

# Using Ngspice on Eniac on a Mac

## Downloads and Setup

In order to use Ngspice on Eniac, you will need to install Xquartz. The XQuartz terminal enables X11 Tunneling to enable plotting in ngspice.

XQuartz: <https://www.xquartz.org/>

## Workflow

1. Use Electric on your local machine to create a SPICE Deck
2. Use a terminal or xterm window to move the SPICE Deck to the eniac servers. You may want to create a new homework folder for every assignment to hold your files
  - a. To move a file from your computer to eniac first navigate to the location of your SPICE Deck.
    - i. Navigate to the location of your SPICE Deck: The linux commands are  
View current folder contents: `ls`  
Move to folder: `cd directory_name`  
Move to parent folder: `cd ..`

- b. Then use the '`scp`' command:

```
scp filename pennkey@servername:path_on_server
```

Eg. `scp nandDC.spi taniak@eniac.seas.upenn.edu:~/ese370/`

This moves a file from the current location to a directory ese370 located in the user's home directory on eniac.

3. To run ngspice **using an Xquartz xterm (not Terminal)** SSH into eniac with X11 tunneling enabled (-Y option):

```
ssh pennkey@eniac.seas.upenn.edu -Y
```

4. Once you are logged into eniac, run ngspice in the directory that contains your SPICE Decks and simulate!