A Guide to Eustis and the Linux Command Line

Adapted from Dr. Sean Szumlanski's Fall 2021 Version

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Contents

1. Introduction

Eustis is the server we'll use as a common testing platform for the final project, where your code submission needs to run and work in order to receive credit. 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 (2 letters and 6 numbers)
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.

2. 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 email your NID to `helpdesk@cecs.ucf.edu` and ask for assistance.

3. Looking for Help?

For account issues (unrecognized username or invalid password), please email `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!

4. Connecting to Eustis While Using Campus Internet

If you're on campus, please log into the UCF_WPA2 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). If you are on campus internet, you can safely skip to Section 6. If you are not, check out Section 5 to set up the VPN.

5. While Off Campus – Establishing a UCF VPN Connection

Skip this if you're using a campus computer or if you're connected to UCF's internet with your NID/password (not as a guest).

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 the provided program for Cisco AnyConnect.
4. Open the installer and follow the instructions provided. (For more details, there is a "+ Instructions" button on the bottom right of this download page.)
5. Once Cisco AnyConnect is installed, type in "`secure.vpn.ucf.edu`" and click "Connect."
6. Again, type in your NID and NID password. This creates a VPN connection, and you can now log in to the Eustis server using one of the methods in Section 6.

6. Connecting to Eustis

Now that you are on the UCF network, you can connect to Eustis!

6.1. Connecting to Eustis from a Command Line Terminal (macOS, Linux, and some Windows)

This method is preferred, and should work for almost all operating systems. There is only one exception: if you are on Windows, you must have Windows 10 (at least build 1809) or Windows 11, must have PowerShell 5.1 or later, and must be on an administrator account on your computer.

If you are on a different Windows version, or you have other issues on Windows, you can also try the MobaXTerm method outlined in Section 6.2.

If you are on Windows, you must first set up the command line environment with the steps in Section 6.1.1. Otherwise, skip to Section 6.1.2.

6.1.1. Windows Only: Setting up the Command Line Terminal

Skip this section if you are not on Windows.

1. Open the **Settings** application, select **Apps**, then select **Optional Features**.
2. Scan the list to see if OpenSSH is already installed. If not, at the top of the page, select **Add a feature**, then find **OpenSSH Client**, then select **Install**.
3. Once setup completes, return to **Apps** and **Optional Features** and confirm that OpenSSH is listed.

You can now move on to the rest of the steps here.

6.1.2. Using the Command Line Terminal

1. Open a terminal window. This is called "**Command Prompt**" on Windows, "**Terminal**" on macOS, and we will assume you already know how to get there if you are on Linux. *(Note: If you are comfortable, you may also use a different command line environment, so long as it supports SFTP and SSH.)*

2. Connect to Eustis by typing the following (you will need to replace "YOUR_NID" with your actual NID):
   `ssh YOUR_NID@eustis.eecs.ucf.edu`

3. 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, with the following command (and then try re-connecting):
   `ssh-keygen -R eustis.eecs.ucf.edu`

4. You should now see a prompt with your NID and be connected to Eustis! Jump to Section 7 to learn how to navigate!

6.1.3. Transferring Files to/from Eustis via Terminal

1. Open a new terminal window.

2. Use the "`cd`" command to navigate to the directory containing the file(s) you want to transfer. For example:
   `cd Desktop/cda3103/midterm`

3. Type the following to transfer some file to Eustis. Note that you need the "`:~/`" at the end of this command:
   `scp some_file.c 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. To transfer a file *from* Eustis, the command is a little different (the dot at the end is important!):
   `scp YOUR_NID@eustis.eecs.ucf.edu:~/some_file.c .`

6.2. 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, rather than dealing with separate applications for file transfers and command line interactions. It also allows you to edit files that are stored on Eustis and update them automatically when you save (rather than working with local copies of all your files and then manually transferring them to Eustis every time you make a change).

At the following link, click "GET MOBAXTERM NOW!" to download the free version: `https://mobaxterm.mobatek.net`

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

Remote host: eustis.eecs.ucf.edu
Specify username: *(enter your NID in this field)*
Port: 22

7. Basic Linux/Mac Commands (Including Command Line Compilation)

Here's a list of some useful commands that you may use 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. To list all the files in your current directory:
   `ls`
6. To delete a file, such as *output.txt*:
   `rm output.txt`
7. To dump the contents of a file, such as *output.txt*, to the screen:
   `cat output.txt`

A. 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 here, 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 trying to SSH in Windows (i.e., possibly in 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. This specific IP information sometimes changes, but is currently "10.173.204.63" for the time being. Replace all instances of "eustis.eecs.ucf.edu" with this IP instead. If you continue to have issues, please contact the instructor or a TA.