

Basic CMS and z/VM Commands

Velocity Software provides a cloud architecture for education and demonstration purposes. This allows users to create CMS servers and Linux servers using our zPRO product, and then use those servers for the duration of their self study education. It also allows for demonstration of our zPRO product.

zPRO is Velocity Software's Cloud Enablement product, allowing end users to define and manage their servers without having z/VM knowledge. zPRO supports a private cloud for z/VM that includes support for Linux servers, CMS users, and 2nd level z/VM systems

This paper describes some of the basic CMS and VM commands as an introduction to using the IBM mainframe. The topics covered are:

- 3270 keyboard
- CMS help command
- CMS query command
- CMS xedit command
- CMS filelist command
- CMS profile exec file
- CMS profile xedit file
- CMS REXX commands

More detailed information is available in these documents:

- IBM Redbook - Introduction to the New Mainframe: z/VM Basics at <http://www.redbooks.ibm.com/abstracts/sg247316.html?Open>
Chapter 1 to 5 can give you a quick overview. The CMS commands you could work with, are in chapter 6.
- IBM Library at https://www.ibm.com/support/knowledgecenter/SSB27U_6.4.0/com.ibm.zvm.v640.hcpa0/liboper.htm#liboper
z/VM V6.4 CMS Commands and Utilities Reference, SC24-6166
z/VM V6.1 CMS Primer, SC24-6172
z/VM V6.4 CMS User's Guide, SC24-6173
z/VM: REXX/VM Reference , SC24-6221
z/VM: REXX/VM User's Guide , SC24-62

3270 Keyboard

This section documents the special keys used by z/VM and CMS, that are set up on x3270 or TN3270 emulators. It is a repeat of the material in the Connectivity document. You can skip this if you understand when to use the CLEAR and RESET keys with z/VM.

x3270

If you are using x3270 as your emulator, go to the top of the x3270 emulator screen and click on Keypad.

This will bring up the screen shown Figure 1-1.



Figure 1-1 x3270 special keys

The Clear key is necessary for clearing CP messages and CMS messages. You will use the CLEAR key if the screen fills up and you see HOLDING or MORE at the bottom right. Click on the CLEAR key to get to the next page.

RESET KEY is for solving keyboard problems that WILL arise. If you type in an area of the screen that is protected, some form of an "X" will show up at the bottom of the screen indicating that the keyboard is locked. The RESET key will clear this.

Note: There are several things you should be aware when logging on the z/VM:

- The enter key is used to initiate the CMS commands.
- You will be prompted to change your password for this first logon.
- The first screen will have VM read at the bottom right, hit enter and it will say READY on the left and at the bottom right it will say RUNNING. You are now ready to try CMS commands.
- If you have successfully logged and get disconnected or enter DISC to disconnect, the next time you logon on you will get a screen that says CP Read. To get back to CMS just enter B for Begin and you will be taken to the place where you logged off.
- If you lose connectivity and the system thinks you are already logged on you will get a message the says User ID DEMOxxxx is already connected to GRAF xxxx. In this case, you issue the command,
LOGON DEMOxxxx here

This will then ask for the password, and you will be re-connected. If you are sharing this ID, the other person will immediately be logged off. So use carefully.

TN3270 keyboard

If you are using TN3270 as your emulator, go to the top of the TN3270 emulator screen and click on ShowKeypad square on the top of the screen. (7th box from the right)

This will bring up the screen shown in Figure 1-2.

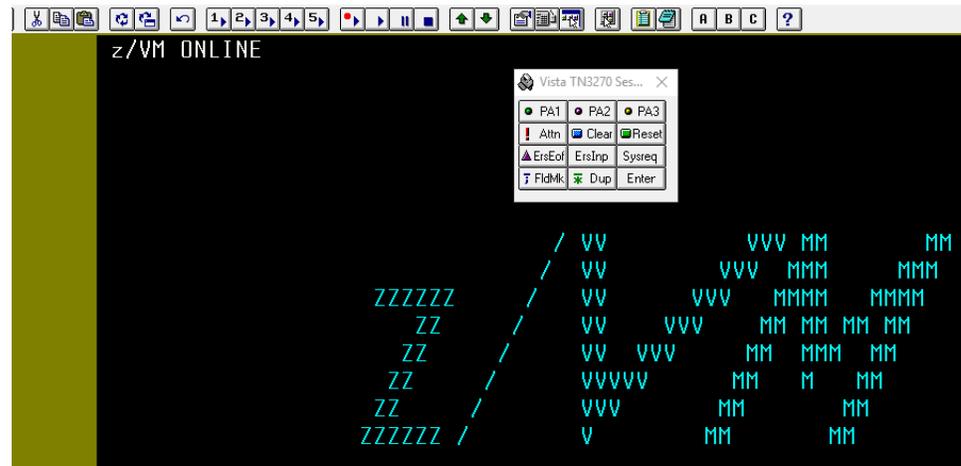


Figure 1-2 TN3270 special keys

The Clear key is necessary for clearing CP messages and CMS messages. You will use the CLEAR key if the screen fills up and you see HOLDING or MORE at the bottom right. Click on the CLEAR key to get to the next page.

RESET KEY is for solving keyboard problems that WILL arise. If you type in an area of the screen that is protected, some form of an "X" will show up at the bottom of the screen indicating that the keyboard is locked. The RESET key will clear this.

Remember, for zVM or CMS accessed by TN3270 or x3270 you will use the VM user ID and password in the email you received or if you cloned it yourself you have specified the VM user ID (DEMOxxxx) and password in the request panel. Logon, hit enter to execute the profile and you will have a READY prompt.

CMS Commands

There are many CMS commands you can use. This document just introduces a couple of the more commonly used ones.

CMS commands are entered at the bottom left of the 3270 screen.

CMS Help

There is a comprehensive HELP facility in z/VM. Enter HELP CMS first to see the information available for CMS Commands

As an example, position the cursor on QUERY to see the information about QUERY and hit ENTER key

Then hit F3 to return to list

You can also position the cursor on XEDIT and FILELIST as these are the next commands we will introduce.

Note: Function key 3 is exit, Function key 8 is forward, Function key 7 is backward

CCMS QUERY Command

You may query many things. Typing *help query* will list all the operands.

Let's start with Q N. This shows the names of logged on users to VSIVM4.

Then try Q DISK or Q DASD. This shows the disks you have access to.

You may try other parameters as described in the Help Query function.

CMS XEDIT command

XEDIT is the CMS command that allows you to create and edit CMS files. This is described in section 6.7 of the Redbook

For an exercise, we will first create a HELLO script

You should know that file, quit and qquit are used to end an xedit command. QQUIT caused you to leave without saving.

Logon with your CMS User ID to the CMS guest you previously created. Hit enter to allow the PROFILE EXEC to be processed. You should have a READY prompt.

"XEDIT HELLO EXEC A". This will put you into an empty file.

Note: You may need to hit clear on the screen. If there is a "HOLDING" in the bottom right corner of your 3270 screen, "CLEAR" will remove the messages that are being maintained on the screen.

First, add some lines to the file. On the command line enter "add 5" to add 5 lines. Please review sections 6.79 and 6.8 of the redbook to choose your options

Then we want to type these five lines

```
/* HELLO SCRIPT */  
SAY 'Please type your name:'  
Pull name  
If name <> "" then say 'Hello' name 'Welcome to your CMS guest'  
Else say 'No input given for name'
```

Next, on the command line at the bottom of the screen, enter file to save and exit this file.

To test this script, after the READY message type HELLO and hit the enter key. This will execute the script you have written.

```
You should get the message Type your name:xxxx  
Key in your name and hit the enter key  
You should get the message Hello xxxx to your CMS guest.
```

If not, go back to xedit hello exec and debug your program. Later we will use the xedit command to create CMS and XEDIT profiles.

CMS Filelist command

See Sections 6.5 and 6.6 of the Redbook for disk and file information.

Note that file names have three parts in CMS:

```
File name, File extension or type and mode.  
For example Profile exec A
```

You have an A disk that will contain all the files you create. To see these files you can issue the command FILELIST * * A

Another variation is FILELIST PRO* * A. This will show all the files that start with PRO on your A disk. Note there is no space between PRO and the first *.

FILELIST * * * will show all the files on all the disks that you have access to but many may be in read only mode as they are system disks. This list will be very long. You can enter Halt or HX to end the list and return to CMS>

CMS PROFILE EXEC file

There is a PROFILE EXEC file for CMS that will be executed every time you logon to CMS or enter the command IPL CMS or the command profile to execute the PROFILE EXEC file.

We will start by editing/personalizing them. Remember, file, quit and qquit are used to end an xedit command.

Once you are logged on to your CMS guest, XEDIT the PROFILE EXEC file by issuing the command:

```
XEDIT PROFILE EXEC A
```

This will put you in an empty file unless there is a default one on your system. If you are using the cloned CMS system on demo.velocitysoftware.com you will have the default profile as shown in Figure 1-3. You can check this by issuing the command:

```
type profile exec
```

```
/* PROFILE EXEC */

'pipe ',
'| CP Q V 191 ',
'| specs w5 1',
'| var mode'

If mode = 'R/W' then do
  Say ''
  Say ''
  Say '*-----*'
  Say '* This server was cloned from DEMOR1 and has a single minidisk *'
  Say '*-----*'
End
```

Figure 1-3 Default profile exec

Note: You may need to hit clear on the screen. If there is a "HOLDING" in the bottom right corner of your 3270 screen, "CLEAR" will remove the messages that are being maintained on the screen.

We will now add a line to the file. Type xedit profile exec and hit the enter key.

To add a line if on the command line enter "add 1". However, it will add 1 line at the top of the file. Since we want to add the line in the file . First, type next 1 on the command line to move the line position to after the /* PROFILE EXEC */ comment, Then type add 1 on the command line.

Type in this line

```
SET PF12 RETRIEVE BACKWARD
```

On the command line at the bottom of the screen type File and hit the enter key.

Please review sections 6.79 and 6.8 of the redbook to choose your options

For new users, the command SET PF12 RETREIVE BACKWARD is particularly useful because this removes the need to retype commands you are experimenting with. Setting those options enables functionality like the bash shell on Linux systems and using PF12 to scroll through previous command history.

If you make changes to your PROFILE EXEC during your terminal session, the changes will not be in effect until you execute your profile again. You can enter the following command at any time to run your PROFILE EXEC: profile

Often newer users make a few mistakes when customizing their PROFILE EXECs. To suppress the processing of your PROFILE EXEC for any reason, enter the IPL command, and then enter command CMS command ACCESS with the NOPROF option specified.

```
IPL CMS
access (noprof
```

XEDIT PROFILE file

You can create a profile xedit file that will be processed every time you execute an xedit command. This can be useful to set up PF keys

To create this file, enter XEDIT PROFILE XEDIT.

Type the command to add 5 lines, then enter the commands you want, and enter a FILE command to save and exit. A sample PROFILE XEDIT file might contain these lines:

```
/* Sample PROFILE XEDIT file */
'SET CASE MIXED'
'SET AUTOSAVE 20'
'SET TABS 10 20 30 40'
'SET PF12 TOP'
```

The first line in this file must be a comment. A comment must start with /* and end with*/

If your SET command contains a special character, it may cause an error, unless you enclose the command in (quotation marks). Therefore, we have entered each command with surrounding quotation marks to insure proper programming technique and prevent future problems.

Each command must be typed on a separate line. You should be familiar with all the commands. You may already know that when you xedit a file, the PF keys have various functions. For example, PF3 is set to the QUIT command, PF7 is set to the FORWARD command.

For more information on xedit profile, see the IBM CMS Primer.

REXX Commands

The REstructured eXtended eXecutor (REXX) language is particularly suitable for:

- Command procedures
- Application front ends
- User-defined macros (such as editor subcommands)
- User-defined XEDIT subcommands
- Prototyping
- Personal computing.

REXX is a general purpose programming language like PL/I. REXX has the usual structured-programming instructions—IF, SELECT, DO WHILE, LEAVE, and so on—and a number of useful built-in functions.

The language imposes no restrictions on program format. There can be more than one clause on a line, or a single clause can occupy more than one line. Indentation is allowed. You can, therefore, code programs in a format that emphasizes their structure, making them easier to read.

z/VM: REXX/VM Reference , SC24-6221

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CP Commands

z/VM is comprised of two primary components: CP and CMS. The Control Program (CP) is the operating system that underlies all of z/VM. CP is responsible for virtualizing your z/Series machine's real hardware, and allowing many virtual machines to simultaneously share the hardware resource.

CP also handles the creation and management of virtual machines. It can be considered the operating system component of z/VM because it is responsible for managing real devices and resources and sharing them among various tasks and users that need them. CP is analogous to the Linux kernel in a GNU/Linux operating system.

Without CP you could only be running one operating system on your hardware at any given time (logical partitioning aside). CP allows you to have multiple virtual machines (also known as “guests”), and each one can be running an instance of an operating system simultaneously.

This section introduces some basic CP commands. See chapter 5 in the redbook for more information on CP.

Basic CP commands

To get a CP prompt, go to the special keyboard, click on PA1 key. This will put you in mode to enter CP commands, with CP READ showing in the right bottom corner.

Some key CP commands are

- Logon
- Logoff
- I CMS or IPL CMS
- B or Begin
- DISC - for disconnect - this causes you to exit but the guest keeps running. When you reconnect with a Logon command, you will be in CP mode and should issue B to connect to CMS.