

User's Guide and Reference for IBM z/VM[®] Remote Access Programs

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Preface

This document is intended to assist the user in accessing and using the z/VM Remote Development system. It covers all supported versions of z/VM.

For terminology used in this document, please refer to **Appendix C: Terms and definitions** on page 34.

For assistance, please refer to **Section 2: Technical support** on page 10

Index

1	Overview – remote access environment	2
1.1	Hardware / software platform	2
1.2	Introduction to the virtual machine concept.....	2
1.3	System availability	2
1.4	Maintenance window	2
1.5	Remote access system backup.....	3
2	Technical support.....	4
3	How to access the IBM Innovation Center System z server.....	4
4	IPL the Guest z/VM system	9
4.1	How to IPL the Guest z/VM system (quick steps).....	9
4.2	How to IPL the Guest z/VM System (Detailed Description).....	10
4.2.1	Logon the z/VM control user ID	10
4.2.2	Initialize the guest z/VM system (IPL)	10
4.3	Disconnect the z/VM control user ID	13
4.4	How to reconnect the z/VM control user ID	14
5	How to LOGON to MAINT	15
5.1	Connecting using z/VM DIAL	15
5.2	Connect a TN3270 client session directly to an IP address	18
6	How To Logoff z/VM and IBM Innovation Center, Dallas Secure Portal	18
7	Managing the guest z/VM system with SLEEP and BEGIN.....	19
7.1	Putting the guest z/VM system to SLEEP from the z/VM control user ID.....	20
7.2	Using BEGIN to awaken the guest z/VM system	20
8	How to Terminate A Guest z/VM System.....	21
9	Guest z/VM system administration.....	22
9.1	Issuing CP commands	22
9.2	Accounting information	22
9.2.1	Obtaining program account information	22
9.3	Switching the z/VM control user ID	24
10	Tape handling procedures	25
10.1	Using tapes	25
10.2	Mounting tapes.....	26
10.2.1	z/VM tape device definitions	26
10.3	Tape drive use from the z/VM control user ID	27
10.4	Sending tapes to and receiving tapes from the IBM Innovation Center, Dallas	28
10.5	Listing the tapes available to your system.....	29
11	Appendix A. Guest z/VM System Structure.....	30
12	Appendix B: Help for common problems.....	31
13	Appendix C: Terms and definitions	34
14	Notices	35
15	Trademarks	36

1 Overview – remote access environment

The remote access environment is provided by the IBM Innovation Center, Dallas organization in conjunction with various IBM development laboratories. z/VM is an operating system from IBM which runs on System z® server hardware.

1.1 Hardware / software platform

The remote access program is implemented on an IBM System z server which is accessible to Solution Developers participating in the remote access program via the INTERNET. The System z server runs the IBM z/VM® (Virtual Machine) operating system which supports multiple guest systems, each capable of supporting multiple users in a unique environment. Each remote access participant is provided with a dedicated guest system, which appears to the user as a System z server running a native z/VM operating system.

1.2 Introduction to the virtual machine concept

Virtual Machine (VM) is a software facility that allows one physical processor complex to be configured with multiple "virtual" processors or machines. Each virtual machine, known as a guest, runs independently of every other virtual machine, and can run any System z operating system (z/OS, z/VM, Linux, CMS, etc.) and software. Please refer to the IBM Redbook **Introduction to the New Mainframe: z/VM Basics SG247316** <http://www.redbooks.ibm.com/redbooks/pdfs/sg247316.pdf>

1.3 System availability

The remote access program host systems are generally available 24 hours per day, 7 days per week except for scheduled maintenance windows. Technical and administrative support is available from 07:00 to 19:00 US Central time Monday through Friday only.

1.4 Maintenance window

The IBM Innovation Center, Dallas has implemented the following policy regarding maintenance windows:

Every Sunday between the hours of 09:30 and 15:30 US Central time the IBM Innovation Center, Dallas may choose to make any of the processors unavailable. This time will be used to perform system IPL's and to implement new or updated releases of software. All Solution Developers requiring an orderly guest z/VM system shutdown should perform the shutdown prior to that time and should not plan to resume operation until after 15:30 US Central time on Sunday.

A maintenance window will not be required every Sunday, therefore Solution Developers may choose to work during this time *but only at their own risk*. Notices will be posted whenever possible (via host system broadcast messages) but all activity during this window is subject to immediate interruption.

Solution Developers with special requirements for this time period should contact the IBM Innovation Center, Dallas as early as possible.

1.5 Remote access system backup

The z/VM disks that contain the remote access system are backed up to tape every week and are available for 3 months. The intent of these backups is to enable us to recover from a DASD failure. The backup and restore process operates only at the z/VM disk level, therefore the restoration of individual files from these backups is difficult and time-consuming and not generally available.

To obtain details of the backups for the remote access system, or to change the frequency of the backups, please contact the IBM Innovation Center, Dallas.

2 Technical support

Technical Support is provided via our Secure User Group (IBM Z Dallas ISV Center) at this link: <https://ibm.biz/DallasISVCommunity>. To join this User Group please follow these instructions:

Join the IBM Z Dallas ISV Secure User Group Website

This secure user group is a place for partners to collaborate, ask questions, trade tips and tricks. Your membership will be approved if you are enrolled in an active program and are in good standing in the IBM Z Dallas ISV environment. You will be removed from the group if you are no longer in an active program or are not in good standing in the IBM Z Dallas ISV environment. To join, you will first need to join the IBM Z and LinuxONE Community. You can use the following invite link to do this. <https://ibm.com/community/z/join>

- Sign in with an IBMid.

If you do not have an IBMid, you may create one by clicking on the link below the login box that says 'Don't have an account? Create an IBM id'.

- Select your preference for discussion notifications .
- Click 'Yes join the group'.

Once you have joined the IBM Z and LinuxONE community, please use this form to request access to the IBM Z Dallas ISV Center Community: <https://www.ibm.com/community/z/ibm-z-dallas-isv-center-request-membership/>

Once approved, you will receive an email containing a unique link to join the group.

Hours of attended operation are 07:00 to 19:00 US Central time Monday through Friday except IBM USA holidays. Emails received after hours, on weekends, or on holidays will be processed the next business day. If you require technical support, please follow the instructions on <http://dtsc.dfw.ibm.com/contact.html>

If confidential support is needed, please e-mail us at ztech@us.ibm.com.

3 How to access the IBM Innovation Center System z server

Before utilizing the guest z/VM system, Solution Developers must first follow the steps below to access the IBM System z server (e.g., SVSCDR2) and initialize (IPL) the guest z/VM system. Access to the IBM System z server requires access to the Internet. The method, line speed, and choice of Internet Service Provider are determined by the Solution Developer.

First, a word about user IDs...

There are several different user IDs described in this document:

- **Guest system ID** - z/VM ID which executes z/VM. **This ID is the guest z/VM system.**
- **z/VM Personal user ID** - z/VM user ID used as an individual identifier for security verification when accessing the z/VM virtual machine (via the DIAL command).
- **z/VM Control user ID** - The term **z/VM Control user ID** is used to reference the specific z/VM Personal user ID used to initialize the guest z/VM system and currently holds the ability to perform functions for the guest z/VM system.

In this guide, we refer to the guest z/VM system ID as ETPGVyy and the z/VM Personal user ID and z/VM control user ID as ETPDxxx

All Solution Developers have been provided a guest z/VM system ID which is the guest z/VM system.

All of the z/VM Personal user IDs provided as part of this program have the authority to activate the guest z/VM system IDs by way of the **SVXLOG** command. Once the Solution Developer activates the guest z/VM system ID, the user ID that does the activation becomes the z/VM control user ID. This z/VM control user ID is the only user ID that can send commands to the guest z/VM system. This is done via the z/VM **SEND** command. The z/VM control user ID will remain the same until it is changed by someone with proper authority to do so (please see “ Switching the z/VM control user ID“ on page 24) or until the guest z/VM system ID is shut down.

Table 1 : UserID information

Second, a word about TN3270 emulators...

- Consult the TN3270 emulator documentation to determine the appropriate key sequences required for the ENTER, PA2, F12 and CLEAR keys.
- The TN3270 emulator must be SSL capable.

NOTE: IBM Corporation has taken steps to enhance the security of the internet connections to the IBM Innovation Center, Dallas remote access systems, by blocking various ports from "INBOUND" traffic. Information about the blocked ports can be found on the IBM Innovation Center, Dallas website at URL:

[http://dtsc.dfw.ibm.com/MVSDS/HTTPD2.DSN01.PUBLIC.HTML\(BLKPORTS\)](http://dtsc.dfw.ibm.com/MVSDS/HTTPD2.DSN01.PUBLIC.HTML(BLKPORTS))

To access the System z server, an Internet connection must first be established. Once that is established, perform the following steps:

Step 1. Direct an SSL enabled TN3270 connection to the IBM Innovation Center, Dallas Secure Portal at IP address **198.81.193.6**, port **23**.

- For additional information on configuring IBM Personnel Communication 3270 Emulator Software, please refer to the IBM Innovation Center, Dallas public website: <http://dtsc.dfw.ibm.com/>

Note: IBM Personnel Communication 3270 Emulator Software is available as part of the IBM Host Access Client Package (HACP): <http://www.ibm.com/software/network/hostaccess/>. Partners who have access to the Software Access Catalog (SAC) as part of their Partner Plus membership will find this software by searching the SAC for "IBM Rational Host Access Client Package (HACP) for Multiplatforms eAssembly Multilingual Multiplatform ". There are usage restrictions on the software that is provided by Partner Plus through the Software Access Catalog. Consult the Partner Plus web site for this information: <https://www.ibm.com/partnerplus/>.

Step 2. Once the connection is set up, the Remote Access Portal screen (below) will be shown. Choose the system identified in the delivery email by entering in the system name and pressing the ENTER key.

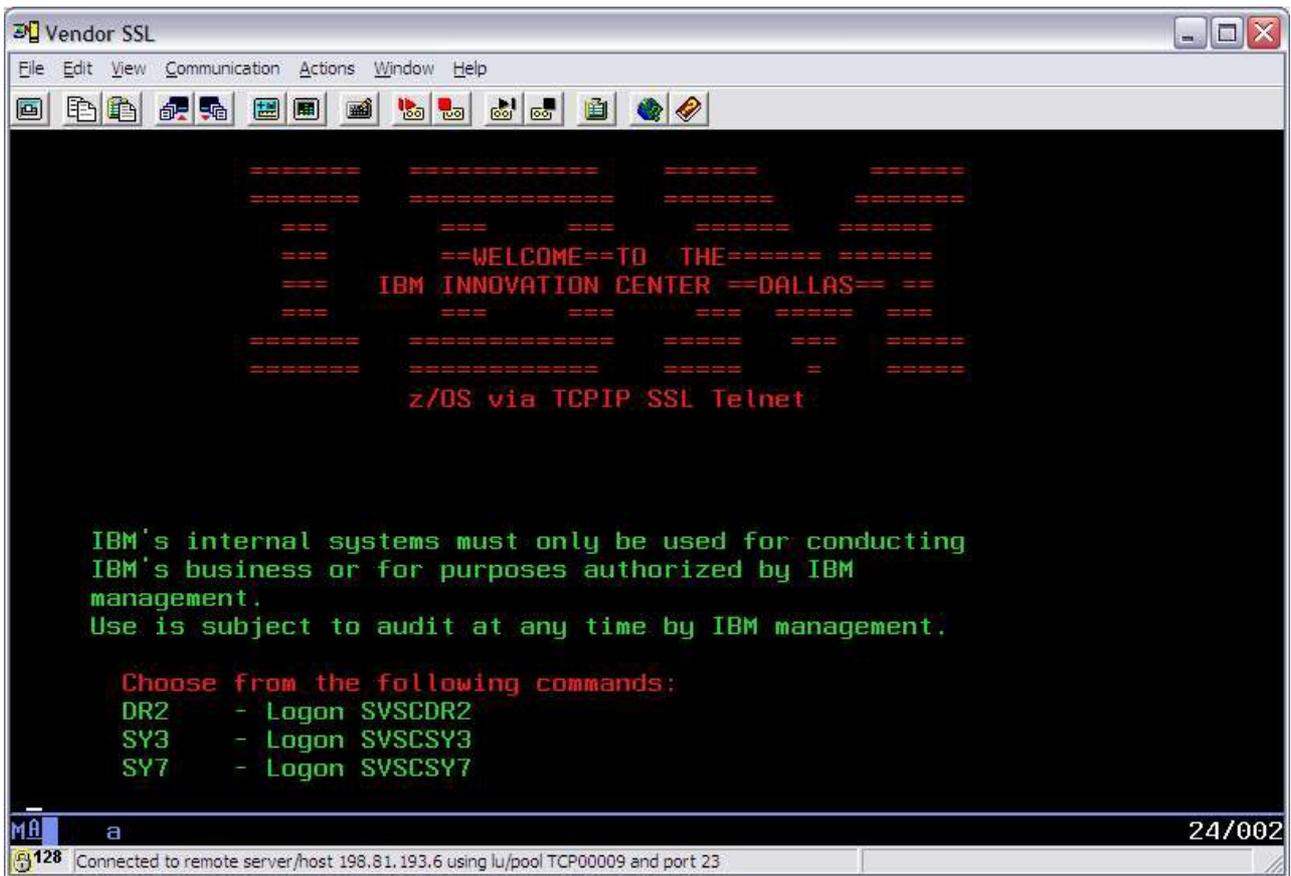


Figure 1 SSL Portal Screen Shot

Step 2. The next screen displayed will be the IBM Innovation Center, Dallas system LOGO screen, indicating that the IBM Innovation Center, Dallas System z server has been reached.

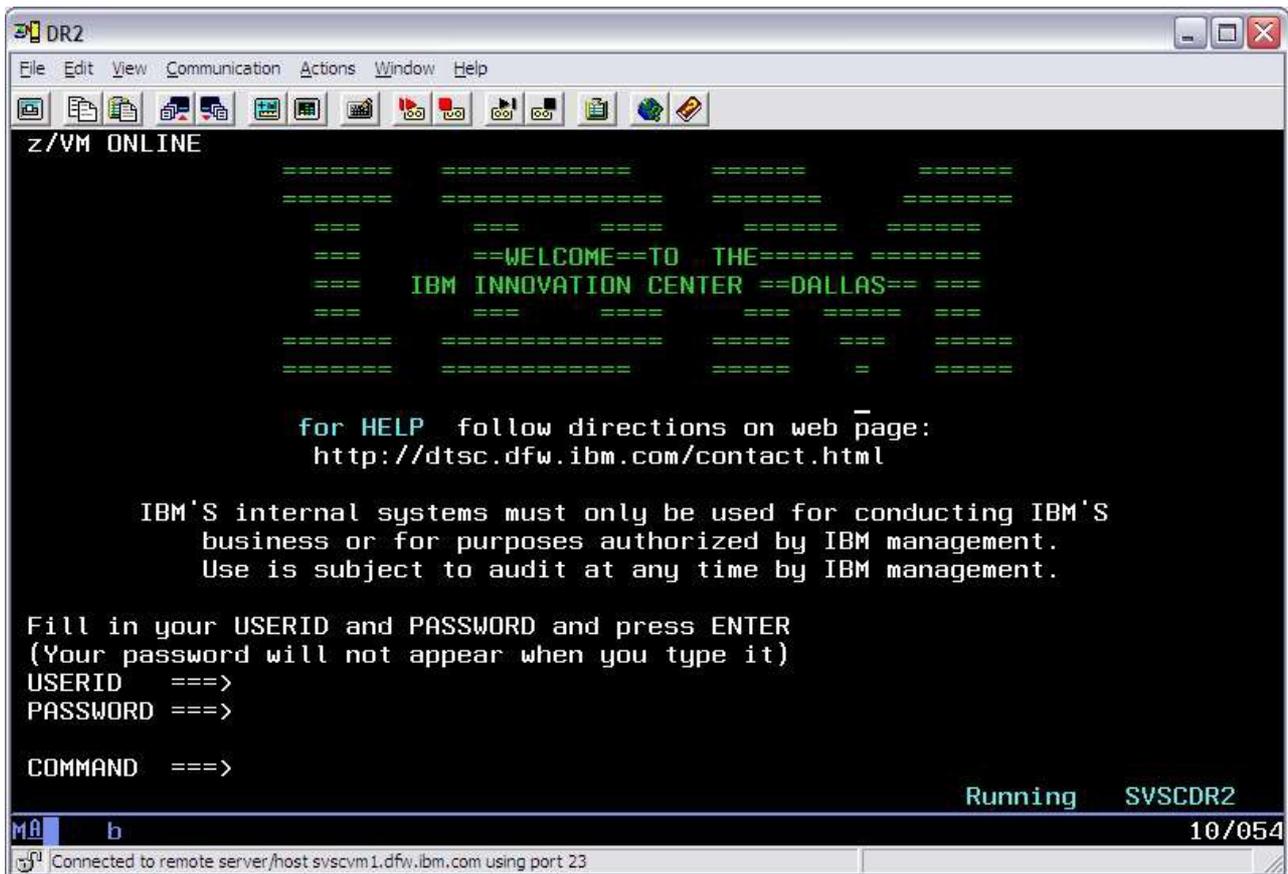


Figure 2 z/VM LOGO screen example

- Step 4. On the LOGO screen, logon to a z/VM Personal user ID by typing in a z/VM Personal user ID and password and pressing the ENTER key.
- o The password will be expired on first use of the z/VM Personal user ID or anytime after the IBM Innovation Center, Dallas has reset the password. The system will prompt you to change the password (as shown below).

```
LOGON ETPDxxx
RPIMGR042I PASSWORD EXPIRED
To change your password - enter: nnn/nnn where nnn = new
password or, enter LOGOFF to cancel
```

Enter a new password in the format of *new_password/new_password* and press the ENTER key. **The text you type will not be visible** to help assure the privacy of the z/VM Personal user ID password.

PASSWORD RULES. The PASSWORD MUST:

- Be eight characters in length
- Only contain alphabetic, numeric and national characters i.e., \$ # and @
- Contain at least one alphabetic and one non-alphabetic character
- Have the first and last characters be non-numeric
- Contain no more than three identical consecutive characters in any position from the previous password
- Contain no more than two identical consecutive characters
- Not contain the userid as part of the password
- Not be reused until after at least eight iterations

Step 5. System “log messages” with information of general interest, are broadcast to all users on the system. **Be sure to review the broadcast messages for important notices regarding scheduled outages.** When the z/VM status indicator in the lower right-hand corner of the screen shows **HOLDING** or **MORE...**, press the CLEAR or PA2 key to continue¹.

Step 6. Successful logon has occurred when the screen displays the “CMS ready prompt” and the z/VM status indicator in lower right-hand corner shows **Running SVSCxxx**. You are now ready to initialize the z/VM guest as described in “Initialize the guest z/VM system (IPL)” on page 10. Since a z/VM Personal user ID has been chosen to initialize the z/VM guest, this z/VM Personal user ID becomes the VM Control userid.

¹ The CLEAR and PA2 keys are part of the IBM 3270 terminal architecture. Refer to the TN3270 emulator's documentation for information on these keys.

4 IPL the Guest z/VM system

This release of z/VM is capable of ipl without a dedicated system console. Therefore, it is no longer a requirement (nor desirable) to logon to the guest system userid. It will still be necessary to DIAL the individual *guest system userid* executing z/VM in order to interact with applications running on a particular z/VM system. Logon to a userid executing z/VM is not required.

4.1 How to IPL the Guest z/VM system (quick steps)

This section provides a list of quick steps to IPL a z/VM system. The section “**How to IPL the Guest z/VM System (Detailed Description)**” on page 10 provides detailed instructions, including examples of screens, to initialize a system.

1. Access the System z server over the Internet through the IBM Innovation Center, Dallas Secure Portal using an SSL enabled TN3270 emulator. See “How to access the IBM Innovation Center System z server” on page 4 for detailed instructions.
2. Logon a z/VM Personal user ID which will be used to control the guest z/VM system. The user ID is now referred to as the z/VM control user ID.
3. Initialize the guest z/VM system with the command **SVXLOG** *guest system ID*:

```
SVXLOG ETPGVyy
```

4. Test sending a z/VM command to the OPERATOR userid of the guest z/VM system. Enter the following query dasd command:

```
SEND ETPGVyy \CP VI VMSG Q DA
```

5. When the guest z/VM system is not being used, inactivate the system with command:

```
SEND ETPGVyy \CP SLEEP
```

6. To reactivate the system, enter command:

```
SEND ETPGVyy \CP BEGIN
```

7. If the guest z/VM system will not be needed for any extended period of time, shutdown the guest z/VM system with command:

```
SEND ETPGVyy \CP VI VMSG SHUTDOWN
```

8. After the guest z/VM system is shutdown, issue the following command to log the user ID off:

```
SEND ETPGVyy \CP LOGOFF
```

9. Do NOT logoff of the z/VM control user ID. When you have completed all the activities required on the z/VM control user ID use the VM command DISCONNECT as described IN “Disconnect the z/VM control user ID” on page 13.

4.2 How to IPL the Guest z/VM System (Detailed Description)

4.2.1 Logon the z/VM control user ID

The messages which result from the initialization of the system cover more than one screen. In this documentation, be careful to review all of the screen examples associated with a particular event. Each part contains important information describing the IPL of the guest z/VM system in this environment.

The F12 key has been defined to retrieve the last command(s) entered. This will be handy as several of the next steps require that you enter various z/VM commands prefixed by the same z/VM command syntax.

Before continuing, please follow the directions in “How to access the IBM Innovation Center System z server“ on page 4 for information on establishing a session and logging on to the z/VM Personal user ID that will be used for initialization of the guest system.

4.2.2 Initialize the guest z/VM system (IPL)

Step 1. After logging on to the z/VM Personal user ID, initialize the guest z/VM system by typing **SVXLOG *guest system ID*** command at the CMS Ready Prompt and then press the ENTER key. For guest system ID ETPGVyy, type the following command and press the ENTER key:

```
SVXLOG ETPGVyy
```

Once the SVXLOG command is entered, this z/VM Personal user ID becomes the z/VM control user ID for the guest system ID.

The guest z/VM system will return messages to the z/VM control user ID screen:

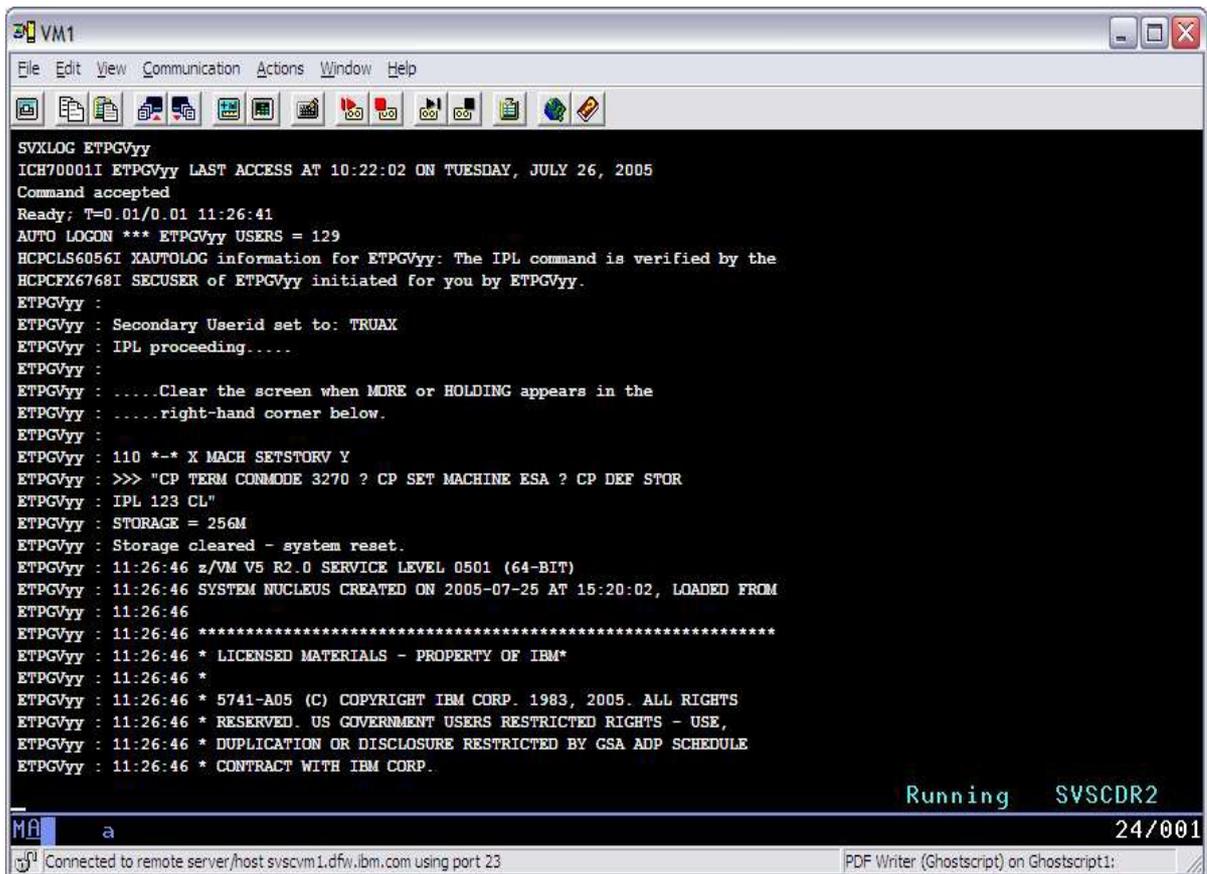


Figure 3 (Part 1 of 2) Initial Messages during z/VM IPL

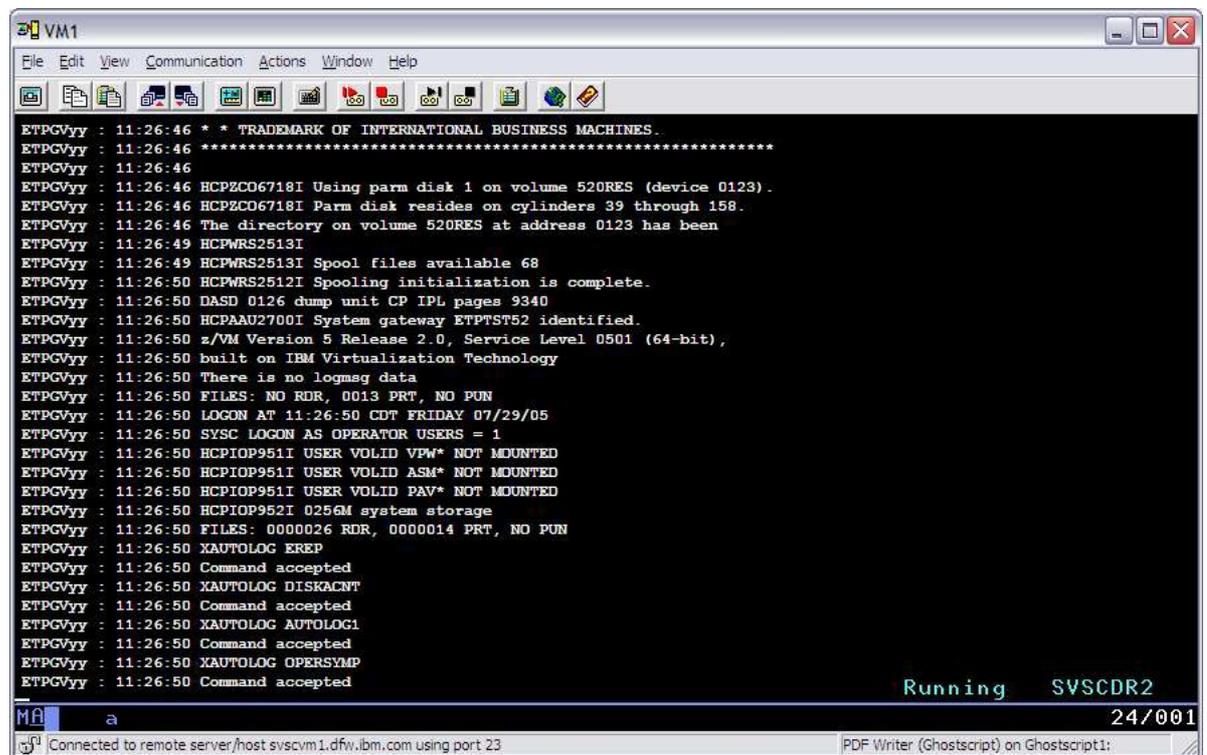
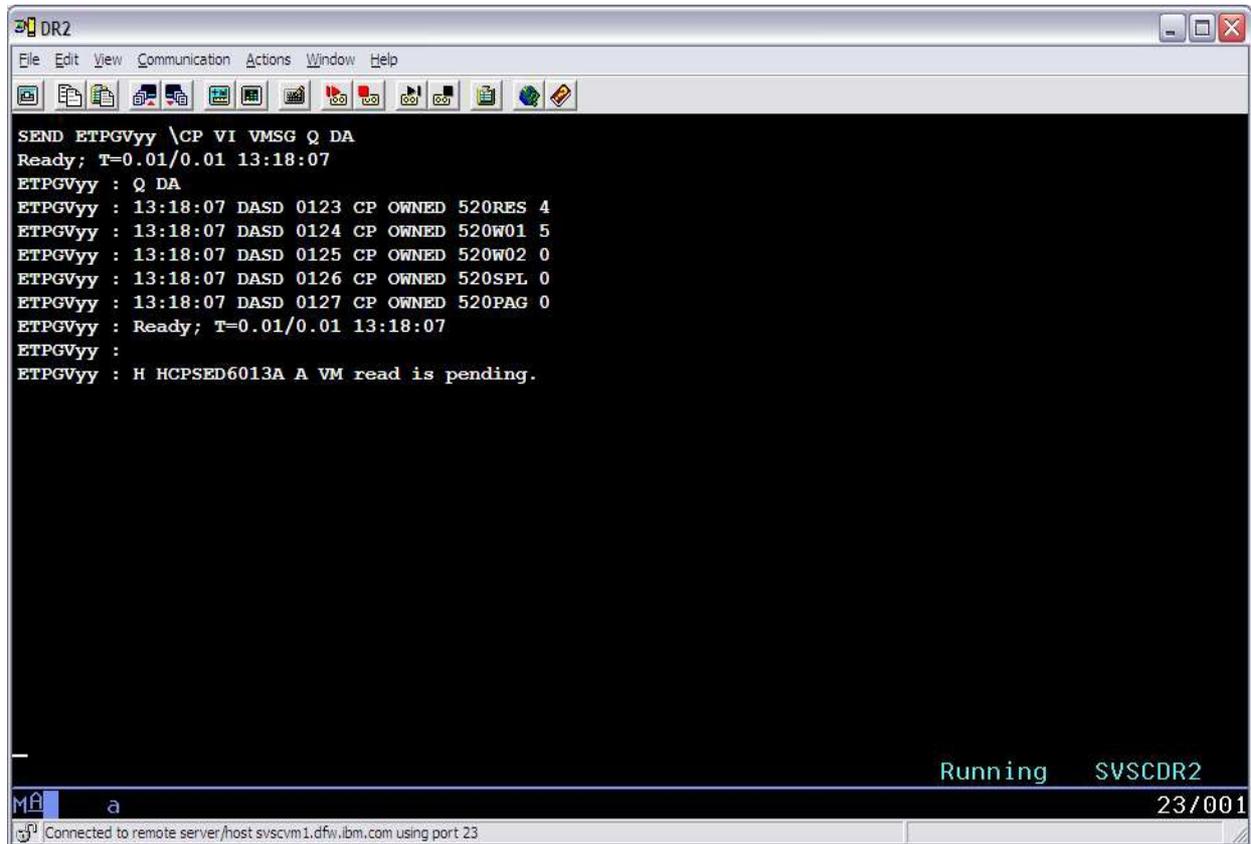


Figure 4 (Part 2 of 2). Initial Messages during z/VM IPL

Step 2. Test sending a z/VM command to the OPERATOR userID of the guest z/VM system. Type the following z/VM command and press the ENTER key.

SEND ETPGVyy \CP VI VMSG Q DA

The guest z/VM system will return with the messages shown below:



```
DR2
File Edit View Communication Actions Window Help
SEND ETPGVyy \CP VI VMSG Q DA
Ready; T=0.01/0.01 13:18:07
ETPGVyy : Q DA
ETPGVyy : 13:18:07 DASD 0123 CP OWNED 520RES 4
ETPGVyy : 13:18:07 DASD 0124 CP OWNED 520W01 5
ETPGVyy : 13:18:07 DASD 0125 CP OWNED 520W02 0
ETPGVyy : 13:18:07 DASD 0126 CP OWNED 520SPL 0
ETPGVyy : 13:18:07 DASD 0127 CP OWNED 520PAG 0
ETPGVyy : Ready; T=0.01/0.01 13:18:07
ETPGVyy :
ETPGVyy : H HCPS6013A A VM read is pending.

Running SVSCDR2
M a 23/001
Connected to remote server /host svscvm1.dfw.ibm.com using port 23
```

Figure 5 z/VM Query DASD Command Response

Step 3. **Do not logoff the z/VM control user ID. Use the VM command DISCONNECT to end the terminal session the z/VM control user ID is using.** You can use the z/VM control user ID to control the z/VM system OPERATOR userid commands using THE SAME METHOD SHOWN PREVIOUSLY DURING IPL. When you have completed all the activities required on the z/VM control user ID use the VM command DISCONNECT as described IN “ Disconnect the z/VM control user ID” on page 13.

The guest z/VM system is now up and running. The guest z/VM system can be utilized as described in “ **How to LOGON to MAINT** “ on page 15. z/VM commands can be sent to the guest z/VM system. The z/VM control user ID will also receive messages from the guest z/VM system.

After disconnecting the z/VM Control user ID, follow the instructions in the chapter “ How to reconnect the z/VM control user ID” on page 14, to reconnect to the z/VM Control user ID.

4.3 Disconnect the z/VM control user ID

Step 1. Disconnect the z/VM control user ID using the z/VM **DISCONNECT** command, which can be abbreviated to **DISC**. On the z/VM command line, type **DISC** and press the **ENTER** key. The z/VM system will return with the following messages:

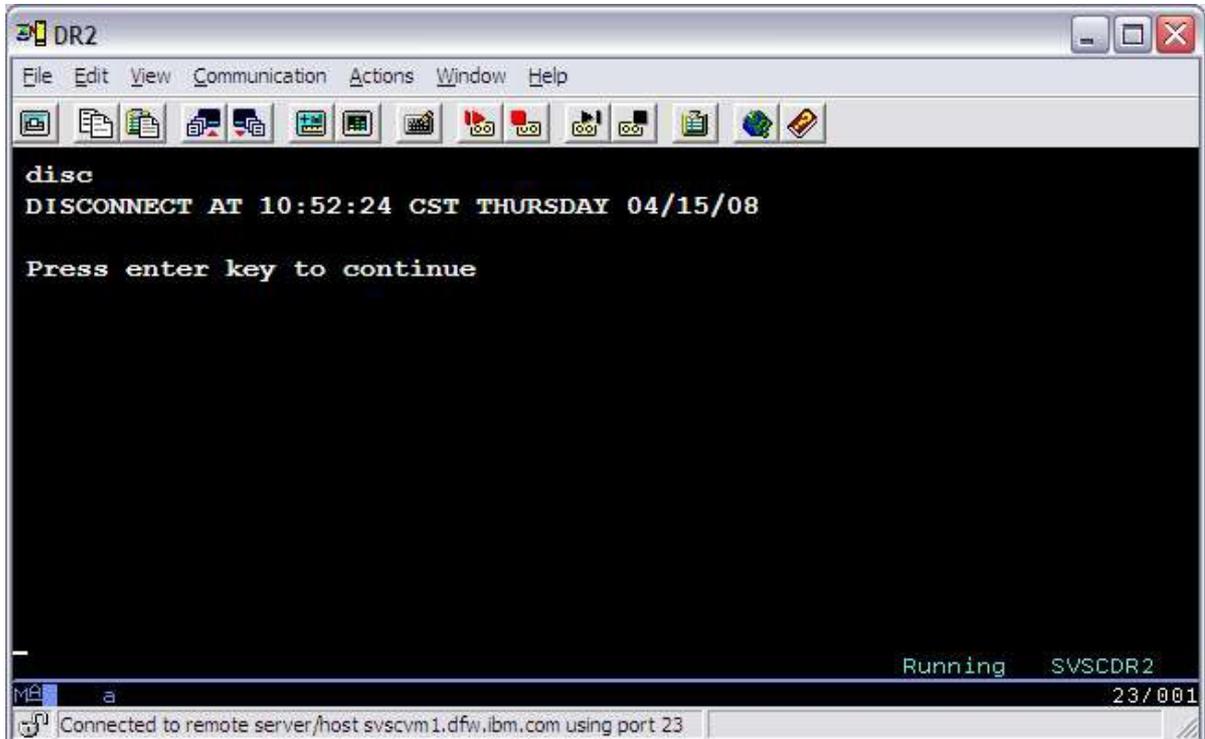


Figure 6 Disconnect messages

Step 2. Press the **ENTER** key as the message indicates. The z/VM system will return to the z/VM System LOGO as shown in on page .

Step 3. From the LOGO screen, enter **VMEXIT** on the line titled **COMMAND** to drop the connection to the z/VM system.

It is possible to logon to another z/VM Personal user ID or connect to the guest z/VM system using the **DIAL** command. (The **DIAL** command is discussed in “ **How to LOGON to MAINT** “ on page 15.)

4.4 How to reconnect the z/VM control user ID

To reconnect the z/VM control user ID, follow these steps:

1. From the CMS Ready prompt on SYSDR2, enter the z/VM control user ID and the associated password and press the `ENTER` key. Refer to “How to access the IBM Innovation Center System z server“ on page 4.
2. Once logged back on, notice that displayed in the lower right-hand corner of the screen is `CP READ`. Type `B` and press the `ENTER` key. When required, clear the screen afterwards by pressing the `CLEAR` or `PA2` key to complete the reconnect process.

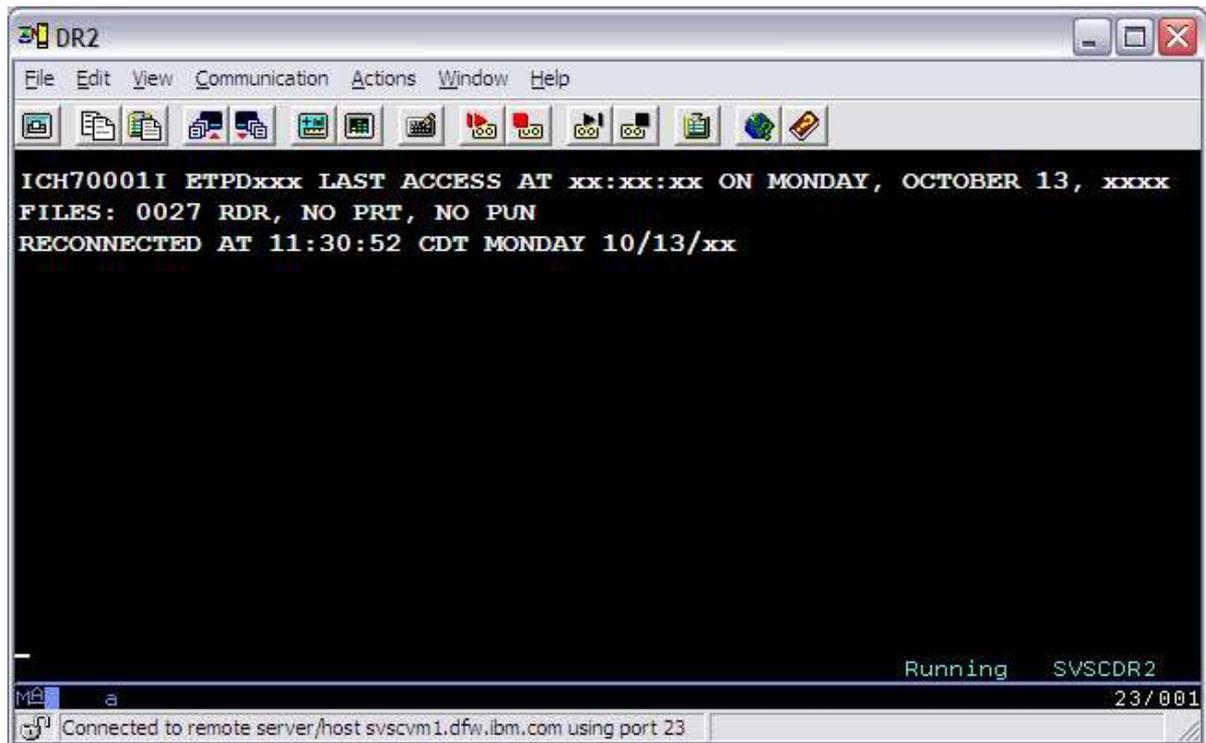


Figure 7 Reconnect to z/VM control user ID

5 How to LOGON to MAINT

The following sections describe using the z/VM DIAL command or a TN3720 client session connected directly to an IP address for accessing applications through a full screen interface. The sections continue by describing TELNET for accessing applications through a line mode interface.

For Early Test Program (ETP) systems, users are required to **DIAL** to the individual *guest system IDs* in order to interact with applications on that guest z/VM system.

5.1 Connecting using z/VM DIAL

1. Connect to the IBM Innovation Center, Dallas Secure Portal, as instructed in “ **How to access the IBM Innovation Center System z server**“ on page 4.
2. Select the System z server on which the guest z/VM system was started (See on page).
3. Connect using the DIAL command as described below:
 - a) Enter the z/VM **DIAL** command on the COMMAND line of the System z SVSCDR2 LOGO screen specifying the name of the guest z/VM system ID. The system will automatically connect the terminal to the first available VTAM terminal in the guest z/VM system. For example, to DIAL to system name ETPGVyy, type the following command:

DIAL ETPGVyy

- b) To use data transfer (IND\$FILE) from a TN3270 emulator specify an address in the range of F00-F07 to the end of the DIAL command. For example, to DIAL to system name ETPGVyy using specific terminal address F04, type the following command:

DIAL ETPGVyy F04

Note: **D** may be used as an abbreviation for the DIAL command. See Figure 8 Dialing to a guest system ID below.

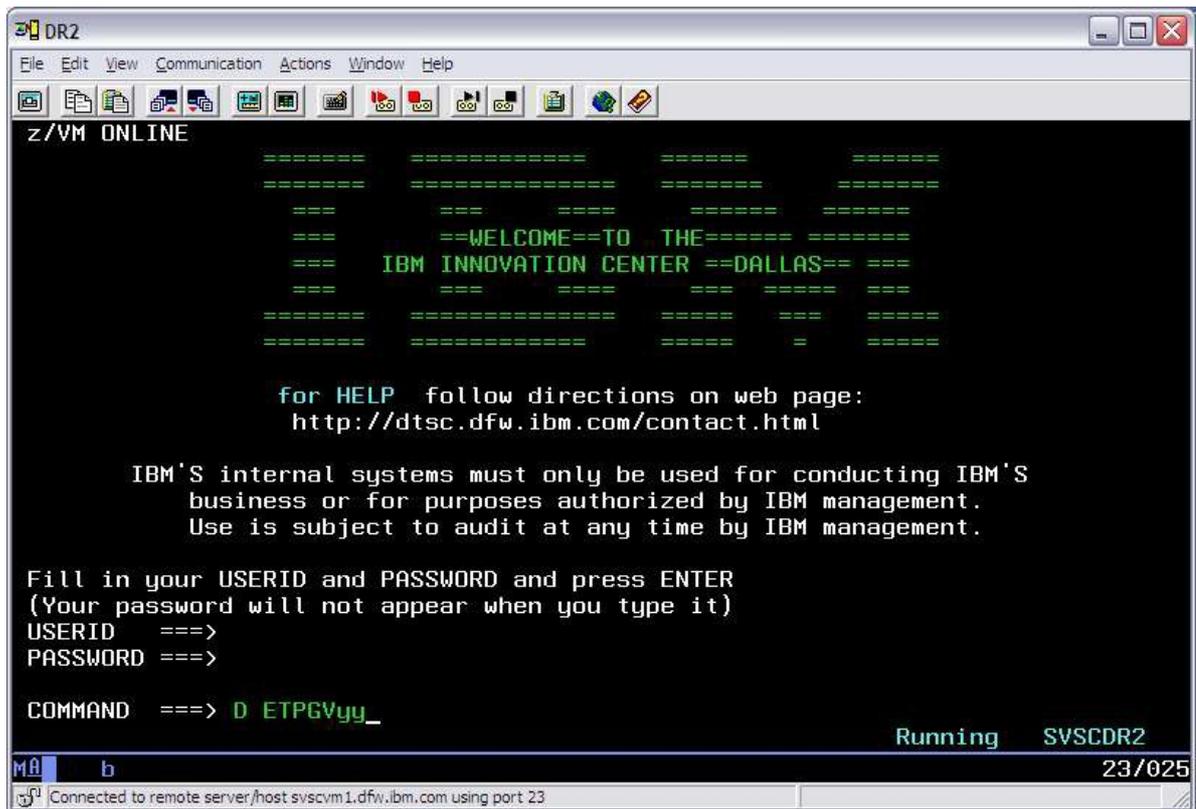


Figure 8 Dialing to a guest system ID

Respond to message E120001: Enter your USERID: with the z/VM Personal user ID. See the system delivery email for the list of z/VM Personal user IDs assigned for use in accessing the guest system. Respond to message "Enter your password:" with the password associated with that z/VM Personal user ID.

Note: Passwords for the z/VM Personal user IDs have been set to expire immediately and must be changed during first logon, and at least every 60 days thereafter. See the system delivery password email for details.

5.2 Connect a TN3270 client session directly to an IP address

Refer to the system delivery email to obtain the assigned TCPIP address. If the assigned IP address requires the use of Client VPN, please refer to the system delivery email for instructions for downloading the Cisco VPN Client software and using it to log into the VPN.

Configure a TN3270 client session using the assigned IP address and port 23. Do Not configure or enable SSL support for this session. Once the session is configured, select the option to connect to the system.

Once connected, follow the instructions above to logon to MAINT. See Figure 10 above.

6 How To Logoff z/VM and IBM Innovation Center, Dallas Secure Portal

When you are ready to logoff z/VM, and return to the first level z/VM dial screen. Simply enter:

UNDIAL

from the z/VM logo screen and press the ENTER key. UNDIAl issues the RESET command to put you back to the z/VM dial screen. From there, you can enter:

VMEXIT

and press the ENTER key. This will drop the connection to the z/VM system and the IBM Innovation Center, Dallas Secure Portal.

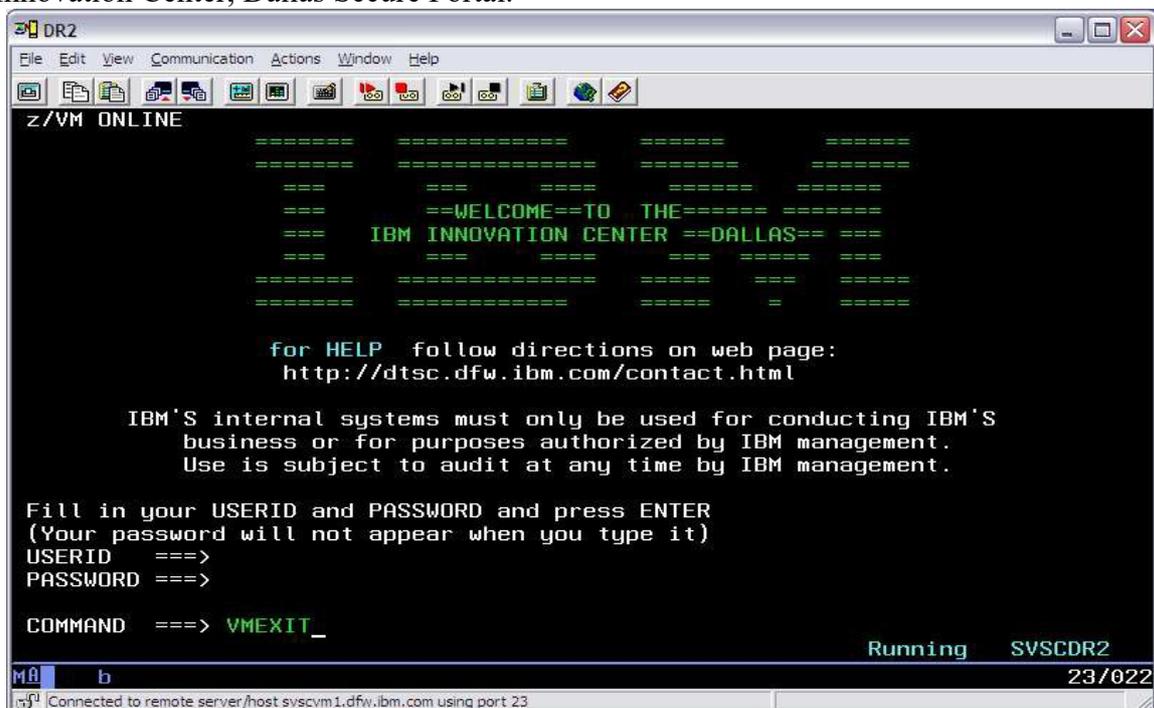


Figure 11 VMEXIT Command From SVSCDR2 LOGO Screen.

7 Managing the guest z/VM system with SLEEP and BEGIN

Or how to turn the lights out as you leave..

It is possible, with a guest z/VM system running under z/VM, to put the guest z/VM system to "sleep" (overnight, for example) at any given point without having to drain, halt, or quiesce the guest z/VM system. The effect of the z/VM CP SLEEP command is that of temporarily "freezing" the guest z/VM system at any given point with the ability to resume at that same point at a later time, and with the additional benefit of not using CPU cycles when they are not needed.

Once a virtual machine is placed into the CP SLEEP state it will remain inactive until it is awakened with the CP BEGIN command (see "Using BEGIN to awaken the guest z/VM system" on page 20).

To verify that the guest z/VM system is sleeping, issue the **QSLEEP** (Query SLEEP) command from any one of the z/VM Personal user IDs (i.e. the user IDs used for DIAL and/or online documentation) or the z/VM control user ID. Put the guest z/VM system to sleep as usual, wait at least 60 seconds and then issue the QSLEEP command from the CMS Ready prompt of the z/VM Personal user ID. For example:

QSLEEP ETPGVyy (where ETPGVyy is the guest z/VM system name)

While it is possible to place the virtual machine in an inactive state at any given moment, it is highly recommended that all batch and interactive activity be quiesced first, and that subsystems be halted

or quiesced if possible to reduce the "shock" of waking up several hours (or days) later. The effect is similar to pushing the "STOP" button on the processor system console. The base z/VM system and IBM subsystems recover with no problems, however the IBM Innovation Center, Dallas cannot be responsible for adverse side effects in vendor software systems under these circumstances.

Never put the system to sleep with an attached tape device. *Always* detach tape devices before putting the system to sleep. Failure to do so will result in an automatic forced detach of the tape device from the system after five minutes; when this is done it often results in a permanent I/O error condition which causes the virtual tape device to be unusable after the system is reconnected.

The method for putting a virtual machine into SLEEP mode is described below.

IMPORTANT - Read This

Each Solution Developer is assigned a "virtual machine" under IBM's z/VM (Virtual Machine) operating system which runs continuously and accumulates CPU time regardless of actual use by interactive users, batch jobs, etc. The Solution Developer's account will be charged for CPU time used by the virtual machine even if no users are logged on and no batch activity is recorded. The amount of work units consumed by the virtual machine is available via the SESSREPT command. See “ **Obtaining program account information**“ on page 22. To avoid unnecessary charges, always remember to stop the guest z/VM system's virtual machine when not in use, by either putting it to sleep or shutting it down and logging it off. See “ **Putting the guest z/VM system to SLEEP from the z/VM control user ID**“ on page 20 and “ **How to Terminate A Guest z/VM System**“ on page 21. Failure to correctly logoff (terminate) the guest z/VM system's virtual machine or put it to sleep, will cause the machine to run (idle) and the Solution Developer will be charged for the time used by the virtual machine.

7.1 Putting the guest z/VM system to SLEEP from the z/VM control user ID

From the z/VM control user ID, issue the following command:

```
SEND ETPGVyy \CP SLEEP
```

7.2 Using BEGIN to awaken the guest z/VM system

From the z/VM control user ID, issue the following command:

```
SEND ETPGVyy \CP BEGIN
```

8 How to Terminate A Guest z/VM System

The process described below orderly terminates the guest z/VM system.

1. Logon to the z/VM control user ID as described in Logon the z/VM control user ID on page 10.

2. Shutdown the guest z/VM with the following command:

```
SEND ETPGVyy \CP VI VMSG SHUTDOWN
```

The system will respond with several messages ending with SHUTDOWN COMPLETE.

3. Instruct the guest z/VM system to logoff with the command:

```
SEND ETPGVyy \CP LOGOFF
```

9 Guest z/VM system administration

The following topics will cover basic guest z/VM system administration functions required to maintain the system.

9.1 Issuing CP commands

Any CP¹ commands issued on behalf of a guest z/VM system from the z/VM control user ID follows the format **SEND *guest system ID* \CP *cp_command***. For example, to query the tape drives attached to guest system ID ETPGVyy, issue the following command from the z/VM control user ID:

```
SEND ETPGVyy \CP Q V TAPE
```

9.2 Accounting information

Many of the IBM Innovation Center, Dallas Remote Access Program fees include a specified amount of CPU work units in the base fee and any extra work units used for a month are charged at a specified per work unit rate. The number of work units included in the base fee and the additional per work unit rate are documented in the **Program Charges** section of the Exhibit included in the program enrollment package. The session report (SESSREPT) command is provided for you to monitor the work unit usage of your guest system. Accounting records are stored for each guest system that has had usage during the twelve hour period ending at 07:00 and at 19:00 US Central time each day.

9.2.1 Obtaining program account information

Work unit accounting information may be obtained for the guest z/VM system, for a specified date range by issuing a CP command from a z/VM Personal user ID.

The command is:

```
MSG SVUTIL SESSREPT ETPGVyy FDATE LDATE
```

where **FDATE** is the first date in the range and **LDATE** is the last date in the range.

An explanation of the syntax is provided in the SESSREPT help text which is retrieved with the command:

```
MSG SVUTIL HELP SESSREPT
```

¹ CP is the Control Program which operates within the first-level z/VM system.

```
DR2
File Edit View Communication Actions Window Help
SVUTIL: SVUTIL SESSREPT COMMAND SYNTAX:
SVUTIL:
SVUTIL: "MSG SVUTIL SESSREPT UUUUUUUU FDATE LDATE"
SVUTIL:
SVUTIL: WHERE UUUUUUUU = USERID FOR SESSION REPORT
SVUTIL: FDATE = FIRST DATE TO BE REPORTED (MM/DD/YY)
SVUTIL: LDATE = LAST DATE TO BE REPORTED (MM/DD/YY)
SVUTIL:
SVUTIL: ALL PARAMETERS ARE REQUIRED. DATES MUST BE BETWEEN 1989 AND
THE CURRENT DATE. ONE OR TWO DIGITS OK FOR MONTH AND DAY.
Running SVSCDR2
23/001
Connected to remote server/host svscvm1.dfw.ibm.com using port 23
```

Figure 12 SVUTIL messages

After a short time, the SVUTIL service machine will send a detailed usage report to the z/VM Reader of the z/VM Personal user ID that sent the command.

When the report is returned, a message will be displayed on the z/VM Personal user ID CMS screen with an identifying file number. To view the contents of the file, enter the command:

PEEK *file_number* (FOR *

Alternatively, access the file using the z/VM ReadList command:

RL

From the list of reader files, cursor to the line of the file to view and press **F11** (Peek).

While 'peek'ing the file, it may be easier to view after entering the command **V 1 78** on the command line. Use F7 and F8 to scroll the file forward and backward. Use F3 to quit looking at the file.

9.3 Switching the z/VM control user ID

The z/VM control user ID for a system can be changed using one of three methods. In the below examples, ETPGVyy is the guest system ID and ETPDxxx is the desired new z/VM control user ID:

- From the current z/VM control user ID, issue the following command:

```
SEND ETPGVyy \CP SET SECUSER ETPDxxx
```

- From any z/VM Personal user ID owned by the customer, issue the following command:

```
MSG SVUTIL SECUSER ETPGVyy ETPDxxx
```

SVUTIL is a service machine that does a variety of things. To find out what it does, issue command MSG SVUTIL ? . To get the syntax of any of the options, issue command MSG SVUTIL HELP xxx where xxx is the option.

10 Tape handling procedures

10.1 Using tapes

Please be a responsible user and help others by detaching tape devices as soon as they are no longer needed.

Hours of Operation

Tape operators will mount tapes continuously from 23:00 Sunday to 23:00 Friday, and from 07:00 to 15:00 on Saturday. All times are US Central time and exclude IBM USA holidays. From time to time the tape mount hours are changed to meet business requirements. For tape mounts at a particular time of day, please contact the IBM Innovation Center, Dallas.

If you have questions regarding handling tapes, please refer to “ Technical support “ on page 4.

Problems with pending tape mounts can be reported 07:00 to 19:00 US Central time Monday through Friday except IBM USA holidays. Please send an email to zTech@us.ibm.com describing the problem. Include all appropriate messages, the guest z/OS system name, and contact information.

Tape devices are a limited **real** resource and are only attached to the guest z/VM system when needed to satisfy a tape mount request. When the tape is loaded on the tape drive by the tape operator the mount request will be satisfied.

Note: *Never* put the z/VM system to sleep with an attached tape device. *Always* detach tape devices before putting the system to sleep. Failure to do so will result in an automatic forced detach of the tape device from the system after five minutes; when this is done it will result in a permanent I/O error condition which causes the virtual tape address to be unusable until the system is IPL'd.

Scratch Tapes: The Innovation Center does not provide scratch tapes. Scratch tapes are the responsibility of the Solution Developer and should be handled the same as any tape (i.e. product tape) during the duration of the Test Program.

10.2 Mounting tapes

Here is a brief outline of the process followed by a description of the tape mounting method.

1. The tape is received by the Innovation Center, logged and stored in a secure room. Email notification will be sent when the tape is available for use.
2. A mount request is sent in the form of a message to a z/VM service machine called SVUTIL using one of the two methods described.
3. The SVUTIL service machine reads the message. When the tape number requested is in the virtual tape library, the SVUTIL service machine will:
 - Verify that the request is from an authorized user ID.
 - Translate the requested tape number to a physical rack number.
 - Attach a tape drive to the requesting system at the requested address.
 - Send a message to the tape operator requesting that the tape be mounted on the attached drive.
 - Send informational messages to SYSLOG on the guest z/OS system.
4. A message is displayed on the Master Console of the requesting system: `DEVICE <vdev> IS NOW READY FOR USE.`
5. The Solution Developer issues the `VARY <vdev>, ONLINE` command and then may submit his/her job.
6. The tape operator retrieves the tape from the physical tape library and mounts the tape on the tape drive displayed in the message generated by the mount request. This may take a few minutes.
7. The job runs.
8. The Solution Developer issues the `VARY <vdev>, OFFLINE` command when finished with the tape device.
9. The Solution Developer detaches the tape device from the guest z/OS system.

10.2.1 z/VM tape device definitions

Tape device numbers for a guest z/VM system are defined in the table below:

Tape Drive Type	Device number range	Comments
3490E	590 – 59F	36-track, compressed
3590	550 - 55F	3590 devices(3590B and 3590H)

Table 1 : z/VM Tape Devices

10.3 Tape drive use from the z/VM control user ID

Mount...

To request a tape mount, issue the following from the z/VM control user ID:¹

```
SEND ETPGVyy \CP MSG SVUTIL MOUNT <refno> ON <vdev> <mode> <devtype>
```

where *<refno>* is the reference number assigned to the tape, *<vdev>* is the virtual tape device number in the guest z/VM system on which to mount the tape, *<mode>* is either **R/O** or **R/W** indicating READ ONLY or READ/WRITE (may also be indicated as RO or RW), and *<devtype>* is the correct device type for the media being used. All parameters except *devtype* are required.

For example, to mount the tape with reference number ETP123 on virtual tape device 590 Read/Only, enter command:

```
SEND ETPGVyy \CP MSG SVUTIL MOUNT ETP123 ON 590 R/O 3490E
```

For cartridge tapes, optionally specify up to six tapes to be loaded simultaneously in the autoloader. For example, to mount tapes ETP001 and ETP002(in that order) on virtual tape device 590 Read/Write (all must be either Read/Only or Read/Write), enter command:

```
SEND ETPGVyy \CP MSG SVUTIL MOUNT ETP001 ETP002 ON 590 R/W 3490E
```

This command will send a message to the SVUTIL service machine requesting a tape mount for the guest z/OS system from which the request was issued. An error response (if there is one) will be sent back within seconds in the form of a z/VM message to the z/VM control user ID. Some of the more common error messages with suggested responses may be found in Appendix B: Help for common problems on page 31.

To display syntax help for MOUNT, enter the CP command:

```
MSG SVUTIL HELP MOUNT
```

When the following message is displayed on the Master Console of the requesting system: **DEVICE <vdev> IS NOW READY FOR USE**, issue the VARY online command as follows:

```
SEND ETPGVyy \CP VI VMSG V <vdev>,ONLINE
```

To remount the same tape, simply reissue the original **MOUNT** request to SVUTIL. It is also possible to mount a different tape on the same device in this manner.

Detach...

¹ Use the **SEND ETPGVyy \CP MSG SVUTIL LISTTAPES** command to list the tape inventory including reference numbers.

When finished with the tape(s) and the tape device, please issue the CP commands to VARY offline and DETACH the virtual device from the guest z/VM system. For example, to vary offline and DETACH virtual device 590, enter commands:

```
SEND ETPGVyy \CP VI VMSG V 590,OFFLINE
SEND ETPGVyy \CP DETACH 590
```

10.4 Sending tapes to and receiving tapes from the IBM Innovation Center, Dallas

Please attach an external reference number that is easily identifiable and unique to each tape sent to IBM. This reference number will be used when requesting a tape mount for the guest z/VM system.

All tapes (including scratch tapes) to be used on the system should be mailed to:

IBM Corporation
Attn: ETP Administration / M/S 30-01-L104
13800 Diplomat Drive
Dallas, TX 75234

Proper Tape Identification: Please include the following information with ALL TAPES (product, scratch, etc.) mailed to IBM for use in the Remote Access Program.

Remote Access Program Name and Guest System (IPL Console) ID
External Reference Number (to be used when requesting a tape mount)
Company Name, Program Contact, Phone Number and Email Address
Company Return Address

Reference Number: Remember to attach an external reference number that is easily identifiable and unique to each tape sent to IBM. It may (but need not be) the same as the volume ID for an IBM standard label tape. The reference number must be 1-10 alphanumeric characters with no imbedded blanks or special characters. This reference number will be used when requesting a tape mount for the guest z/VM system.

Please allow sufficient lead time for the tape to be received and logged in the tape library. IBM (RDP/ETP Administration) will contact via email to verify receipt of the tape.

Tapes will not be returned at the end of the program unless otherwise requested. Please call one of the numbers listed below if tapes must be returned before the end of the program.

Note: The IBM Innovation Center, Dallas cannot support 3420 tape reels.

10.5 Listing the tapes available to your system

To retrieve a listing of all the tapes in the IBM Innovation Center Dallas Tape Library available to your system ETPGyyy, log on to the z/VM control user ID and issue the following command:

```
SEND ETPGyyy \CP VI VMSG SVUTIL LISTTAPES
```

A complete list of tapes will be written to z/VM control user ID console as in the following example:

```
SEND ETPGyyy \CP VI VMSG SVUTIL LISTTAPES  
Ready; T=0.01/0.01 16:41:47  
ETPGyyy : SVUTIL: List Tape Inventory for: ETPGyyy in Group:  
ACCOUNT  
ETPGyyy : SVUTIL: TAP001 Your Company comments mm/dd/yy  
ETPGyyy : SVUTIL: TAP003 Your Company comments mm/dd/yy  
ETPGyyy : SVUTIL: TAP004 Your Company comments mm/dd/yy  
ETPGyyy : SVUTIL: TAP005 Your Company comments mm/dd/yy  
ETPGyyy : SVUTIL: TAP006 Your Company comments mm/dd/yy
```

11 Appendix A. Guest z/VM System Structure

This section contains specific information about the virtual machine environment and customized features of your guest z/VM system.

Virtual Machine Configuration

Architecture mode	ESA
Number of processors	1
Processor type	z9 EC
Virtual Storage	192M
Expanded Storage	<not available>
Vector Facility	<not available>
R/W DASD available	2225 CYLS (VOLid=VPWRKA)
Tape devices available	3490E, 3590

DASD Configuration

A guest z/VM system for the z/VM program is comprised of the 3390 DASD volumes¹ shown in the table below:

Volume Serial	Access	VOLSTATE	Description
530RES	Read/Write 123	OWNED	z/VM RES volume one – 3338 CYLS
530W01	Read/Write 124	OWNED	z/VM RES volume two – 3338 CYLS
530W02	Read/Write 125	OWNED	z/VM RES volume three – 3338 CYLS
530SPL	Read/Write 126	OWNED	Spool Volume – 600 CYLS
530PAG	Read/Write 127	OWNED	Page Volume – 600 CYLS

Table 1 : z/VM DASD

Additional DASD volumes are provided for your data. Refer to the "User DASD Configuration" section of your delivery email.

¹ These are mini-volumes, not full size DASD volumes.

12 Appendix B: Help for common problems

PROBLEM	ACTION TO BE TAKEN
Message "Product selected is temporarily unavailable." appears on the IBM INFORMATION NETWORK PRODUCT SELECTION screen.	There is a network problem or the host is unavailable. Use the NOTIFY function or call the number on the screen for assistance.
'HCPSEC068E SEND command failed; receiver has console input waiting' after issuing 'SEND ETPGyyy \CP VINPUT VMSG VCN(*),ACT' with control user-id	Make sure to use the correct slash '\' instead of '/' If that is not the issue and you are using a non-US English code page, then the problem is likely that the 'host code page' being used in the TN3270 emulator does not properly create the '\' character required to send commands to the guest system ID. Either change the code page (1047 and 037 will work) or use the character in this code page which translates to a X'E0'.
" HOLDING " in lower right-hand corner of screen.	Press the CLEAR key to clear the screen and continue normal operation ¹ .
" MORE... " in lower right-hand corner of screen.	Press the CLEAR key to clear the screen and continue normal operation. If no action is taken, the screen will clear automatically after 60 seconds. A beep will be issued 10 seconds before this happens.
" NOT ACCEPTED " in lower right-hand corner of screen.	Wait for the NOT ACCEPTED to clear, backspace to the left margin, erase the command, and reenter it.
Message " HCPDIA056E Line yyy busy on xxxxxxxx " appears after issuing a DIAL command.	The terminal address being DIALED to is busy (in use). Repeat the DIAL command with a different terminal address, or do not specify a terminal address.
Message "Too many tapes specified... only first 6 will be mounted" in response to SVUTIL MOUNT command.	The 3480 autoloader feature can only handle 6 cartridge tapes maximum. The first 6 specified tapes will be loaded, and the remainder ignored. After the first 6 tapes are processed, reissue the SVUTIL MOUNT command for the remaining tapes.
Message "Conflicting tape types - cannot mount on same device" in response to SVUTIL MOUNT command.	Both 3420 (reel) and 3480 (cartridge) tapes have been specified on the same SVUTIL MOUNT command. Multiple tapes may be specified for the 3480 only.

¹ See also Appendix C: Terms and definitions on page 34.

PROBLEM	ACTION TO BE TAKEN
Message "Device <vdev> already in use as <type>, MOUNT rejected" in response to SVUTIL MOUNT command.	You have asked to mount a 3480 tape on a virtual device which is currently in use by you as a 3420, or vice versa. Either correct the MOUNT command or detach the virtual device and reissue the MOUNT command to reallocate the virtual device.
Message "Device <vdev> already attached <mode>, MOUNT rejected" in response to SVUTIL MOUNT command.	You have asked to mount a tape READ/ONLY on a device which was previously attached by you in READ/WRITE mode, or vice versa. Either correct the MOUNT command or detach the virtual device and reissue the MOUNT command to reallocate the virtual device.
Message "Internal SVUTIL error x-xx, notify SVSC" in response to SVUTIL MOUNT command.	An internal processing error has occurred in the SVUTIL service machine. Contact the IBM Innovation Center, Dallas with this information.
Message "Tape xxxxxx not found. Check typing, use 'MSG SVUTIL LISTTAPES' to review list of tapes, or notify SVSC" in response to SVUTIL MOUNT command.	The tape requested was not found in the tape library database for the user/account requesting the tape mount. Ensure the reference number was typed correctly. Use the SVUTIL LISTTAPES function to display a list of tapes in the database (see "Tape handling procedures" on page 25). If necessary, contact the IBM Innovation Center, Dallas for assistance.
Message UNABLE TO ESTABLISH SESSION - INIT SELF FAILED WITH SENSE 08570002 appears after typing "TSO" on the MVS VTAM screen to access TSO.	The TSO application is not active. On the MVS Master Console, start the TSO application with the "START TCAS" command. After TSO has started (messages IKT005I and IKT007I appear), reenter the "TSO" command. Note: It is not necessary to clear the screen or re access the VTAM logo - type "TSO" on the same screen with the "UNABLE TO ESTABLISH SESSION" error message.
Message HCPGIR450W CP entered; disabled wait PSW 000A0000 000000xx appears after attempting to IPL a guest z/VM system (xx is usually 32, 33, or 64).	LOGOFF and then LOGON to retry the IPL (possibly several times if needed). If the problem persists, contact the IBM Innovation Center, Dallas for assistance.
HCPSEC068E SEND command failed; receiver has console input waiting	Be sure you are using a backward slash (\) preceding CP in the SEND command. If you are using a backward slash (\) and receiving this message, try setting the code page associated with your session emulator to 1047
HCPLGA054E Already logged on disconnected	The guest z/VM system is already up and running. Refer to Chapter 6 "Managing the guest z/VM system with SLEEP and BEGIN" on page 19 to see if the system is in SLEEP mode.

PROBLEM	ACTION TO BE TAKEN
Trouble accessing the Remote Development system from a remote application.	Information about blocked ports can be found on the IBM Innovation Center, Dallas website at URL: 'http://dtsc.dfw.ibm.com/MVSDS/HTTPD2.DSN01.PUBLIC.HTML(BLKPORTS)'
Unable to connect to the guest z/VM system	Please see section “ Managing the guest z/VM system with SLEEP and BEGIN“ on page 19. Please review the information in section “ How to IPL the Guest z/VM System (Detailed Description)“ on page 10. If you are still unable to connect, please contact the IBM Innovation Center, Dallas referencing section “ Technical support “ on page 4.
Message "ACTCTC command failed rc=xxx, notify SVSC" in response to SVUTIL ACTCTC command.	An unexpected error has occurred processing the ACTCTC command. Contact the IBM Innovation Center, Dallas for assistance.
Message "Function temporarily unavailable" in response to HelpDesk Services request.	The function you have requested is temporarily unavailable for routine service maintenance. Retry the request after the time indicated in the message.
Message "Requested function has not responded" in response to HelpDesk Services request.	The SVUTIL service machine has not responded to your request for accounting information within the allowable time. Retry the request at a later time. If the problem persists, contact the IBM Innovation Center, Dallas for assistance.
Message "Requested function temporarily unavailable" in response to HelpDesk Services request.	The SVUTIL service machine is not logged on or is not receiving messages and cannot satisfy your request for accounting information. Contact the IBM Innovation Center, Dallas for assistance with this problem.
Message "Unable to receive response from service machine" in response to HelpDesk Services request.	This message indicates a system failure while attempting to receive a file from the SVUTIL service machine. Retry the request, and if the problem persists contact the IBM Innovation Center, Dallas for assistance.
Message "Request for accounting information has failed" in response to HelpDesk Services request.	This message indicates an error while attempting to satisfy your request for accounting information. If you feel the error is incorrect or unexpected, contact the IBM Innovation Center, Dallas for assistance.

Table 1 : Common Problems

13 Appendix C: Terms and definitions

Guest system	An operating system running in a virtual machine managed by the z/VM Control program.
Control ID	The term z/VM control user ID is used to reference the specific z/VM Personal user ID used to initialize the guest z/VM system and currently holds the ability to perform functions for the system.
CP	Control Program. The component of z/VM that manages the resources of a single physical processor complex such that multiple computing systems appear to exist. From the CONSOLE device, a user may toggle back and forth between CP and a guest system by pressing the PA1 (Program Attention 1) key. ¹
Virtual Machine	A functional equivalent of either a System/370 computing system, a System/370-XA (Extended Architecture) computing system, a System/370-ESA (Enterprise Systems Architecture), or a System/390 computing system. Each virtual machine is controlled by an operating system.
z/VM	Virtual Machine. A software facility which enables multiple users to share the resources of a single physical processor complex such that each user appears to have the equivalent of a dedicated processor.

The following are CP and CMS Status Indicators - these indicators may at times appear in the lower right hand corner of the display.

CP READ	Means that CP issued a read request to the display and is waiting for something to be entered before it continues processing.
VM READ	Similar to CP READ but issued from CMS (Conversational Monitor System, a component of z/VM).
RUNNING	Means that CP or CMS either is ready for the next CP or CMS command or is processing a previously entered command.
MORE...	Means that the output display area is full and that CMS or CP has more lines to display. The data currently on the screen will be displayed for one minute. To get to the next screen, press CLEAR or PA2. To keep the current information on the screen, press the ENTER key. The HOLDING indicator then appears in the status area. If you do not respond to the MORE... indicator within 1 minute, the next screen will automatically be displayed (your display device will beep 10 seconds prior to display of the next screen).
HOLDING	Means that the ENTER key was pressed in response to a MORE... status indicator, or that the display screen contains priority messages from CP. To get to the next screen, press CLEAR or PA2.
NOT ACCEPTED	Means that previous input has not yet been processed. Recommended response is to wait for the NOT ACCEPTED to clear, backspace to the left margin, erase the command, and reenter it.

¹ The PA1, PA2, and CLEAR keys are part of the IBM 3270 terminal architecture, and may be emulated by a different key or combination of keys depending on the actual terminal or personal computer emulation package being used.

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GLOSSARY

The following is a partial glossary of terms and acronyms which may be useful to the reader. For more information, please refer to the appropriate IBM publication.

ADSP Automatic Data Set Protection - a RACF capability.

CMS Conversational Monitor System - a z/VM operating system providing a basic terminal-oriented command structure.

CP Control Program - The component of z/VM that manages the resources of a single guest system so that multiple computing systems appear to exist. Each virtual machine is the functional equivalent of a z/VM computing system.

DSMON Data Security Monitor - a RACF reporting capability.

ETP Early Test Program. A program administered by the IBM Innovation Center, Dallas to enable Solution Developers to access selected IBM software and products prior to General Availability.

GA Generally Available.

Guest An operating system running in a virtual machine managed by the z/VM Control program.

IBM Innovation Center, Dallas An IBM organization located at the IBM Diplomat Drive Facility in Dallas, TX dedicated to providing technical support to Solution Developers.

IPL Initial Program Load.

ISPF Interactive System Productivity Facility.

JES2 Job Entry Subsystem 2.

JES3 Job Entry Subsystem 3.

PDF Program Development Facility.

RACF Resource Access Control Facility.

RDP Remote Development Program

RMF Resource Measurement Facility.

SDSF System Display and Search Facility.

SETROPTS SET RACF Options – RACF command.

SMF System Management Facility.

SV Solution Developer. Also previously called Software Vendor.

SVSC Software Vendor Systems Center. See IBM Innovation Center, Dallas.

SVSCDR2 Network name for one of the System z servers on which the remote access program is located.

SVTSC Software Vendor Technical Support Center. See IBM Innovation Center, Dallas.

System Z A series of computer hardware systems and control programs.

UACC Universal Access - a RACF parameter.

z/VM Virtual Machine.

z/VM secondary user ID In z/VM terminology, it is the secondary user for the guest system ID.

Alphabetical Index

A		z/VM control user.....	10
Accounting information	22	M	
SESSREPT	22	MORE	8, 30, 33
Work unit accounting information	22	mount	25
Availability	2	Message	30p.
maintenance.....	2	N	
Maintenance window	2	Notices	34
Tape operators	25	P	
B		PASSWORD.....	
backup	3	PASSWORD EXPIRED	7
broadcast messages	8	PASSWORD RULES.....	8
C		R	
CMS ready prompt.....	8	reconnect	12, 19
Control user ID.....		restore.....	3
Switching.....	24	S	
reconnect	14	scheduled outages.....	8
CP commands	22	SESSREPT	20
BEGIN.....	20	shutdown	2
LOGOFF	21	SLEEP	19
SLEEP	20	QSLEEP	19
SVUTIL.....	24	SVUTIL	24
CPU time.....	20	SVXLOG	4, 9
D		Detailed Description.....	10
DETACH	28	IPL.....	10
DIAL command	13, 15	quick steps	9
disconnecting the z/VM Control user ID	12	T	
DSMON	36	Technical Support	4
G		Terms and definitions.....	33
GLOSSARY	36	TN3270	5, 9, 18
guest z/VM system.....	4	Trademarks.....	35
How to access.....	4	U	
How to LOGON to MAINT	15	user IDs	4
ID.....	4	z/VM Control user ID.....	4
IPL.....	9	z/VM Personal user ID	4, 8
SLEEP and BEGIN	19	V	
H		•Virtual machine	2, 4
Help.....	30	concept.....	2
HOLDING	8, 30	guest system	2
I		VMEXIT	13
IBM Innovation Center, Dallas.....	36	VTAM.....	15
L		Z	
logon	7	z/VM DIAL.....	15