

# A Guide to Eustis and the Linux Command Line

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## Introduction

Eustis is the server we'll use this semester as a common testing platform where all assignment submissions need to run and work in order to receive credit. Eustis accounts have already been created for everyone who was enrolled in this course by Friday, August 20. Accounts for all other students will be created by Sunday, August 29. You can log into Eustis from computers on campus, but to log into Eustis from home (or certain dorms on campus), you must first establish a UCF VPN connection. (See details below.)

**Server (using an SSH client (not a web browser), as described below):** eustis.eecs.ucf.edu

**Username:** your NID

**Password:** your NID password

**Important note:** When typing your password, Eustis will not print asterisks ('\*') to the screen. It might look like the system is frozen, but don't worry; it's capturing your password as you type it.

## Your Eustis Password

Eustis is integrated with UCF's NET domain, meaning that you will use your NID and NID password to log in to the system once your accounts are created. If you have trouble logging into Eustis or get locked out of your account, you can e-mail your NID to [helpdesk@cecs.ucf.edu](mailto:helpdesk@cecs.ucf.edu) and ask for assistance.

## Looking for Help?

For account issues (unrecognized username or invalid password), please e-mail [helpdesk@cecs.ucf.edu](mailto:helpdesk@cecs.ucf.edu). Be sure to include your NID, let them know you're enrolled in this course, and provide a brief description of the login problem you're encountering (e.g., the exact error message Eustis is giving you).

For help establishing a connection to Eustis, please see one of the TAs in office hours. Your fellow classmates will also be a great resource for help with connection issues!

## Connecting to Eustis While Using Campus Wifi

If you're using campus wifi, please log into the wifi network with your NID and NID password (*not* as a guest) in order to gain access to Eustis. If you do that, you won't need to go through the steps of manually establishing a VPN connection (**except, sadly, in some of the dorms on campus**).

## Establishing a UCF VPN Connection (Windows and Mac)

*Skip this if you're using a campus computer or if you're connected to UCF's wifi with your NID/password (not as a guest). If you're using Linux, you might have to manually install the Cisco AnyConnect Client. See pg. 6 of this document for instructions on how to do so.*

1. Open <https://secure.vpn.ucf.edu> in your web browser.
2. Sign in as a student using your NID and NID password.
3. Download some stuff for Cisco AnyConnect.
4. Open up Cisco AnyConnect and type in: <https://secure.vpn.ucf.edu>
5. Again, type in your NID and NID password. This creates a VPN connection, and you can now log into the Eustis server using one of the methods described below.

## Connecting to Eustis from a Command Line Terminal (Mac and Linux)

1. Open a terminal window and connect to Eustis by typing the following:

```
ssh YOUR_NID@eustis.eecs.ucf.edu
```

**Note:** You need to replace “YOUR\_NID” with your actual NID.

2. When prompted for your password, type your NID password. Note that Eustis does not print asterisks (“\*”) to the screen as you type your password. It might look like the system is frozen, but don’t worry; it’s capturing your password as you type it. After you type your password, hit enter.

**Note:** If you get an error about IP spoofing or a “REMOTE HOST IDENTIFICATION HAS CHANGED” warning when connecting, you might need to remove your old ssh key, like so (and then try re-connecting):

```
ssh-keygen -R eustis.eecs.ucf.edu
```

## Troubleshooting “Could not resolve hostname” Errors

Here are the most likely causes of “Could not resolve hostname” errors when trying to connect to Eustis:

1. You’re off campus, but you’re not connected to the VPN. Connect to the VPN using the instructions in this document.
2. You’re on campus, but you **are** connected to the VPN. Disconnect from the VPN and try logging in to Eustis again.
3. You’re on campus, but you’re connected to the UCF\_GUEST wifi network. Connect to UCF\_WPA2 instead.
4. You’re on campus, you’re connected to UCF\_WPA2, and you’re **not** connected to the VPN. You’re doing the right thing there, but some pockets of the UCF\_WPA2 network on campus just aren’t authenticated in such a way that they allow connections to Eustis for some reason – especially if you’re in a dorm. Connect to the VPN and try again.
5. You’re using the bash shell on Windows (i.e., the Ubuntu-based Windows Subsystem for Linux). For some reason, that terminal sometimes has trouble connecting to Eustis by hostname and requires you to use an IP address instead, as shown below. This IP address is also listed in the section titled “Reference: Direct IP Address for Eustis” in the “Introduction to Eustis” page in Webcourses.

```
muffinface ~/Desktop $ ssh muffinface@eustis.eecs.ucf.edu
Could not resolve hostname eustis.eecs.ucf.edu: Temporary failure in name resolution
muffinface ~/Desktop $ ssh muffinface@10.173.204.63

Welcome to eustis.eecs.ucf.edu.

Please use your NID and NID password to log in.

muffinface@10.173.204.63's password: _
```

**Figure 1:** Connecting to Eustis through WSL (the Linux-based bash prompt in Windows) might require the use of Eustis’s direct IP address rather than eustis.eecs.ucf.edu.

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## Transferring Files to Eustis via Terminal (Mac and Linux)

1. Open a new terminal window.
2. Use the “cd” command to navigate to the directory containing the file(s) you want to transfer. E.g.:

```
cd Desktop/cop3502/program1
```

3. Type the following to transfer some file to Eustis. Note that you need the “:~/” at the end of this command:

```
scp some_file.txt YOUR_NID@eustis.eecs.ucf.edu:~/
```

4. When prompted, enter your NID password (and keep typing even though no asterisks appear as you do).
5. (*Super Handy Trick!*) To copy an entire folder to Eustis, use the `-r` flag, like so:

```
scp -r MyProjectFolder YOUR_NID@eustis.eecs.ucf.edu:~/
```

## Connecting to Eustis with MobaXTerm (All-in-One Solution for Windows)

Please note that some versions of the SSH program included with Windows will not be able to connect to Eustis. You can instead download MobaXTerm – a free program that provides a beautiful, all-in-one solution for working with Eustis. MobaXTerm allows you to connect to Eustis, transfer files, and interact with the Eustis command line all in one program. It also allows you to edit files that are stored on Eustis (rather than editing them on your computer and then uploading). At the following link, click “GET MOBAXTERM NOW!” to download the free version: <http://mobaxterm.mobatek.net/>

To connect to Eustis with MobaXTerm, you’ll want to establish a new SSH session with the following settings:

**Remote host:** eustis.eecs.ucf.edu

**Specify username:** (enter your NID in this field)

**Port:** 22

## Basic Linux/Mac Commands (Including Command Line Compilation)

Here’s a list of some useful commands that you’ll use throughout the semester as you work at the command line:

1. To compile a source file (.c file) into an executable:

```
gcc source.c
```

2. By default, the command in (1) will produce an executable file called `a.out`, which you can run by typing:

```
./a.out
```

3. To name the executable something else when you compile:

```
gcc source.c -o whatever
```

4. To run the program created in (3), which is called `whatever`:

```
./whatever
```

5. Running a program could potentially dump a lot of output to the screen. In Linux, if you want to redirect the output of your program to a text file (such as *output.txt*), it's easy. Just run the program using the following:

```
./a.out > output.txt
```

This will create a file called *output.txt* that contains the output from your program.

6. Linux has a helpful command called *diff* for comparing the contents of two files, which is really helpful if you have one text file containing the output your program just produced and another file containing the solution your program *should* produce. You can see whether the contents of two files match exactly (character for character) by typing, e.g.:

```
diff output.txt solution.txt
```

If the contents of *output.txt* and *solution.txt* are exactly the same, *diff* won't have any output. It will just look like this:

```
seansz@net1547:~$ diff output.txt solution.txt
seansz@net1547:~$ _
```

If the files differ, *diff* will spit out some information about the lines that aren't the same. For example:

```
seansz@net1547:~$ diff output.txt solution.txt
1c1
< Hello, world!
---
> Hello world!
seansz@net1547:~$ _
```

7. To list all the files in your current directory:

```
ls
```

8. To delete a file, such as *output.txt*:

```
rm output.txt
```

9. To dump the contents of a file, such as *output.txt*, to the screen:

```
cat output.txt
```

10. To compile multiple source files into an executable, which you will have to do for some of your assignments this semester, simply list all of the source files you want to compile after the *gcc* command:

```
gcc source1.c source2.c source3.c
```

11. If you want to compile a program that includes *math.h* library functions, you need to link the math library by adding the *-lm* flag at the command line:

```
gcc source.c -lm
```

## Appendix A:

### Establishing a UCF VPN Connection (Manual Installation for Linux Users)

If you're using Linux, you might have to manually install the Cisco AnyConnect Client in order to connect to UCF's VPN. Here's how to do it.

1. Load up <https://secure.vpn.ucf.edu> in your web browser.
2. Sign in as a student using your NID and NID password.
3. If the client does not download right away and seems to be stuck at "Sun Java Applet started, this may take up to 60 seconds..." just be patient. It might take 2-3 minutes. Eventually, it should come up with this message:

```
Web-based installation was unsuccessful. If you wish to install the Cisco AnyConnect Secure Mobility Client, you may download an installer package.
```

```
Install using the link below:
```

```
Linux x86_64
```

4. Right-click the link and save the file (vpnsetup.sh) to your desktop.
5. Open a terminal and enter the following commands:

```
# Go to your Desktop.
cd ~/Desktop

# Make the script you downloaded executable.
chmod +x vpnsetup.sh

# Run the script with administrative privileges. This will ask you for your Linux
# account password. That's okay. Type it in and hit [enter].
sudo ./vpnsetup.sh
```

6. Find and run the "Cisco AnyConnect Secure Mobile Client" in your Applications menu. (It was filed under "Other" on my system, but your mileage might vary.)
7. Enter <https://secure.vpn.ucf.edu>, click "Connect," and supply your NID and NID password.
8. You'll have to click "Accept" for some terms of service.
9. Open a terminal and connect to Eustis using your NID and NID password:

```
ssh YOUR_NID@eustis.eecs.ucf.edu
```

**Note:** You need to replace "YOUR\_NID" with your actual NID.

**Important note:** Cisco AnyConnect sometimes produces the following error: "AnyConnect cannot confirm it is connected to your secure gateway. The local network may not be trustworthy. Please try another network." If that happens to you, you can either simply try switching to Firefox, or [install OpenConnect](#) instead.