

# USC Linux Lab SSH Tutorial

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## 1 Introduction

This guide will help you set up an SSH connection into the Linux Labs from on-campus or off-campus using the school's VPN. **See the last page (i.e. Section 4 for an example workflow scenario).**

## 2 Accessing the Linux Labs

You will need to be familiar with the process of using SSH to login into the Linux Labs if you wish to work remotely instead of coming to the Linux Labs in person.

Your username is the part that comes before `@email.sc.edu` in your email. You will use the same password that you set for your `@email.sc.edu` address in all of these steps.

NOTE: If you are not enrolled into a CSE program, you may not have an account yet. Please email Ryan Austin at `rmaustin@cse.sc.edu` to get an account if you try these steps and you are not able to login

### 2.1 CSE Linux Labs

1. Go to <https://cse.sc.edu>.
2. Go to the “Resources” and click on “Linux Workstations”.
3. Take note of one of the IP Addresses or Hostnames (i.e. 129.252.130.174 or L-1D43-01.cse.sc.edu).

### 2.2 ON CAMPUS: WiFi Setup

Some students were not able to access the Linux labs without the VPN despite being on campus using **eduroam**. This is most likely due to not logging in with the correct username (i.e. with @ds.sc.edu at the end).

1. Find the list of all remembered WiFi connections on your laptop/computer.
2. Forget/delete the 'eduroam' WiFi network.
3. Go to the WiFi scan list and re-connect to 'eduroam' and use:

username@ds.sc.edu

as your username. Be sure to include the @ds.sc.edu extension at the end. Use the same university password as always.

### 2.3 OFF CAMPUS: Two Factor Authentication (2FA) & VPN

To use the linux labs you will need to setup DUO 2FA for your university account. You can do this by going to <https://myaccount.sc.edu> and signing in. You can find more details about setting up 2FA using this [guide](#).

**If you are off campus**, you will need to use the VPN to access the linux labs remotely. The VPN is free to use. To download the vpn:

1. Go to <https://my.sc.edu/software/> and sign in.
2. Click on "Security" under the "Software for Home" section.
3. Click on "Cisco AnyConnect for Students - Personal Use".
4. Click on "Cisco AnyConnect VPN (Free Download)".
5. Fill out the information requested and check the checkbox.
6. Click "Submit".
7. Now go to <https://software.sc.edu/downloads/> and sign in.
8. Click on the "Cisco AnyConnect..." link.
9. Click the green download button beside the platform you need.
10. Installation and setup instructions are provided to the right of the green download buttons.

This [link](#) contains more info on installing the VPN .

### 2.4 Connecting Via SSH

Note: You will need to accept the DUO MFA notification after entering your password when logging into the lab on any of the platforms below. It may ask you twice to select an option 1 thru 3 and then for you to accept the notification on your phone.

Also, the shell will not display any characters as you are typing your password. The password will still be input and after you press enter the password will be submitted for verification, but you will not see the characters as you type it.

#### 2.4.1 Windows 10/11

1. Open the 'PowerShell' terminal.
2. Use the command: **ssh -p 222 username@HOSTNAME** and replace the HOSTNAME with the IP address or Hostname you recorded from section [2.1](#).
3. After this, you should be prompted for your password and to authenticate with DUO MFA.
4. Now you should be logged in!

#### 2.4.2 MacOS/Linux/Some New Versions of Windows Powershell

1. Open the 'Terminal' app.
2. Use the command: **ssh -p 222 username@HOSTNAME** and replace the HOSTNAME with the IP address or Hostname you recorded from section [2.1](#).
3. After this, you should be prompted for your password and to authenticate with DUO MFA.
4. Now you should be logged in!

### 3 Secure Transfer of Files

You can use the secure copy command to copy files to and from the Linux Lab computers from your laptop/desktop.

The Linux lab computers are accessible via a *public static IP address*. These public IP addresses are the “location” of the computer on the internet and can be accessed from anywhere in the world.

Unlike the Linux lab computers, **YOUR** computer most likely has a *private IP address*. This means you can’t access **YOUR** computer from another network.

With this in mind, to transfer files between **YOUR** computer and the Linux lab computers you must either: (1) **send** files from *YOUR* computer to a Linux lab computer or (2) **pull** the files from a Linux lab computer to *YOUR* computer.

To copy a file **from your computer to the Linux lab**:

```
scp -P 222 <file_or_archive> <username>@<hostname>:<linux_lab_path>
```

To copy a file **from the Linux Lab to your computer’s home directory**:

```
scp -P 222 <username>@<hostname>:<linux_lab_file_or_archive_path> ~
```

Be sure to include the ‘@’ symbol and the colon ‘:’ in the commands as well as the tilde at the end of the second.

### 4 Example Scenario

Alice is working on a homework assignment for their CSCE 215 class. Alice is working remotely off-campus. Since Alice is not on campus, Alice first connects to the USC VPN. Alice confirms the DUO 2FA notification and is now connected to the VPN. Alice then downloads the homework assignment files from the course website. However, the files are located on their computer and not the lab computer. To transfer the files from their computer to the lab computer Alice uses the following command on their computer's terminal:

```
scp -P 222 homework.tar.gz alice@129.252.130.174:~
```

Alice then gets a DUO 2FA notification to transfer the files to the lab computer. Alice then remotes into a lab computer's Linux shell using the SSH command:

```
ssh -p 222 alice@129.252.130.174
```

Alice then follows the instructions for the assignment and completes all of the steps and then packs up the homework files into a file called "submission.tar.gz". This "submission.tar.gz" file is located on the Linux lab computer. However, to submit the "submission.tar.gz" file on Dropbox, Alice needs to transfer the "submission.tar.gz" file to their personal computer. To do this, Alice first gets the path (i.e. location) of the "submission.tar.gz" file. She records the path for use later. Alice then logs out of the Linux lab shell session using the *exit* command. Now Alice's terminal is no longer remoted into the Linux lab computer. Now Alice can transfer the "submission.tar.gz" file from the Linux lab computer to their personal computer using the SCP command on their local terminal:

```
scp -P 222 alice@129.252.130.174:~/submission.tar.gz .
```

Alice then gets another DUO 2FA notification and accepts it to transfer the file to their personal computer. Alice then opens up the GUI file explorer application in the directory as the terminal and finds the "submission.tar.gz" file and submits it to Dropbox.