Windows and Linux Terminals & Command Lines

Tools and Tips for SEC301 and SEC401

Getting started:

- **c:\>** denotes a command to be run from Windows' cmd.exe
- **user$** is for a Linux command
- **root#** means the Linux command needs to be run as a privileged, root user
- Linux commands are generally case-sensitive; Windows commands are generally not
- Mac terminals will, in most ways, act like Linux/Bash terminals

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What directory am I in?

c:\> cd

user$ pwd

What files are in this directory?

c:\> dir

user$ ls -l

Copy a file

c:\> copy file.txt copy.txt

user$ cp file.txt copy.txt

Erase a file

c:\> erase file.txt

user$ rm file.txt

Print the contents of a file to the screen

c:\> type file.txt

user$ cat file.txt (Just dump the raw file)

user$ strings file.txt
(Dump only the readable characters)

See one screen at a time

c:\> type file.txt | more

user$ cat file.txt | more

user$ more file.txt (Same, just shorter)

user$ less file.txt (Same, but you can go up and down; q to quit)

Put text into a file

c:\> echo "Four score" > 1.txt

user$ echo "Four score" > 1.txt

Add text to a file

c:\> echo "and seven years" >> 1.txt

user$ echo "and seven years" >> 1.txt

Combine two files

c:\> type 1.txt 2.txt > 3.txt

user$ cat 1.txt 2.txt > 3.txt

Check who you're logged in as

c:\> whoami

user$ whoami

Hide command error messages

c:\> YOUR COMMAND 2>nul

user$ YOUR COMMAND 2>/dev/null

Find files in a filesystem

c:\> dir c:\ /b/s | find "password"

user$ find / -name *password*

user$ locate password (same, but faster)

root# updatedb (update the database for locate by indexing everything in the drive)

View all environment variables

c:\> set

user$ env

View one environment variable

c:\> set Path

c:\> echo %Path%

user$ env | grep PATH

user$ echo $PATH

What are environment variables?

They give your terminal context for running certain commands. For example, the PATH variable, in most operation systems, tells your terminal which directories to look in for programs when you type one in.

Note: the current directory, . (period), is in the Windows path by default - but not in Linux. So in Linux, we must be explicit when running something in our current working directory:

Run john when it's in your directory

c:\> john.exe

user$ ./john

See which ports the computer is listening for connections on

c:\> netstat -nao

c:\> netstat -naob (Same, but lists process name; requires Administrator)

user$ netstat -ant

root# netstat -pant (Same, but lists pid and name; requires root)

Look for lines containing specific text, e.g. 9999

c:\> netstat -naob | find 9999

root# user$ netstat -pant | grep 9999

See what tasks are running

c:\> tasklist

c:\> wmic process list full (Same, more info)

user$ ps -aux

Get more info about a specific process id, e.g. 45

c:\> wmic process where ProcessID=45

user$ ps -Flww -p 45

Check the system's hostname

c:\> hostname

user$ hostname

List processes that run at startup

c:\> wmic startup full list

user$ ls -l /etc/init.d

user$ crontab -l

user$ systemctl list-unit-files | grep enabled

user$ less /home/user/.bashrc

(There are other places where startup tasks can be stored in Linux, but these are the most common)

Scan a host to look for open ports, e.g. 192.168.1.100

c:\> nmap 192.168.1.100

user$ nmap 192.168.1.100

Scan a subnet of hosts and see what is really running on open ports

c:\> nmap 192.168.1.1-254 -sV

user$ nmap 192.168.1.1-254 -sV

Scan all 65,536 ports on a given host

c:\> nmap 192.168.1.100 -p0-65535

user$ nmap 192.168.1.100 -p0-65535

Ping another host four times

c:\> ping 192.168.1.200

user$ ping -c4 192.168.1.200

Connect to port 25 to see what banner it sends back, e.g. SMTP or 25/TCP

c:\> nc.exe 192.168.1.100 25
(Not installed by default)

user$ nc 192.168.1.100 25
(Usually available)

See your IP address(es)

c:\> ipconfig

user$ ip addr

Get help for a command (these work for most commands)

c:\> cd /?

user$ man cd (quit with q)

user$ cd --help (shorter output)

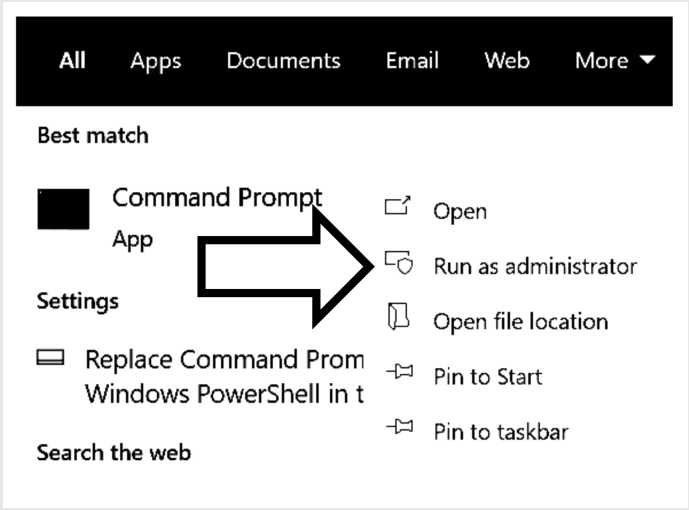
See what path executables will run from

c:\> echo %PATH%

user$ echo $PATH

Opening a Command Prompt/Terminal

In Windows, reach the cmd.exe command prompt by clicking the Windows button and typing **cmd**. If you need to run as a privileged user, right-click **Command Prompt** and choose **Run as administrator**.



In Slingshot Linux, open a Bash terminal by double-clicking **MATE Terminal** on the desktop. In some Linux systems, you can use **<Ctrl><Alt>t** as a keyboard shortcut. Use **su** to switch to a privileged/root user or **sudo YOUR COMMAND** to run a single command as root.