



Department of Computer Science  
Introduction to Unix Tutorial

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## 1.0 Introduction

Here at Kutztown University, many courses in the department of Computer Science and Information Technology use on-campus Unix servers as a platform for coursework. These servers provide a command line interface rather than a graphical user interface, which may seem intimidating to those without prior experience. However, the objective of this introduction is to make the process of learning how to use them easy. Since they are a standard, it is necessary to learn how to access these servers, how to navigate them, and how to complete coursework on them.

**Note:** If at any point you want further elaboration, you can refer to the [detailed instructions](#) in section [5.0 Additional Resources](#).

## 2.0 Connecting to the Kutztown University Unix Servers

The simplest approach to accessing the Kutztown University Unix servers is by using a command line interface provided by the operating system of your computer. If you would prefer an interface that can be personalized, and is faster to open after setup, then using PuTTY is an alternative approach.

### 2.1 Using an OS provided command line Interface

As an example, I will use cmd.exe, or Command Prompt, which is an application provided by Windows 10. Other operating systems such as ChromeOS and macOS have applicable interfaces called Terminal.

Step 1: Open the command line interface provided by your computer.

Step 2: Use the SSH protocol to connect to acad.kutztown.edu using your KU User ID (ex. jsmit123). In other words, enter the command:

**“ssh -l [Your KU User ID] acad.kutztown.edu”**

Note: If using an operating system other than Windows, this command might be different.

Step 5: If it is your first time logging in from your device, you should be prompted with a question. Enter “yes” as a response.

Step 6: Then, enter the same password you use to connect to the Kutztown University student portal.

Note: Your input will not be visible for the sake of password protection.

## 2.2 Using PuTTY

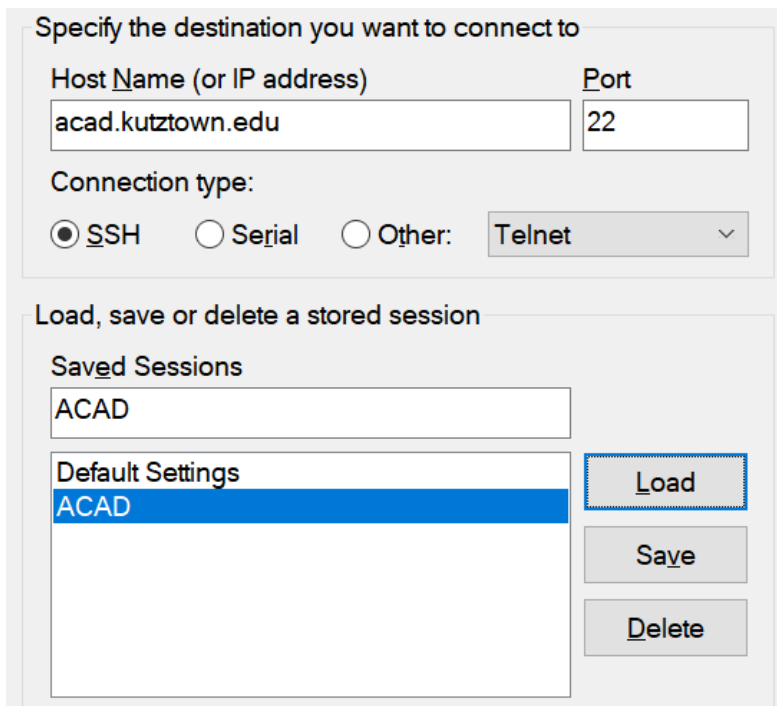
Step 1: Download PuTTY. You can download it through the following link:

<https://download.kutztown.edu/Download/ComputerScience>

The login credentials are the same ones you use to log in to the Kutztown University Student Portal.

Step 2: Open PuTTY and configure the settings in the “Session” category as follows:

- A. Enter “acad.kutztown.edu” as the **Host Name (or IP address)**.
- B. Set the **Port** to “22”.
- C. Set the **Connection type** to “SSH”.
- D. Under **Saved Sessions**, enter a name of your choosing (ex. ACAD) to call these settings.



The screenshot shows the PuTTY configuration window for a session. The title is "Specify the destination you want to connect to". It has two input fields: "Host Name (or IP address)" containing "acad.kutztown.edu" and "Port" containing "22". Below these is the "Connection type:" section with three radio buttons: "SSH" (selected), "Serial", and "Other:". To the right of "Other:" is a dropdown menu currently showing "Telnet". Below this is another section titled "Load, save or delete a stored session". It contains a list of "Saved Sessions" with "ACAD" entered in a text box. Below the list is a table with "Default Settings" and "ACAD" listed. To the right of the table are three buttons: "Load", "Save", and "Delete".

Host Name (or IP address)	Port
acad.kutztown.edu	22

Connection type:

SSH    Serial    Other: Telnet

Load, save or delete a stored session

Saved Sessions
ACAD

Default Settings
ACAD

Buttons: Load, Save, Delete

Step 3: Click save.

Step 4: Select the saved session that you named from the list, click “Load”, and then click “Open”.

Step 5: Enter your Kutztown University User ID (ex. jsmit123).

Step 6: If it is your first time logging in from your device, you should be prompted with a question. Enter “yes” as a response.

Step 7: Then, enter the same password you use to connect to the Kutztown University student portal.

Note: Your input will not be visible for the sake of password protection.

## 3.0 Navigating the Unix Servers

For the purpose of attaining the skills necessary to complete coursework, we will go through a demonstration on how to add assignments to your workspace while taking some extra steps along the way. As an example, I will be adding an assignment from the course “Computer Science II” to my workspace.

Step 1: Enter the command **”pwd”**. This command will display your current directory, and will be useful in ensuring you are in your desired directory.

Step 2: Enter **”mkdir [directory name]”** to make a directory for your course. This is an optional step, but it is useful in keeping your home directory organized. Naming it by the course number keeps the name short, and consequently makes navigating to this directory faster.

Step 3: Enter **”ls”** to see the newly created directory in your current directory.

```
nmoye956@kuvapcsitrd01:~  
[nmoye956@kuvapcsitrd01 ~]$ pwd  
/home/students.kutztown.edu/nmoye956  
[nmoye956@kuvapcsitrd01 ~]$ mkdir CSC136  
[nmoye956@kuvapcsitrd01 ~]$ ls  
CSC136  CSC223  CSC237  CSC310  CSC402  CSC458  public_html  
[nmoye956@kuvapcsitrd01 ~]$
```

Step 4: Enter the command “**cd [directory name]**” to make the newly created directory to your current directory. You can enter the command “**cd**” to return to your home directory at any time, or “**cd ..**” to go back just one directory.

Step 5: Use what you learned when completing steps 1 through 4 to identify the path to your assignment, if it is not given to you by your professor. You can enter “**cd /export/home/public/**”, and then “**ls**” as a start to this. Other helpful [unix commands](#) can be found in section [5.0 Additional Resources](#).

Step 6: Once you know the path to your assignment, enter “**cp -r [source directory] .**” to copy the source of your assignment to your current directory if your assignment is contained within a directory, or “**cp [source directory/filename] .**” if it is contained within a single file.

```
nmoye956@kuvapcsitr01:~/CSC136
[nmoye956@kuvapcsitr01 CSC136]$ cd /export/home/public
[nmoye956@kuvapcsitr01 public]$ ls
aquota.user  ddemarco    frye  huang  Javalang  langley  parsons  schwesin  shimka
carelli      example.sql gnye  hussain  jwang    lost+found  rhamilton  shim  spiegel
[nmoye956@kuvapcsitr01 public]$ cd schwesin
[nmoye956@kuvapcsitr01 schwesin]$ ls
csc136  csc220  csc235  csc237  csc242  csc256  csc310  csc328  csc425
[nmoye956@kuvapcsitr01 schwesin]$ cd csc136
[nmoye956@kuvapcsitr01 csc136]$ ls
assignment2  assignment3  assignment4
[nmoye956@kuvapcsitr01 csc136]$ pwd
/export/home/public/schwesin/csc136
[nmoye956@kuvapcsitr01 csc136]$ cd
[nmoye956@kuvapcsitr01 ~]$ pwd
/home/students.kutztown.edu/nmoye956
[nmoye956@kuvapcsitr01 ~]$ cd CSC136
[nmoye956@kuvapcsitr01 CSC136]$ cp -r /export/home/public/schwesin/csc136/assignment2 .
[nmoye956@kuvapcsitr01 CSC136]$ ls
assignment2
[nmoye956@kuvapcsitr01 CSC136]$
```

Step 7 (Optional): At this point, you should be set to start learning how to work on your assignments. If you want to reorganize your home directory, however, you can use “**rm [target filename]**” or “**rm -r [target directory]**” to remove files/directories. Similarly, you can use “**mv [source directory] [target directory]**” to move a file, or to move a directory.

## 4.0 Coding on the Unix Servers

An intuitive way to write code on the Kutztown University Unix servers is by using Notepad++. This requires an initial setup, but once completed, you will have a modern source code editor available to you. This additionally makes transferring files from your computer to the Unix servers a simple process. If you would prefer to, or must use a different source code editor, then Emacs is a highly compatible alternative.

### 4.1 Using Notepad++

Step 1: Download Notepad++. You can download it through the following link:

<https://notepad-plus-plus.org/downloads/>

Step 2: Open Notepad++. If it is your first time using Notepad++, opt for the default settings during installation.

Step 3: Go to the “Plugins” tab, and click on “Plugins Admin”. Then select “NppFTP” on the Plugins Admin window, install it, and click “Yes” on the pop-up to restart Notepad++.

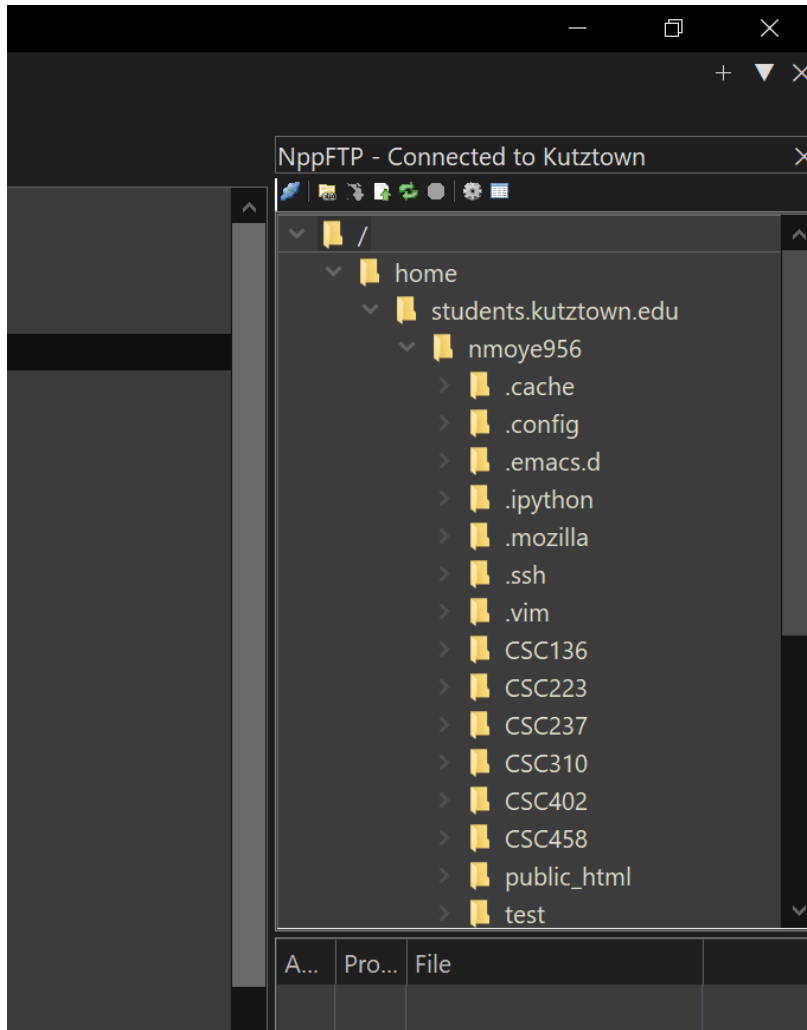
Step 4: If you do not see the NppFTP window on the side after restarting, go to the “Plugins” tab, hover over “NppFTP”, and click “Show NppFTP Window”.

Step 5: Click on the gear on the top right of that window, and then click “Profile settings”.

Step 6: Click “Add new” on the Profile settings window, and configure the settings as follows:

- A. Enter “acad.kutztown.edu” as the **Host Name**.
- B. Set the **Connection type** to “SFTP”.
- C. Set the **Port** to “22”.
- D. Set the **Username** as your Kutztown University Email Address (ex. jsmit123@live.kutztown.edu)
- E. Either set the **Password** to the password of your Kutztown University email account, OR check the box labeled “Ask for password”.

Step 7: Double-click on your newly created profile in the NppFTP window, and then you will have access to the files within your home directory on acad. Be sure you are still connected to acad while updating your files, otherwise changes to your work will not be saved.



**Additional Tips:**

- A. To transfer files from your computer to the Unix servers, simply drag the files from the file explorer of your computer into one of the folders in the NppFTP window, like those seen above.
- B. You can change the tab settings by first going to the "Settings" tab of the main window, and clicking on "Preferences". Then, click on the "Language" tab of the Preferences window. "Tab Settings" can then be found on the right side of the Preferences window.



## 4.2 Using Emacs

Step 1: Navigate to the file you would like to edit on a Kutztown University Unix server. Refer to section [3.0 Navigating the Unix Servers](#) if you are inexperienced with navigating Unix, or see the [common unix commands](#) in section [5.0 Additional Resources](#) if you need a refresher.

Step 2: Enter the command: “**emacs [filename]**” to open the file in Emacs.

Once completing these two steps, you will be in the text editor, Emacs. Here you can use the arrow keys to navigate, and make changes to the file you opened.

Additionally, you will need the following commands to close Emacs:

ctrl+x ctrl+s	saves changes to the file
ctrl+x ctrl+c	closes emacs

These commands involve using two hotkeys for each command. For example, holding the **control key** while pressing **x**, and then sequentially holding the **control key** while pressing **s** will save the file. Emacs is home to many commands such as these, and if you are interested in them, they can be found by following the link below:

[https://csit.kutztown.edu/UnixWorkshop/emacs\\_commands\\_list.html](https://csit.kutztown.edu/UnixWorkshop/emacs_commands_list.html)

## 5.0 Additional Resources

### Common Unix Commands

pwd	displays a path to the current directory
ls	lists files in the current directory
mkdir [directory name]	creates a new directory
cd [target directory]	changes your directory to the target directory
cd	changes your directory to the home directory
cd ..	moves back on the directory
cp [source directory/filename] .	copies file from source directory to current directory
cp [source directory/filename] [target directory]	copies file from source directory to target directory
cp -r [source directory] [target directory]	copies the source directory to target directory
rm [target filename]	removes the target filename
rm -r [target directory]	removes the target directory
mv [source directory/filename] [target directory]	moves file from source directory to target directory
emacs [filename]	opens file in emacs

### Detailed Instructions

Setting Up PuTTY on a Windows Machine:

[https://www.kutztown.edu/Departments-Offices/A-F/ComputerScienceInformationTechnology/Documents/Student%20Resources/Putty\\_config\\_UNIX.pdf](https://www.kutztown.edu/Departments-Offices/A-F/ComputerScienceInformationTechnology/Documents/Student%20Resources/Putty_config_UNIX.pdf)

More Unix Commands:

<https://csit.kutztown.edu/UnixWorkshop/basic-unix.html>

More Emacs Commands:

[https://csit.kutztown.edu/UnixWorkshop/emacs\\_commands\\_list.html](https://csit.kutztown.edu/UnixWorkshop/emacs_commands_list.html)

Setting Up Notepad++ on a Windows Machine:

<https://csit.kutztown.edu/UnixWorkshop/manuals/NotepadPlusPlusManual.pdf>

The Original Kutztown University Introduction to Unix:

<https://csit.kutztown.edu/UnixWorkshop/>