N/A    01900  01BFF   SR  A  00000   N/A       N/A
nnnn SVM      DCSS       N/A    01900  019FF   SR  A  00000   N/A       N/A
nnnn CMSPIPES DCSS       N/A    01800  018FF   SR  A  00001   N/A       N/A
nnnn CMSVMLIB DCSS       N/A    01700  017FF   SR  A  00001   N/A       N/A
nnnn INSTSEG  DCSS       N/A    01400  016FF   SR  A  00001   N/A       N/A
nnnn HELPSEG  DCSS       N/A    00C00  00CFF   SR  A  00000   N/A       N/A
nnnn DOSINST  DCSS       N/A    00900  0090F   SR  A  00000   N/A       N/A
nnnn SCEE     DCSS       N/A    00900  009FF   SR  A  00000   N/A       N/A
nnnn SCEEX    DCSS       N/A    02100  027FF   SR  A  00000   N/A       N/A
nnnn NLSGER   DCSS       N/A    02000  020FF   SR  A  00000   N/A       N/A
nnnn NLSKANJI DCSS       N/A    02000  020FF   SR  A  00000   N/A       N/A
nnnn NLSUCENG DCSS       N/A    02000  020FF   SR  A  00000   N/A       N/A
nnnn NLSAMENG DCSS       N/A    02000  020FF   SR  A  00000   N/A       N/A
Ready; T=n.nn/n.nn hh:mm:ss
```

VMSERVS, VMSERVU, and VMSERVR File Pool Defaults

The z/VM System incorporates three prebuilt file pools.

VMSYS
- Managed by the VMSERVS server machine
- Enrolled MAINT in the VMSYS file pool
- BFS directories defined for Shell and Utilities

VMSYSU
- Managed by the VMSERVU server machine
- Enrolled MAINT in the VMSYSU file pool
- MAINT.SAMPLES directory exists with SFS sample files installed.

VMSYSR
- Managed by the VMSERVR server machine
- Coordinated Resource Recovery (CRR) file pool

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 start-up parameters for the file pool server machine. *filename* is the user ID of the server machine.

Read the *z/VM: CMS File Pool Planning, Administration, and Operation* book for information and examples on tailoring these files and for information on BFS root directory definitions.

VMSYS File Pool

If you chose to load these products into the file pool, the following user IDs are also enrolled in the VMSYS file pool:

Table 19. VMSYS File Pool User Ids

Product	User ID
RSCS	P684096K
	XCHANGE
OSA/SF	4OSASF40
	OSASF
	OSAMAINT
	OSADMIN1
	OSADMIN2
	OSADMIN3
TCP/IP	5VMTCP20
	SSLSERV
ICKDSF	5684042J
DIRM	5VMDIR10
RACF	5767002P

Table 19. VMSYS File Pool User Ids (continued)

PERFTK	5VMPTK20
	PERFSVM
VMHCD	5VMHCD20
	CBDIODSP

Appendix F. Restore the z/VM System Backup Copy from Tape

In this appendix, you will:

- Restore the backup copy of your new z/VM system from tape. This example requires a full pack minidisk be defined in the CP directory, USER DIRECT, for each volume you are restoring.

You should have created a DDR tape of you new z/VM system during your system installation. If you need to use this backup copy to restore your System, perform these steps.

1. Mount the backup tape on a tape drive.
2. Perform an IPL of the tape device.

   ipl *devno* **clear**

   devno is the address of the tape drive.

3. Use DDRXA to restore the system to disk. Repeat this substep for each DASD volume you are restoring.

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

   sysprint cons

   This first control statement tells DDRXA that you want program messages sent to your console.

   ```
   ENTER:
   ```

   input *devno* **tape**

   The second control statement is the input control statement.

   ```
   ENTER:
   ```

   devno identifies the 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 to 181 and an alternate tape attached to 182, the INPUT control statement would be:

   ```
   input 181 tape 182
   ```

   By typing the word **tape**, the tape device type is automatically identified by the DDRXA program.

   output *devaddr* **dasd** *volid*

   This output statement specifies the DASD device to which you are restoring the system.

   ```
   ENTER:
   ```

   devaddr is the full pack minidisk address of the volume to which you are restoring this tape.

   The fullpack minidisk addresses for the default DASD are 122 (520SPL), 123 (520RES) 124 (520W01), 125 (520W02), ...

   By typing the word **dasd**, the device type (3390) is automatically identified by the DDRXA program.

   restore all

   The RESTORE ALL statement tells DDRXA to restore the whole tape to the output device.

```
RESTORING volid
DATA DUMPED mm/dd/yy
  AT hh.mm.ss GMT FROM volid
  RESTORED TO volid
INPUT CYLINDER EXTENTS       OUTPUT CYLINDER EXTENTS
      START       STOP           START        STOP
   nnnnnnnn   nnnnnnnn       nnnnnnnn    nnnnnnnn

   ⋮
END OF RESTORE
BYTES RESTORED nnnnnnnnnn
```

Informational messages: GMT means Greenwich Mean Time.

The exact cylinder extents vary according to the device type.

```
ENTER:
⋮
```

Repeat **input**, **output**, and **restore** statements for each DASD you are restoring.

```
ENTER:
```

When DDRXA finishes, it prompts you with ENTER. To end the program, press the **Enter** key.

```
ENTER
END OF JOB
```

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 G. Restore Your Named Saved Systems and Segments from Tape

In this appendix, you will:

- Restore the CMS Named Saved System and saved segments.

You should have created a loadable tape of the Named Saved Systems and segments during your system installation. If you need to use this backup copy to restore your Named Saved System or segments, perform these steps:

1. Log on to the MAINT user ID.

   ENTER

   The default password for MAINT is MAINT.

   logon maint

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

2. Attach a tape drive to MAINT.

   attach *devno* *****

   devno is the device address of the tape drive.

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

3. Mount the backup tape on the attached tape drive (*devno*).

4. Spool the console.

   spool console *

5. Enter the SPXTAPE command to load the system data files.

   spxtape load *devno* **sdf all run**

   devno is the address you used to define the tape drive.

   ```
   SPXTAPE LOAD   INITIATED ON VDEV devno
   Ready; T=n.nn/n.nn hh:mm:ss

   LOADING  devno     :       nnn  FILES,  PAGES      nnnn
   ⋮
   LOADING  devno     :       nnn  FILES,  PAGES      nnnn
   SPXTAPE LOAD END-OF-TAPE ON VDEV devno;
   MOUNT NEXT TAPE
   TAPE NUMBER:         devno-001
   FILES PROCESSED:           nnn
   SPOOL PAGES:              nnnn
   LOADING  devno     :       nnn  FILES,  PAGES      nnnn
   ⋮
   LOADING  devno     :       nnn  FILES,  PAGES      nnnn
   RDR FILE fileno1 SENT FROM MAINT    CON WAS fileno RECS nnnn CPY  001 T NOHOLD NOKEEP
   ```

   fileno1 is the 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.

spxtape end *devno*

```
SPXTAPE END    INITIATED ON VDEV devnoSPXTAPE LOAD COMMAND ENDED      ON VDEV devno
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 MAINT    CON WAS fileno RECS nnnn CPY  001 T NOHOLD NOKEEP
```

fileno2 is the 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 the *z/VM: CP Commands and Utilities Reference*.

7. IPL the CMS named saved system.

ipl *cmsname*

```
⋮
z/VM V5.2.0    yyyy-mm-dd hh:mm
```

cmsname is 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.

ENTER

Press **Enter** to return to the command line.

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

Appendix H. Recover a File or Minidisk

In this appendix, you will:

- Recover an entire minidisk. To recover a minidisk, you may either overlay the existing disk or restore the minidisk to a temporary disk and copy the files to the target disk.
- Recover an individual file from the installation media. To recover an individual file, you must first determine on which minidisk the file is located, restore the entire minidisk to a temporary disk, and copy the file from the temporary disk.

1. Log on to the MAINT user ID.
2. Attach tape drive (*devno*) to the MAINT user ID at device address 181.

   attach *devno* *** 181**

   ```
   devno attached to MAINT
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

3. If you want to recover an entire minidisk, skip this substep and go to substep 4.

   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 substep 4. Otherwise, check the minidisk map file. If you loaded VM to the file pool, the minidisk map file is on the directory VMSYS:MAINT.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

   ⋮

   The MINIDISK MAP file lists the minidisks on the z/VM System DDR and the files contained on each minidisk. Look at MINIDISK MAP to determine which minidisk contains the file you want to recover.

   quit

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

4. 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 as your installation media and the same size as the minidisk you want to recover. (See the $ITEMMD$ $TABLE$ on the 2CC disk for the size of the minidisk you want to recover.)

   define [t3390 or vfb-512] *loadaddr mdisksize*

   ```
   DASD loadaddr DEFINED
   Ready; T=n.nn/n.nn hh:mm:ss
   ```

   loadaddr is the address of the temporary disk.

   mdisksize is the 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 as your installation media and the same size as the minidisk you want to recover.

5. If you are restoring from DVD installation media skip to substep 9 on page 197. Otherwise continue with substep 6
6. To restore the chosen minidisk, enter the INSTALL EXEC with the RECOVER option.

   If installing from 3590, enter:

   install 3590 (recover *mdiskaddr loadaddr*

   If installing from 3480 or 3490, enter:

   install (recover *mdiskaddr loadaddr*

   mdiskaddr is the address of the minidisk to be loaded from the z/VM System DDR.

   loadaddr is the address to which you restore the minidisk.

   Notes:

   a. *mdiskaddr* is the address of the minidisk to be loaded from the z/VM System DDR tapes. If the minidisk belongs to MAINT, *mdiskaddr* is the actual minidisk address. If the minidisk does not belong to MAINT, *mdiskaddr* is the alias address. Refer to the $ITEMMD$ $TABLE$ on the 2CC disk to determine the alias address.
   b. To recover a minidisk and overlay the existing disk, you must link the minidisk in write mode. For example, enter the `LINK CMSBATCH 195 801 WR` command.
   c. *loadaddr* is the address to which you restore the minidisk. If you want to restore an entire minidisk and overlay the existing minidisk, *loadaddr* is the address at which you have the disk linked.

      If the load address (*loadaddr*) is not specified, a temporary disk (T-disk) is created.
   d. You cannot recover the 2CC minidisk directly to the 2CC minidisk. You can recover the 2CC to an address other than 2CC and copy the files you wish to recover to the 2CC minidisk.
   e. The INSTALL EXEC requires a fullscreen terminal with at least 20 lines.
7. The following LOAD DEVICE MENU panel displays when you enter the INSTALL EXEC with the RECOVER option.

```
                        LOAD DEVICE MENU

                    MEDIA SELECTED IS: media

                  MOUNT VOLUME          VADDR
                       n                ______









====>
 PF1 = HELP       PF3 = QUIT      PF5 = LOAD         PF12 = RETURN
```

8. Complete the z/VM LOAD DEVICE MENU panel.

   Note: This LOAD DEVICE MENU panel shows you the volume you need to mount based on the minidisk you want to restore.

a. Check the **MEDIA SELECTED IS:** field. This is a required field that will contain either TAPE or 3590 depending on the parameter used to invoke the INSTALL exec. If the *media* specified is not correct, press **PF3** to quit and run the INSTALL exec with the correct parameter.

b. Type 181 for the tape drive virtual address (VADDR).

c. Mount volume *n* of the z/VM System DDR tape on tape drive 181.

d. Press **PF5** to load.

PF5

The load starts with the following system messages:

```
HCPWIN8388I  CHECKING STATUS OF DRIVES

HCPWIN8381I  CHECKING TAPE VOLUME NUMBER FOR DRIVE 181

HCPWIN8380I  RESTORING MINIDISK mdiskaddr TO MINIDISK loadaddr

HCPDDR725D SOURCE DASD DEVICE WAS (IS) LARGER THAN OUTPUT DEVICE
RESTORING 520xxx
DATA DUMPED   mm/dd/yy at hh.mm.ss  GMT FROM 520xxx RESTORED TO SYSTEM
INPUT CYLINDER EXTENTS             OUTPUT CYLINDER EXTENTS
      START             STOP           START              STOP
   nnnnnnnn          nnnnnnnn       nnnnnnnn           nnnnnnnn
END OF RESTORE
 BYTES RESTORED nnnnnnnnnn

END OF JOB

HCPWIN8441I  mdiskaddr HAS BEEN RESTORED TO MINIDISK loadaddr
Ready; T=n.nn/n.nn hh:mm:ss
```

9. If you are restoring from DVD installation media, you must reload the disk from the DVD

   a. Run INSTPIPE

   instpipe

   b. Reload from the DVD:

   pipe ftpget -h *IPaddress* **-u** *userid* **-p** *password* **-d** *ftpdrct***/CPDVD -v BEF -DVDEOF -f** *dddcuu** **|UNPACK|** *restcmd loadaddr*

   where:

   - *IPaddress*, *userid*, and *password* are the TCP/IP communication path to the DVD drive.
   - *ftpdrct* is the path where the DVD is mounted.
   - *ddd* is **CKD** for 3390 or **FBA** for FBA.
   - *cuu* is the address of the minidisk to be restored from the DVD
   - *restcmd* is **ECKDREST** for 3390 or **MDREST** for FBA.
   - *loadaddr* is the address to which you are restoring the minidisk.

   Notes:

   1) *cuu* is the address of the minidisk to be loaded from the z/VM System DVD. If the minidisk belongs to MAINT, *cuu* is the actual minidisk address. If the minidisk does not belong to MAINT, *cuu* is the alias address. Refer to the $ITEMMD$ $TABLE$ on the 2CC disk to determine the alias address.

2) To recover a minidisk and overlay the existing disk, you must link the minidisk in write mode. For example, enter the LINK CMSBATCH 195 801 WR command.
3) *loadaddr* is the address to which you restore the minidisk. If you want to restore an entire minidisk and overlay the existing minidisk, *loadaddr* is the address at which you have the disk linked. If the load address (*loadaddr*) is not specified, a temporary disk (T-disk) is created.

10. 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.

access *loadaddr fm-1* `Ready; T=n.nn/n.nn hh:mm:ss`	*loadaddr* is the address of the temporary disk. *fm-1* is any available file mode.
access *mdiskaddr fm-2* `Ready; T=n.nn/n.nn hh:mm:ss`	*mdiskaddr* is the 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* is any available file mode.
copyfile *fn ft fm-1 = = fm-2* **(olddate** `Ready; T=n.nn/n.nn hh:mm:ss`	*fn* is the file name of the file you want to recover. *ft* is the file type of the file you want to recover. Repeat the COPYFILE command for each file you want to recover.

Appendix I. Using an Integrated 3270 Console for Installation

Perform the following steps to install the z/VM System DDR into a new system environment using an Integrated 3270 console.

1. Get to the panel on the HMC.
   a. Open the TASK list from the VIEWS area by double clicking.
   b. Open CPC RECOVERY from the TASK LIST WORK AREA.
   c. Open GROUPS for the VIEW AREA.
   d. Open the CPC IMAGES from the GROUPS WORK AREA.

---

2. Mount Volume 1 of the z/VM Release 5.2.0 system DDR on your tape drive.

---

3. From the CPC IMAGES WORK AREA on the HMC, drag and drop the image you want to IPL on the LOAD icon in the CPC RECOVERY AREA or highlight the image you are using and double-click on the LOAD icon in the CPC RECOVERY AREA. The LOAD panel will open.
   a. IPL the tape using the LOAD panel on the HMC. Fill in the fields on the LOAD panel with the device address of your tape drive and a loadparm of CNSLSCLP (the HMC Operating System Messages window):
      - Load Address xxxx - type your tape drive address
      - Load parameter CNSLSCLP - gets you to the Operator Console
      - Click OK in the LOAD panel
      - Click Yes in the LOAD TASK CONFIRMATION panel
      - Click OK in the LOAD PROGRESS panel when status says completed

      ICKDSF will come up on the System Console.
   b. Double click the OPERATING SYSTEM MESSAGES icon in the HMC CPC RECOVERY panel. It may take a few minutes for the messages to appear.
   c. Go back to “Step 1. Restore the Initial Installation System (IIS)” on page 14 and follow substeps 7-11 to use ICKDSF to initialize, format, and label the packs needed for installation. Then, return here.
   d. Close the Operation System Message Console.

---

4. Open the Integrated 3270 console from the CPC RECOVERY area on the Hardware Management Console and IPL your from your tape drive.

   The Integrated 3270 console window must remain open, even if it is in the background. To open the window and IPL your image:
   - From the CPC IMAGE WORK AREA on the HMC, drag and drop the image you want to IPL on the Integrated 3270 console icon in the CPC RECOVERY tasks area. The Integrated 3270 console window will open.
   - From the CPC IMAGE WORK AREA on the HMC, drag and drop the image you want to IPL on the LOAD icon in the CPC RECOVERY tasks area. The LOAD panel will open.
   - IPL the tape using the LOAD panel on the HMC, filling in the fields with the device address of tape drive and a loadparm SYSG:
     – Load Address xxxx - type your tape drive address
     – Load parameter SYSG - gets you to the Integrated 3270 console

       Ensure the load parameter field is empty before entering SYSG.
     – Click OK in the LOAD panel

- Click Yes in the LOAD TASK CONFIRMATION panel
- Click OK in the LOAD PROGRESS panel when status says completed

- Click on the Integrated 3270 console window to bring it to the foreground.

  The DDR program will be displayed in the Integrated 3270 console window.
- Go back to “Step 1. Restore the Initial Installation System (IIS)” on page 14 and follow substep 13 to use DDR to load the IIS. Then, return here.
- Keep the Integrated 3270 console window open in the background.

---

5. From the CPC IMAGES WORK AREA on the HMC, drag and drop the Image you want to IPL on the LOAD icon in the CPC RECOVERY area. The LOAD panel will open.
   - IPL the tape using the LOAD panel on the HMC, filling in the fields with the device address of tape drive and a loadparm of CNSLSCLP:
     - Load Address xxxx - type your tape drive address
     - Load parameter CNSLSCLP - gets you to the Operator Console
     - Click OK in the LOAD panel
     - Click Yes in the LOAD TASK CONFIRMATION panel
     - Click OK in the LOAD PROGRESS panel when status says completed

     ICKDSF comes up on the System Console.
   - Double click the OPERATING SYSTEM MESSAGES icon in the HMC CPC RECOVERY panel. It may take a few minutes for the messages to appear.
   - Go back to “Step 1. Restore the Initial Installation System (IIS)” on page 14 and follow substeps 16 - 17 to use ICKDSF to allocate your paging and spool space, and allocate the remainder of your 520RES pack if necessary. Then, return here.
   - Close the OPERATING SYSTEM MESSAGES console.

---

6. IPL the 520RES to bring up the IIS part of the install.
   - From the CPC IMAGES WORK AREA on the HMC, drag and drop the image you want to IPL on the LOAD icon in the CPC RECOVERY tasks area. The LOAD panel will open.
   - IPL the DASD using the LOAD panel on the HMC, filling in the fields with the DASD address of your 520RES volume and a loadparm of SYSG:
     - Load Address xxxx - type the DASD address of your 520RES volume
     - Load parameter SYSG - gets you to the Integrated 3270 console
     - Click OK in the LOAD panel
     - Click Yes in the LOAD TASK CONFIRMATION panel
     - Click OK in the LOAD PROGRESS Panel when status says completed
   - Click on the Integrated 3270 console window to bring it to the foreground.

     The Stand Alone Program Loader (SAPL) panel will be displayed in the Integrated 3270 console window.

Go back to “Step 2. IPL the z/VM IIS” on page 21, substep 2, and complete the installation.

Note: Use CONS=SYSG in place of CONS=*consaddr* on the Stand Alone Program Loader panel before pressing PF10 to load.

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Glossary

For a list of terms and their definitions, see *z/VM: Glossary*. The glossary is also available through the online HELP Facility. For example, to display the definition of "cms", enter:

```
help glossary cms
```

You will enter the glossary HELP file and the definition of "cms" will be displayed. While you are in the glossary HELP file, you can also search for other terms.

If you are unfamiliar with the HELP Facility, you can enter:

```
help
```

to display the main HELP Menu, or enter:

```
help cms help
```

for information about the HELP command.

For more information about the HELP Facility, see the *z/VM: CMS User's Guide*. For more information about the HELP command, see the *z/VM: CMS Commands and Utilities Reference*.

Bibliography

This bibliography lists the books in the z/VM product library. For abstracts of these books and information about current editions and available media, see *z/VM: General Information*.

Where to Get z/VM Books

z/VM books are available from the following sources:

- IBM Publications Center at www.ibm.com/shop/publications/order/
- z/VM Internet Library at www.ibm.com/eserver/zseries/zvm/library/
- *IBM Online Library: z/VM Collection*, SK2T-2067
- *IBM Online Library: z/VM Collection on DVD*, SK5T-7054

z/VM Base Library

The following books describe the facilities included in the z/VM base product.

Overview

z/VM: General Information, GC24-6095

z/VM: Glossary, GC24-6097

z/VM: License Information, GC24-6102

Installation, Migration, and Service

z/VM: Guide for Automated Installation and Service, GC24-6099

z/VM: Migration Guide, GC24-6103

z/VM: Service Guide, GC24-6117

z/VM: VMSES/E Introduction and Reference, GC24-6130

Planning and Administration

z/VM: CMS File Pool Planning, Administration, and Operation, SC24-6074

z/VM: CMS Planning and Administration, SC24-6078

z/VM: Connectivity, SC24-6080

z/VM: CP Planning and Administration, SC24-6083

z/VM: Getting Started with Linux on System z9 and zSeries, SC24-6096

z/VM: Group Control System, SC24-6098

z/VM: I/O Configuration, SC24-6100

z/VM: Running Guest Operating Systems, SC24-6115

z/VM: Saved Segments Planning and Administration, SC24-6116

z/VM: TCP/IP Planning and Customization, SC24-6125

eServer zSeries 900: Planning for the Open Systems Adapter-2 Feature, GA22-7477

System z9 and eServer zSeries: Open Systems Adapter-Express Customer's Guide and Reference, SA22-7935

System z9 and eServer zSeries: Open Systems Adapter-Express Integrated Console Controller User's Guide, SA22-7990

z/OS and z/VM: Hardware Configuration Manager User's Guide, SC33-7989

Customization and Tuning

z/VM: CP Exit Customization, SC24-6082

z/VM: Performance, SC24-6109

Operation

z/VM: System Operation, SC24-6121

z/VM: Virtual Machine Operation, SC24-6128

Application Programming

z/VM: CMS Application Development Guide, SC24-6069

z/VM: CMS Application Development Guide for Assembler, SC24-6070

z/VM: CMS Application Multitasking, SC24-6071

z/VM: CMS Callable Services Reference, SC24-6072

z/VM: CMS Macros and Functions Reference, SC24-6075

z/VM: CP Programming Services, SC24-6084

z/VM: CPI Communications User's Guide, SC24-6085

z/VM: Enterprise Systems Architecture/Extended Configuration Principles of Operation, SC24-6094

z/VM: Language Environment User's Guide, SC24-6101

z/VM: OpenExtensions Advanced Application Programming Tools, SC24-6104

z/VM: OpenExtensions Callable Services Reference, SC24-6105

z/VM: OpenExtensions Commands Reference, SC24-6106

z/VM: OpenExtensions POSIX Conformance Document, GC24-6107

z/VM: OpenExtensions User's Guide, SC24-6108

z/VM: Program Management Binder for CMS, SC24-6110

z/VM: Reusable Server Kernel Programmer's Guide and Reference, SC24-6112

z/VM: REXX/VM Reference, SC24-6113

z/VM: REXX/VM User's Guide, SC24-6114

z/VM: Systems Management Application Programming, SC24-6122

z/VM: TCP/IP Programmer's Reference, SC24-6126

Common Programming Interface Communications Reference, SC26-4399

Common Programming Interface Resource Recovery Reference, SC31-6821

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 ILC Applications, SA22-7563

z/OS MVS Program Management: Advanced Facilities, SA22-7644

z/OS MVS Program Management: User's Guide and Reference, SA22-7643

End Use

z/VM: CMS Commands and Utilities Reference, SC24-6073

z/VM: CMS Pipelines Reference, SC24-6076

z/VM: CMS Pipelines User's Guide, SC24-6077

z/VM: CMS Primer, SC24-6137

z/VM: CMS User's Guide, SC24-6079

z/VM: CP Commands and Utilities Reference, SC24-6081

z/VM: Quick Reference, SC24-6111

z/VM: TCP/IP User's Guide, SC24-6127

z/VM: XEDIT Commands and Macros Reference, SC24-6131

z/VM: XEDIT User's Guide, SC24-6132

CMS/TSO Pipelines Author's Edition, SL26-0018

System Diagnosis

z/VM: CMS and REXX/VM Messages and Codes, GC24-6118

z/VM: CP Messages and Codes, GC24-6119

z/VM: Diagnosis Guide, GC24-6092

z/VM: Dump Viewing Facility, GC24-6093

z/VM: Other Components Messages and Codes, GC24-6120

z/VM: TCP/IP Diagnosis Guide, GC24-6123

z/VM: TCP/IP Messages and Codes, GC24-6124

z/VM: VM Dump Tool, GC24-6129

z/OS and z/VM: Hardware Configuration Definition Messages, SC33-7986

Books for z/VM Optional Features

The following books describe the optional features of z/VM.

Data Facility Storage Management Subsystem for VM

z/VM: DFSMS/VM Customization, SC24-6086

z/VM: DFSMS/VM Diagnosis Guide, GC24-6087

z/VM: DFSMS/VM Messages and Codes, GC24-6088

z/VM: DFSMS/VM Planning Guide, SC24-6089

z/VM: DFSMS/VM Removable Media Services, SC24-6090

z/VM: DFSMS/VM Storage Administration, SC24-6091

Directory Maintenance Facility

z/VM: Directory Maintenance Facility Commands Reference, SC24-6133

z/VM: Directory Maintenance Facility Messages, GC24-6134

z/VM: Directory Maintenance Facility Tailoring and Administration Guide, SC24-6135

Performance Toolkit for VM™

z/VM: Performance Toolkit, SC24-6136

Resource Access Control Facility

External Security Interface (RACROUTE) Macro Reference for MVS and VM, GC28-1366

Resource Access Control Facility: Auditor's Guide, SC28-1342

Resource Access Control Facility: Command Language Reference, SC28-0733

Resource Access Control Facility: Diagnosis Guide, GY28-1016

Resource Access Control Facility: General Information, GC28-0722

Resource Access Control Facility: General User's Guide, SC28-1341

Resource Access Control Facility: Macros and Interfaces, SC28-1345

Resource Access Control Facility: Messages and Codes, SC38-1014

Resource Access Control Facility: Migration and Planning, GC23-3054

Resource Access Control Facility: Security Administrator's Guide, SC28-1340

Resource Access Control Facility: System Programmer's Guide, SC28-1343

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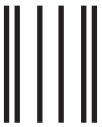

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