COMP3500 – Frequently Asked Questions
Project 1 - Using the Linux Terminal

1. What should we include in our project report? Should it be a description of the processes to complete each task, or should it simply be a copy of the commands and response from the terminal?
    Answer: There is no formal format of the report. You can either use the pipe or the *script* command of Linux to show the process of completing all the specified tasks.
    Instructions on how to use the *script* command can be found here:
    http://www-users.cs.umn.edu/~gini/1901-07s/files/script.html
    If you encounter any problem and solve it, please also document the problem and its solution. On the other hand, if you don't encounter any problem while carrying out this project, you may state that script files can be found in the tarball and you finish the project without any major issue.

2. Can I use SecureCRT rather than Putty to remotely access a Linux machine?
    Answer: Yes, you may choose to use SecureCRT, which is free to Auburn students. You can download SecureCRT here: https://auburn.service-now.com/it?id=kb_article&sys_id=5bfa6107dbc45b00965cf9b9af961930#arcGIS-content

3. The version of CentOS linked in the project description PDF, CentOS 6.4, is deprecated, and no longer hosted at the mirror the link directs to (though it is hosted on CentOS' vault page). Do we need to use CentOS 6.4 specifically, or can we use a more recent version?
    Answer: If you would like to install CentOS 7.0 - the current version, you are allowed to do so. You should be able to download CentOS 7.0 from CentOS official website.

4. How do we wipe out the existing one on our computer in Shelby 2129 if we can't get past the login and password?
    Answer: You may try a fresh installation. Check the detailed instructions with screenshots can be found here:
    http://www.tecmint.com/centos-6-4-installation-guide-with-screenshots/

5. Where do we find out the PC that was assigned to us? Is it the number on the CD you distributed to us?
    Answer: If you need to access one computer located in the OS lab (i.e., Shelby 2129), please stop by Dr. Qin's office during his office hours (MWF 1:00-2:00 p.m.) to acquire PC assignment information.

6. Should I just install centOS on one computer in the lab or should we individually install it on our own computers too?
    Answer: You only need to choose one option to carry out this project.

7. I encountered an error when I run the following command in centOS. What should I do?

```
# /sbin/hdparm -I /dev/hda
```

Answer: If the above command doesn't work. There might be two problems. First, the command doesn't exist in the folder of `sbin`. In this case, you must install `hdparm`. Second, the driver labeled as `/dev/had` had doesn't exist in your Linux. Then, you can simply report this error and indicate that the driver has not been created yet.

8. How do we get the file off the computer and into Canvas?

Answer: There are three candidate solutions.

(1) You may use the `sftp` command to transfer files from your lab PC into the engineering's tux machines. For example, you can start using this command on your lab PC's terminal as, assuming your engineering user name is `xzq0001`:

```
#sftp xzq0001@scp.eng.auburn.edu
```

Then, you can easily access your transferred files on your engineering machines. For more information on how to use sftp, please refer to the "Transferring Files with SFTP" section of this webpage:

https://www.digitalocean.com/community/tutorials/how-to-use-sftp-to-securely-transfer-files-with-a-remote-server

(2) You mount a flash drive, to which you copy the tarred archive. Then, you need unmount the flash drive. You then plug the flash drive into a laptop or another computer to upload the report to Canvas. Please refer to the following instructions on how to use `mount` and `unmount` commands in Linux:

http://www.thegeekstuff.com/2013/01/mount-umount-examples/

(3) You can add a desktop environment on your minimal CentOS. You may use the following command to add Gnome/GUI to your minimal CentOS install:

```
 yum groupinstall basic-desktop desktop-platform x11 fonts
```

A long name version is given below:

```
yum groupinstall "Desktop" "Desktop Platform" "X Window System"
"Fonts"
```

9. When using the commands from part 2.1 such as

```
yum -y install ...
```

Near the end of installation for all the packages it gives a message saying Error downloading packages: no more mirrors to try. Is this an issue or should it be ignored?

Answer: This issue went away after restarting the computer.

10. Step 2.2. When I tried the following two commands, it showed that the devices could not be found. Has anyone else encountered this problem? I made sure I ran the command as root user but it still didn't work. What am I missing here?

```
# /sbin/ethtool eth0
Settings for eth0: Cannot get device settings: No such device
Cannot get wake-on-lan settings: No such device Cannot get
message level: No such device Cannot get link status: No such
device No data available

# /sbin/ifconfig eth0
eth0: error fetching interface information: Device not found
```
Answer: eth0 is referring to a network card, which is managed by a program called "udev". Udev is responsible for the removal/addition of hardware. Udev is associating the conventional interface name (eth*) to it's unique MAC address. Those associations are stored in the folder **/etc/udev/rules.d/,** where you will find a file called "**xx_persistent-net.rules**" file. Note that "xx" is a random number.

Udev use the "rules" (see sample below) to name the devices.
```
SUBSYSTEM=="net", DRIVERS=="?*",
ATTR{address}=="xx:xx:xx:xx:xx:xx", NAME="eth0"
```
(the xx:xx:xx... is a MAC address)

You can read your computer's MAC address using the following command:
```
sudo /sbin/ifconfig -a
```
Write this MAC address in the above Udev rule corresponding to the conventional name that suites you (e.g., eth0). You may delete old rules and add new ones. After restarting your computer, the problem should be solved.

11. One fix for yum -y update error "cannot find a valid base URL". (Contributed by Jordan Johnson, Fall'17.)
    Answer: When using the newest centOS on virtual box, the `yum -y update` isn't working or any of the yum updates.
    If you navigate to this location after you have installed your ISO:
    `/etc/yum.repos.d/CentOS-Base.repo`

    You will see that the `baseurl` field has # in front of it. Take that out to uncomment the `baseurl` that `yum` is looking for and it should start working then.

12. Looking at the rubric, 10 points are allocated for setup. Is there a deliverable we need to include for this step? Or are points given automatically by us completing the project? (Contributed by Jacob Justice, Fall'18.)
    Answer: If you successfully complete Tasks 1-4, you will automatically earn the 10 points for your setup.

13. On task 4 of the project, did anyone else get an error telling them that their username is not in the sudoers file and that the incident will be reported? I just assumed it was probably installed, but when trying to clone a repository I created, the terminal said "bash: git: command not found." (Contributed by Marco Zuniga, Fall'18.)

Answer: First of all, don't install git if you choose option 1. For option-1 students, git has been installed on remote Linux machines in the Linux laboratory. Don't use "sudo" to install anything if your choice is option 1. In this option, you may use the following command to check if git has been installed or not:

```
git --version
```

If you try options 2-4, you will have to install `git` first. Please follow the instructions in this webpage to install git:

https://git-scm.com/book/en/v2/Getting-Started-Installing-Git

14. I accidentally tried to use SUDO when completing the first project using option 1, and I got locked out of the system. Can you please resolve this for me? (Contributed by a student in the Fall'18 class.)
    Answer: There is no mechanism in place to lock accounts based on `sudo` access. There is a filter though that will block a particular IP address if there are 5 failed logins on `gate.eng.auburn.edu` within a minute. Any network traffic is dropped for 10 minutes and then the filter is reset. You should try to login again after the filter's reset.

15. Is it okay to use VMware instead of VirtualBox for option 2? (Contributed by Joe Driscoll, Fall'18)
    Answer: Yes, you may use `VMware` in lieu of `VirtualBox`.

16. If we use option 1, but can't use sudo, how can we call the commands that require admin privileges? (Fall'18)
    Answer: In option 1, all the required tools have been previously installed on remote Linux machines. In this case, you don't need an admin privilege to accomplish project 1.

17. I have previously set up my PC to dual-boot into both Windows and Debian. Will Debian be good enough for this class? Or do I need to install CentOS specifically?
    Answer: You don't need to install CentOS. Debian works for COMP3500 projects.

18. For `simple.c`, did you want us to just have 10 numbers in an array, or read in 10 numbers as an input?
    Answer: Either way should work. It might be easy to hardcode the 10 numbers into an array.

19. I installed Git version 1.7.1 on my local Linux machine. Is this old version acceptable? (Contributed by Marco Zuniga, Fall'18.)
    Answer: Yes, an earlier version is acceptable. I tested Git on the remote Tux Linux machine. You don't need to install Git on remote Tux machines, where Git works perfectly.

20. After I use the `gdb simple` command and type in `r` I'm getting an error that says `Missing separate debuginfos, use: debuginfo-install glibc-2.17-222.e17.x86_64`. I'm not sure what to do about that. (Fall'18.)

Answer: Please use "`b line#`" to create a breakpoint before using the '`r`' command.

21. In the grading rubric under the "Get to know your system..." section, what does it mean when it says "Report your experience"? (Fall'18.)
Answer: You should briefly report what problems have you encountered and how you have solved these problems.

22. How to connect CentOS virtual machine VM to the internet? (Fall'19.)
Answer: Reference: https://stackoverflow.com/questions/30100254/centos-on-virtualbox-have-to-use-ifdown-ifup-after-startup

Network interfaces in CentOS aren't enabled by default. You can change the default settings by modifying /etc/sysconfig/network-scripts/ifcfg-enp0s8 (for interface enp0s8). Just change ONBOOT=no to ONBOOT=yes

Please also watch this YouTube video:
https://www.youtube.com/watch?v=UUkCys309xA

23. **Man ldd.** When using the command '`man ldd`' I keep getting the response no manual entry for ldd. How can I fix this problem? (Fall'19.)
Answer: The 'man cmd' command displays the manual of a command (i.e., cmd). Please try "man cat" on a Tux machine, where the man command was installed by the system administrator. If 'man' hasn't been installed on your local machine, please type the following command to install 'man':
        `$yum install man-db man-pages`
Reference: https://globedrill.com/man-command-not-found-install-man-command-on-linux-server/

24. **VirtualBox on MacOS.** When I've been trying to install virtual machine and centOS, centOS installation screen says "this kernel requires an x86-64 cpu, but only detected an i686 cpu. This processor is not supported in this version of RHEL." How to solve this problem? (Fall'20.)
Answer: There are two potential reasons behind this problem.
   - Reason 1: If you have a 64-bit OS installed but the VirtualBox OS type is accidentally changed/set to 32-bit after installation.
   - Reason 2: If Vt-X (Virtualization) is disabled in the BIOS. (This can happen if you reset your BIOS to default settings which may have disabled Vt-X bit)
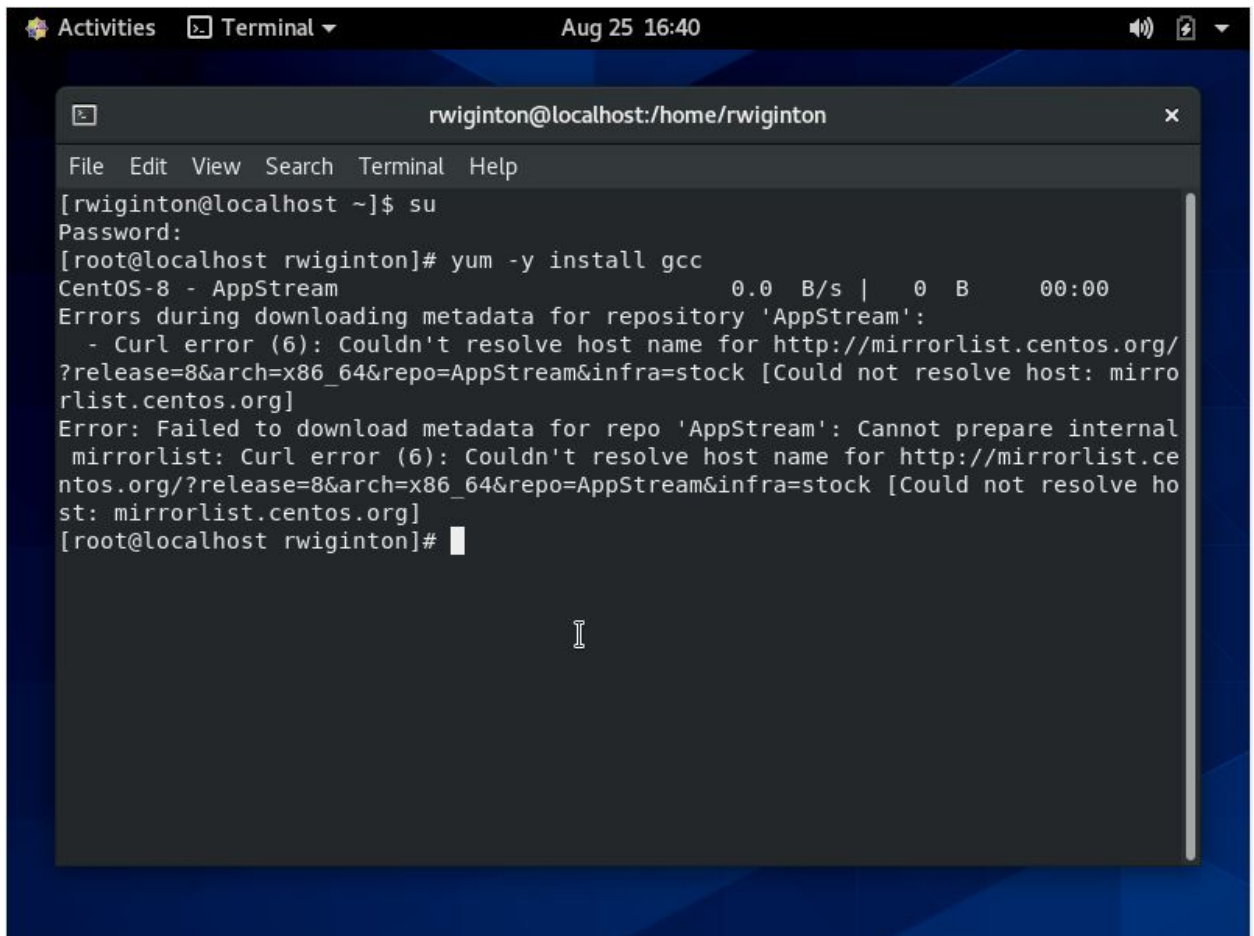Reference: https://askubuntu.com/questions/308937/cannot-install-ubuntu-in-virtualbox-due-to-this-kernel-requires-an-x86-64-cpu

25. **System Acceleration Settings when installing CentOS on VM.** I am having an error that says: "The hardware virtualization is enabled in the Acceleration section of the system page although it is not supported by the host system. it should be disabled in order to

start the virtual system." I've looked at the Acceleration settings, and I have no idea how to disable this feature. I am running Windows 10 on a PC. (Fall'20.)

Answer: You will have to configure the BIOS of your PC. Please try the instructions posted on this webpage: https://www.tactig.com/enable-intel-vt-x-amd-virtualization-pc-vmware-virtualbox/#:~:text=%20%20%201%20Open%20VirtualBox%20and%20select,enable%20Intel%20VT-x%20or%20AMD%20virtualization...%20More%20

26. **Curl error with yum -y installations.** When trying to install all of the necessary packages in the terminal of my CentOS program, I have gotten this error statement

(Fall'20.)

Answer: Please ensure that your VM has access to the Internet. Please try the following steps and let me know if you solve this problem. Step 6 is critical, because you must figure out the network adaptor of your host PC or laptop.

1) Open **Virtualbox Manager**

2) Select the machine you cannot get internet on in the left pane

3) Click the **Settings** button in the top menu

4) Click **Network** in the left pane in the settings window

5) Switched to **Bridged Adapter** in the **Attached to** drop-down menu

6) Select the name of the network adapter you are currently using on your host machine. I am using wireless so I chose *eth0* which is my wireless network adapter. You can check which adapter you are currently using by opening the terminal (CTRL+ALT+T by default) and running `ifconfig`. It will probably be the *eth* adapter that shows an *inet addr* and shows data transfer next to *RX bytes*.

7) Under **Advanced**, make sure the machine is using the **Desktop Adapter Type**

8) Under **Advanced**, make sure **Promiscuous Mode** is set to **Allow VMs**

9) Under **Advanced**, make sure **Cable connected** is checked on

10) Hit **OK** to save your changes

11) Start your VM

27. **Compilation Error.** I just tried to compile simple.c with the following command, but I still get this error. (Fall'20)

```
$gcc -g -lm -o simple simple.c
```

Error:
```
/tmp/ccwyIaII.o: In function `main':
/home/u3/nak0021/comp3500/project1/simple.c:14: undefined
reference to `sqrt'
collect2: error: ld returned 1 exit status
```

Answer: Please move flag "-lm" behind "simple.c". See the command below.

```
$gcc -g simple.c -lm -o simple
```