

Tutorial for Pspice and Cadence Virtuoso

1、 Pspice on Windows

The one from UCSC website

<https://support.soe.ucsc.edu/cadence-university-program-member>

Use your Blue ID and Blue password to log in and download the installation file and follow the instruction book inside.

This one is not the latest version of OrCAD but it has more libraries and tools. This package is more comprehensive, and you can open most of the tools.

The one from OrCAD

OrCAD pSpice: This tool has a lot going on, but if you are an EE, it may be good to get used to the layout and simulations, there is a free download that is a demo version, but should be sufficient for this course.

<https://www.orcad.com/resources/download-orcad-lite>

The following two are online editors, I have not used them, but they look like they should be fairly easy to use.

<https://www.partsim.com/simulator>

<https://www.falstad.com/circuit/>

If anyone is using anything else, and they like it a lot, let me know and I will share with the class.

After all the installation is done, you can search for the OrCAD capture CIS in the home menu. Cause they don't show program icon on your desktop.

2、 Cadence Virtuoso on Linux

If you want to use Mac or learn how to use the UCSC server to access virtuoso or other computing support software (<https://support.soe.ucsc.edu/software>), you can follow this tutorial.

If you can access a windows computer, I also recommend you to go to (<https://support.soe.ucsc.edu/cadence-university-program-member>). There is **SPB/OrCAD Self-Serve Installation**. You can use this software to do simulation and layout.

1. You need to apply for a BSOE account:

<https://accounts.soe.ucsc.edu/accounts/register>
<https://support.soe.ucsc.edu/accounts>

2. If you are going to access it off campus, you need to use UCSC VPN:

<https://its.ucsc.edu/vpn/installation.html>

3. Linux servers list:

<https://support.soe.ucsc.edu/linux-servers>

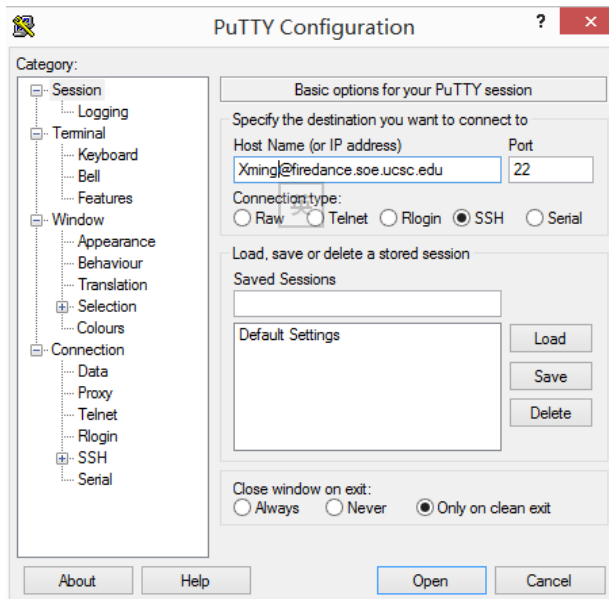
4. Install “NoMachine” for Remote Desktop Connections:

4.1 Windows users should install “[PuTTY](#)” instead of “No machine”.

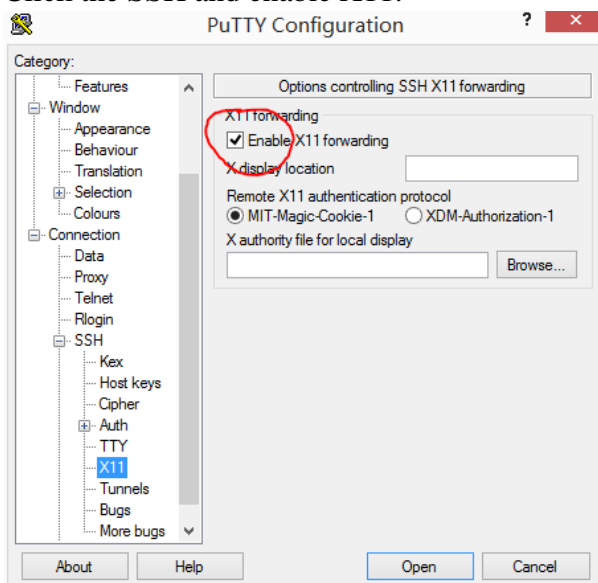
First google Xming, and Xming Fonts, PutTTY downloading. After you install them all, you can open after these sequence:

4.1.1 Open Xming (It won't pop up any window.)

4.1.2 Open PuTTY

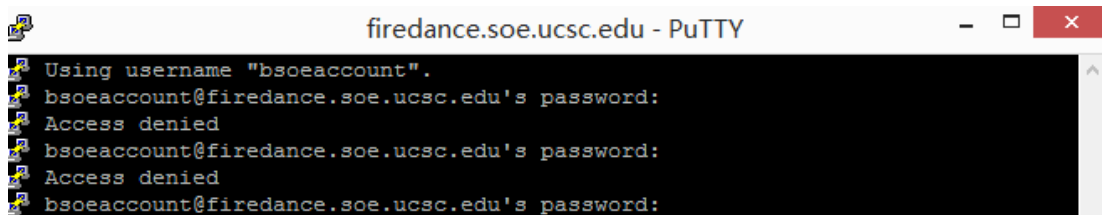


At the Hostname put in your bsoe account name with the school linux server in link part 3. Above. Such as bsoeaccountname@firedance.soe.ucsc.edu
Click the SSH and enable X11.



You can save all the hostname and X11 enable by click Default Settings and then save icon.

Then click open it will ask for your bsoe account password, the password won't show itself you just type in and enter.



Then you have entered the linux server terminal of your own bsoeaccount, and then follow the installation From 6 to 9.

For other information

Please refer to below pages.

<https://support.soe.ucsc.edu/remote-desktop>

https://vlsiwiki.soe.ucsc.edu/index.php/Full-Custom_Tutorials

: Especially, you need to read

[“https://vlsiwiki.soe.ucsc.edu/index.php/Technology_Setup](https://vlsiwiki.soe.ucsc.edu/index.php/Technology_Setup)

Prepare Xming as well as a terminal application. It is a little bit tricky and should be followed carefully.

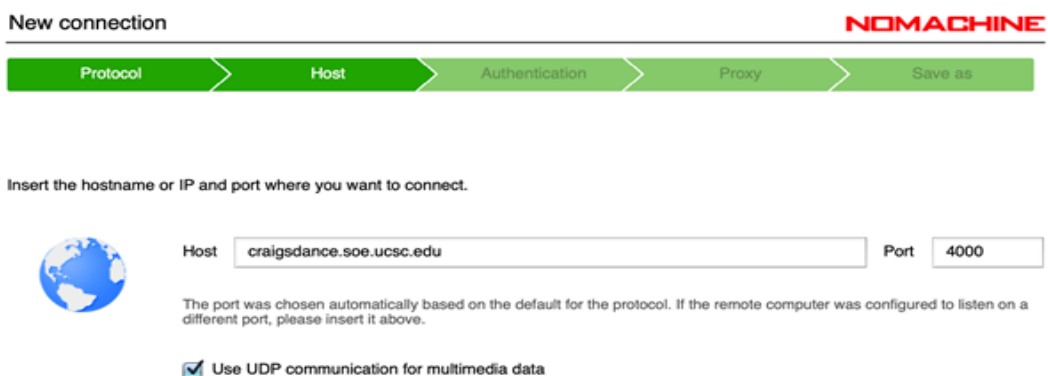
5. Connect with a campus server with a terminal application such as

NoMachine or Putty with your BSOE account.

(1) New a connection



(2) Copy one address from <https://support.soe.ucsc.edu/linux-servers>



New connection

NOMACHINE



Choose which authentication method you want to use.



- Password**
Use password authentication.



- Private key**
Use key-based authentication with a key you provide.



- Kerberos**
Use Kerberos ticket-based authentication.

New connection

NOMACHINE



Use a proxy for the network connection.



- Don't use a proxy**
Choose this if you are connecting to a computer on your same LAN or if you are on a residential broadband connection.



- Connect using a proxy**
Use a proxy if you are connecting to a computer outside your LAN from a corporate network where external access is protected by a firewall.

New connection

NOMACHINE



Give a name to your connection. Your settings will be saved with this name.



Name

- Create a link on the desktop

(6) Double click



(7) Type you BSOE account name and password



Then you are in!

6. Open terminal in the Linux system

/bsoe/software : software

/soe/youraccountname : your personal directory

7. How to use library PDK45

1) In your personal directory, make a directory named PDK45 or other names.

```
mkdir PDK45
```

```
cd PDK45
```

```
source /bsoe/software/design-kits/FreePDK45/ncsu_basekit/cdssetup/setup.csh
```

2) Inside PDK45

```
vim freepdk45.csh (create a file named freepdk45.csh)
```

The file must have the following lines.

```
source /bsoe/software/set-paths.csh
```

```
setenv CDS_SITE /bsoe/software/design-kits/FreePDK45/ncsu_basekit
```

- 3) source freepdk45.csh
- 4) virtuoso

8. How to use library ncsu library

- 1) mkdir NCSU

- 2) vim ncsu-cdk.csh

The file must have the following lines.

```
source /bsoe/software/set-paths.csh
```

```
cp $CDK_DIR/.cdsinit ~/NCSU/
```

```
cp $CDK_DIR/cdssetup/cds.lib ~/NCSU/
```

- 3) source ncsu-cdk.csh

- 4) virtuoso

9. Tutorial about how to use virtuoso

https://vlsiwiki.soe.ucsc.edu/index.php/Full-Custom_Tutorials

Feel free to ask me questions through email: yshao20@ucsc.edu (Yinghao Shao)