**C P L a b 9 / 08 / 2 0 1 7 Due on 9/15/2017**

**I n t r o d u c t i o n t o C P**

This lab exercise will give you some valuable experience working with CP. You will learn how to

communicate with CP via a 3270 terminal emulator. You will learn some of the CP commands used to

query and modify your virtual machine environment.

***#1 I n f o r m a t i o n y o u w i l l n e e d***

***Name: KRISHNA SHETH***

z/VM hostname/IP address: **bingtz1.cc.binghamton.edu**

My user id: **TJW021CP**

**Spool File sent: LAB2021**

My password: \_\_\_(dont write it here)\_\_\_\_

***#2 G e t l o g g e d o n t o y o u r z / V M g u e s t***

***S t a r t y o u r 3 2 7 0 t e r m i n a l e m u l a t o r***

Locate the Icon for your 3270 emulator and start it now. We will need it to continue this lab. If you are

using Windows then you will most likely be using Mocha as your 3270 emulator. If you are using

Linux then you will be using x3270.

**C o n n e c t t o z / V M**

Using instructions specific to your 3270 emulator you will need to connect to the installation of z/VM

that has been set up for this lab. Specific details can be found in sections 4.5, 4.6 and 4.7 of the course

text book.

**L o g i n t o z / V M**

Once you've connected to z/VM you will see a login screen. There are several different ways to log in

to z/VM. The simplest method is to type your user id, then press tab to move the cursor to the

password field and then type your password and press enter.

NOTE: If you type your user id or password incorrectly the main login screen will disappear and you

will be shown an error message. In this case the main login screen will not reappear and you will need

to retry your login manually using the LOGIN command. Type the following command and press

enter: LOGIN username

***#3 Explore your virtual environment***

***Kill your guest operating system***

We want to ensure that we are working directly with CP for the duration of this lab so we need to kill

any guest operating system that might be running. We can do this with the SYSTEM CLEAR

command.

SYSTEM CLEAR

**Spool console start \***

***Query your privileges***

What command did you use to see the Privilege classes? Which privilege classes have been assigned to your virtual machine? For each privilege class that you have been assigned, provide a brief explanation of what it means.

Command Used: QUERY PRIVCLASS. Privilege class assigned to my VM is ‘G’, so it means that I can execute commands that are valid for class ‘G’.

***Virtual Devices***

What virtual devices have been defined for your virtual machine? List the devices as shown

(use two columns if needed) and the command you used :

0009 – Console 000D – PUN (Card Punch) DASD (0190, 0191,091D. 091E, 0592)

000C – Reader 000E – PRT (Printer)

Command Used: QUERY VIRTUAL ALL

***CPUs & memory***

What command would you use to see the virtual CPUS and how many virtual CPU's does your guest have? QUERY VIRTUAL CPUS. The guest has 1 CPU.

Can you use the QUERY PROC command to find out how many real processors are in the

hardware that is running z/VM? If so, list how many processors are in the real machine. If

not, please explain why.

No, QUERY PROC is invalid. The VCPU(s) only run when real processor time is available. So, the VM only knows how many VCPU(s) it’s been allocated.

How much memory does your guest have? (show the command) QUERY VIRTUAL STORAGE shows 32M of memory on my VM.

***Disks***

How many disk devices does your virtual machine have? (show the command) QUERY VIRTUAL DASD shows 5 disk devices on my VM.

How big is your 191 disk in cylinders? (show the command) QUERY DISK shows 50 cylinders on 191 disk.

How big is your 191 disk in megabytes? (show the formula) 50 CYL x (750 KB / 1024 MB) = ~36.62MB

Roughly how big (in either B/KB or MB) is a single 3390 DASD cylinder (please note the book shows

incorrect formulas for this calculation!)?

A single 3390 DASD cylinder is roughly 750KB big in size.

What command allows you to access another user's disk? LINK

Use the command that you listed in the above question to gain access to the disk owned by user TCPIP

with a virtual device number of 592. What is the full command used to do this?

LINK TCPIP 592 592 RR

Syntax: LINK <guest name> <vdev no. of that disk> <re-define vdev no.> <2 letter R/W access>

Try to access TCPIP's 592 disk again, but this time try to get write access to the disk. Were you able to

get write access? Why or why not?

No, I was not able to get write access because it was already link to someone else’s VM (Eg. The admin or other students) . WW mode is only granted if no one else is linked to it.

Lets say you wish to install Linux in your z/VM guest but you need a new disk. How would you go

about getting a new disk? Can you issue a CP command to get the disk yourself (please explain your

answer)? Note: You want this Linux guest to be permanent, NOT temporary.

Since, I have been issued a class ‘G’ privilege for my VM, I will not have the privilege to issue a CP command and get the disk. Instead, I will issue a request to the admin to get me the disk.

***TDISK & VDISK***

Create a 5 MB TDISK with virtual device number 333. List the command you used to do this:

DEFINE T3390 333 6

Create a 500 block VDISK with virtual device number 444. List the command you used to do this:

DEFINE VFB-512 444 500

How large is this VDISK (in B/KB or MB)?: 504/2000 = 0.252 MB

Create a 20 GB VDISK with virtual device number 555. If you are able to do this, list the command

you used, if you are not able to do this please explain why:

It is not possible to create a 20GB VDISK as the VDISK resides in the machine’s storage and the machine’s storage is not as big as 20GB. VDISK(s) are small and not on real disks.

Query your new TDISK. How big is it in cylinders? Is this the number of cylinders you specified when

you created it? If not, explain why.

The new TDISK is 6CYL big. Yes, I specified 6CYL because at first when I specified 6.82(5MB) it gave a missing cylinders error. The cylinders should be specified in whole numbers and not in decimal.

Query your new VDISK. How big is it in blocks? Is this the number of blocks you specified when you

created it? If not, explain why.

The new VDISK is 504 BLK big. No, it is not the number of blocks I specified when I created it. VDISK(s) must be allocated in increments of 8. If it is not in multiples of 8 then CP will automatically round to the next multiples of 8.

Log off your virtual machine and log back on again and issue the SYSTEM CLEAR command.

Query the TDISKS and VDISKS you just created. Which ones still exist?

None of them exist.

Please explain why the missing disks have “disappeared”. Where did they go? How do you get those

disks back (and their contents)?

The TDISK is a temporary storage space and gets destroyed when user logs off. VDISK are also temporary since they reside in the storage of the machine and gets destroyed when the user logs off the system. You cannot recover the TDISK/VDISK or their contents once you log off the system as they are permanently destroyed.

What very important lesson can you learn from this exercise (create tdisk/vdisk, log off, log on, look

for your disks)?

Important lesson learnt from this exercise is to keep a backup of any data present on TDISK/VDISK on a real disk(DASD).

***Interacting with other users***

Who else is logged onto the system? List at least 5 other guests that are logged on besides your own: (show the command)

QUERY NAMES. 5 guests: TJW180CP, TJW195CP, EMILY, TJW179CP & OPERATOR

***Working with guest operating systems in CP***

Start the CMS operating system. What command did you use to do this:

IPL CMS

Issue the CP command 'QUERY DASD', then issue the command 'QUERY DISK'. One of these

commands is executed by CP and the other is executed by CMS. By examining the text, is there an

easy way to tell which one is executed by CP and which one is executed by CMS?

The command that is executed on CP has a different color (in my case blue) than on CMS(white).

One way to differentiate between CP/CMS is to tell CP to display guest operating system output in a

different color than CP output. What command (or series of commands) would you use to accomplish

this task?

TERM HILIGHT ON

SCREEN <area> <color> <effect>

Eg: SCREEN VMOUT RED NONE

– Any command executed in cms after this will be highlighted in red color.

**NOTE**: When you get to the CMS lab you may wish to add these commands to your PROFILE EXEC

so you can use this feature every time you log on to the system without having to re-enter the

commands.

Now re-execute the two commands and notice the difference. Since we are running CMS we would

naturally expect CMS to execute ANY command we issue. We would also expect CMS to reject any

command that it does not understand. How is it that CP ends up receiving and executing one of the

above commands if we are in CMS?

CP provides a way to issue commands that will bypass the guest OS and go to CP if the guest OS will not recognize the issued command.

If we were running a different guest operating system, Linux for example, how would we issue a

command directly to CP?

To issue command directly to CP, type #CP which will temporarily suspend linux.

Temporarily stop running CMS (do not use SYSTEM CLEAR for this), issue a few CP commands, and

then start running CMS again. Show the commands you issued to do this:

#CP  
QUERY DASD

QUERY NAMES

IPL CMS

**Spool console close \*** and send me the file that shows ALL the commands you ran for the lab. You will need to receive it from your reader, rename it and send it to me. Name it console lab2\*\*\* where \*\*\* is your uid number