

18-421/623: Analog Integrated Circuit Design

Cadence Setup

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Installs needed

- ❖ You must install and setup both applications (if not done already) **before** moving to the next slide.

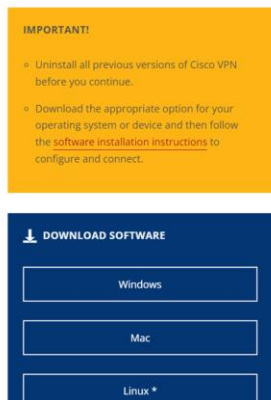
Cisco AnyConnect VPN Client

The Cisco AnyConnect VPN Client is desktop software that secures traffic between your computer and restricted campus services. With the Cisco AnyConnect VPN Client software running in the background, network traffic is automatically routed and encrypted using Datagram Transport Layer Security (DTLS) over SSL or Transport Layer Security (TLS).

Specifications

System Requirements

Operating System	Version	Size	Updated
Windows 10, 8.1	4.10.01075	16 MB	7/13/21
MacOS 11.2+, 10.15, 10.14	4.10.01075	19 MB	7/13/21
Linux (64-bit)	4.10.01075	30 MB	7/13/21
Windows 10 for ARM64-based PCs	4.10.01075	15 MB	7/13/21



■ Cisco VPN

- ▼ CMU link for download – [cisco-anyconnect](https://www.cisco.com/c/en/us/td/docs/secure/c2951/anyconnect/anyconnect.html)
- ▼ The installation instructions are found in the gold box here.

■ fastX

- ▼ FastX guide from ITS – [link](#)
 - ▼ Download the latest version from the repository
 - ▼ Windows = *.setup.exe; Mac = *.dmg
- ▼ Please follow their introduction [video](#) for extra help in downloading. Stop at 03:46.
 - ▼ **Note: do not follow their guide for creating the “New SSH Connection” (see the slides to come).**

ECE-ITS Public Resources / Knowledge Base

🗨 | ...

FastX from StarNet



Owned by Chad Ziccardi • •
Last updated: Jul 19, 2023 by Chad Ziccardi • 2 min read

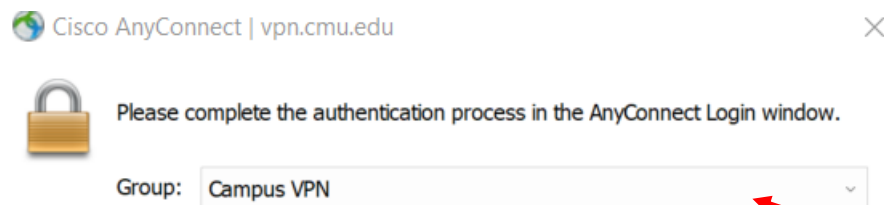
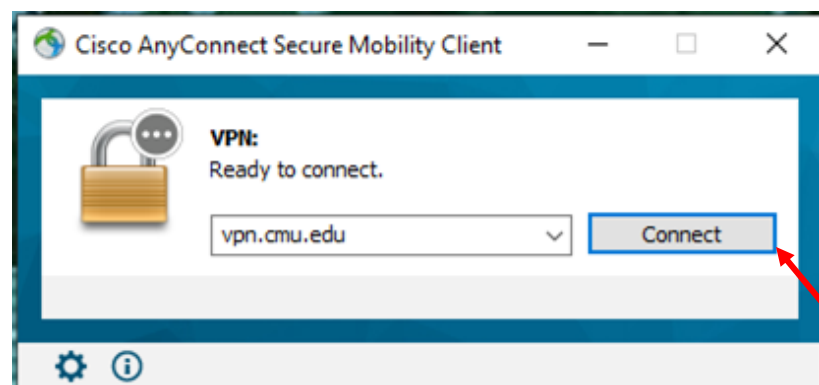
FastX is the preferred remote Linux X Windows display solution in the Electrical and Computer Engineering Department. FastX allows users to take advantage of programs that require some sort of graphical interface while they are connected remotely. Because FastX connects via ssh users can be confident that their information is secure. Similar programs are VNC or X-Win32.

Download the Software

Download FastX3 Desktop client [direct from the vendor](#) or our [repository](#). We encourage users to get the most recent version of FastX3.

📌 In general, accessing most ECE (as well as CMU) servers and applications requires a connection to the CMU VPN if off campus. Please see CMU Computing Services documentation on using the University AnyConnect VPN. <https://www.cmu.edu/computing/vpn>

Remote Access



Web Login

AndrewID

Password

Login

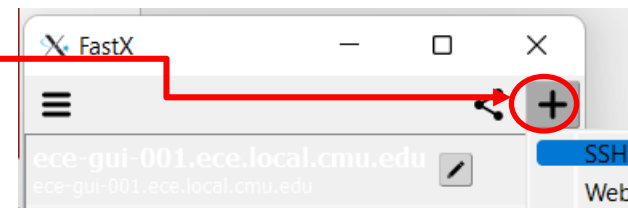


- You will need to use Cisco AnyConnect **every time** for using cadence from any off-campus device.
 - ▼ Upon startup of the Cisco application, you will see the following (*assuming you have completed the initial setup*).
 - ▼ Click the “connect” button,
 - ▼ Next, type in your Andrew login information / password in the pop-up window that comes next .
 - ▼ Either “Campus” or “Full” will work, but ‘**campus**’ is less resource intensive and is recommended
 - ▼ **Complete the Two-Factor Authentication (2FA) to get connected.**

FastX – New SSH Connection

■ fastX new SSH setup

- ▼ Use the + symbol on the top right corner to define a new ssh connection.



- ▼ Use the “SSH” option (**not web**)

- ▼ Pick a name:

- ▼ The hostname is convenient

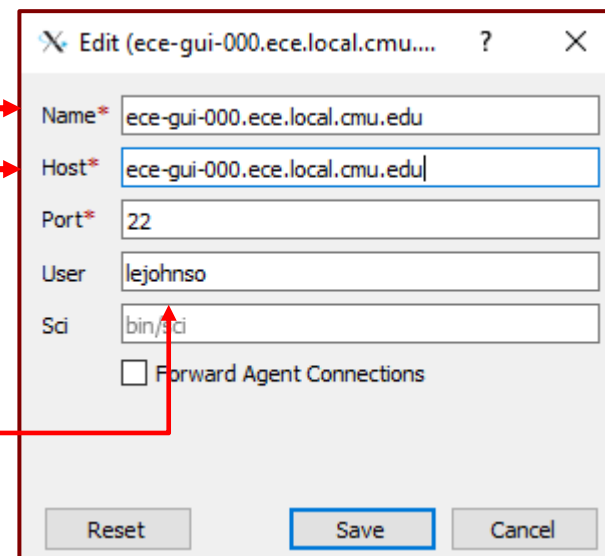
- ▼ Pick a remote machine:

- ▼ “Numbers” cluster is recommended
ece[000-0031].ece.local.cmu.edu

- ▼ “GUI” cluster work as well
ece-gui-[000–007].ece.local.cmu.edu

- ▼ Click for more [details](#) about these computers

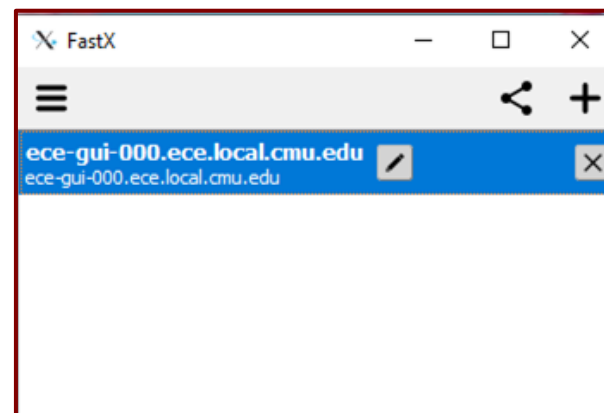
- ▼ Remember “User” means **your Andrew username**.



FastX – New SSH Connection (cont.)

■ fastX new SSH

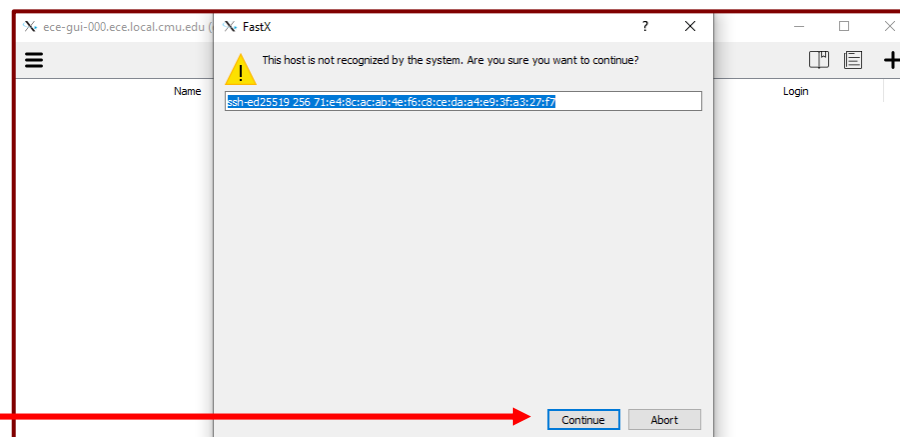
- ▼ The final result will show the SSH connection in your list.
- ▼ Double-click the SSH connection (with Cisco VPN on/connected) to start a new session.



FastX – 1st SSH Connection

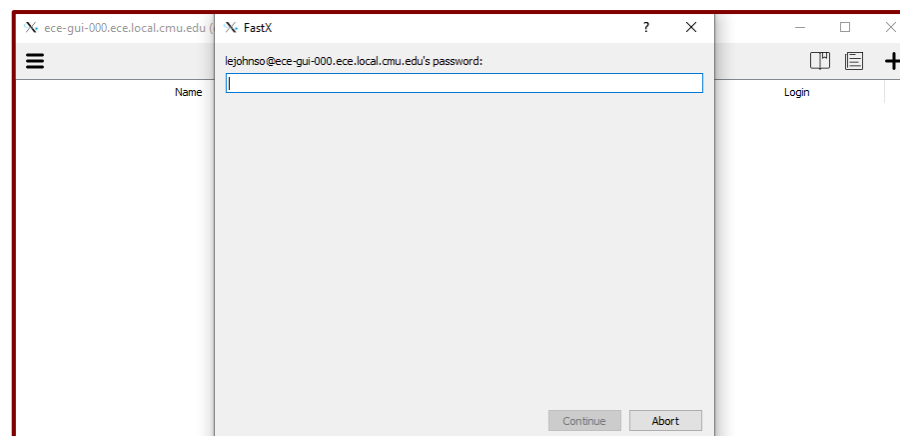
- Your first time connecting to the ece-gui server(s) will prompt the following screen.

- ▼ Click “Continue”



- Next, you will be prompted to login to the server.

- ▼ Type in your Andrew login password!



FastX – 1st SSH Connection (cont.)

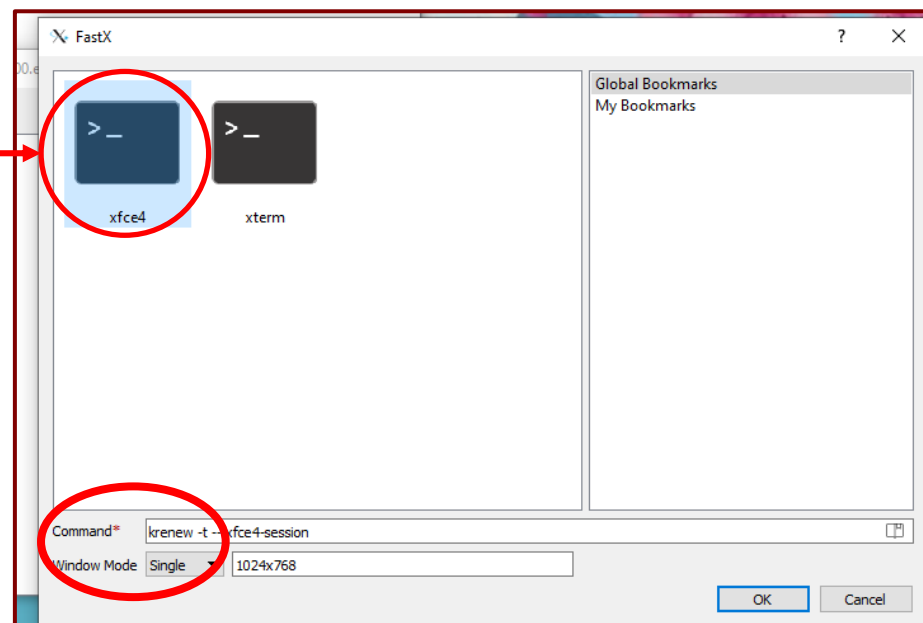
■ fastX new connection

- ▼ Use the + symbol in the top right corner to create a new connection.



- ▼ Select the xfce4 option shown here.

- ▼ Note: the fastX, (single) **xfce4** option is **HIGHLY** recommended for all future labs. The user risks having *many* complications and crashes otherwise.

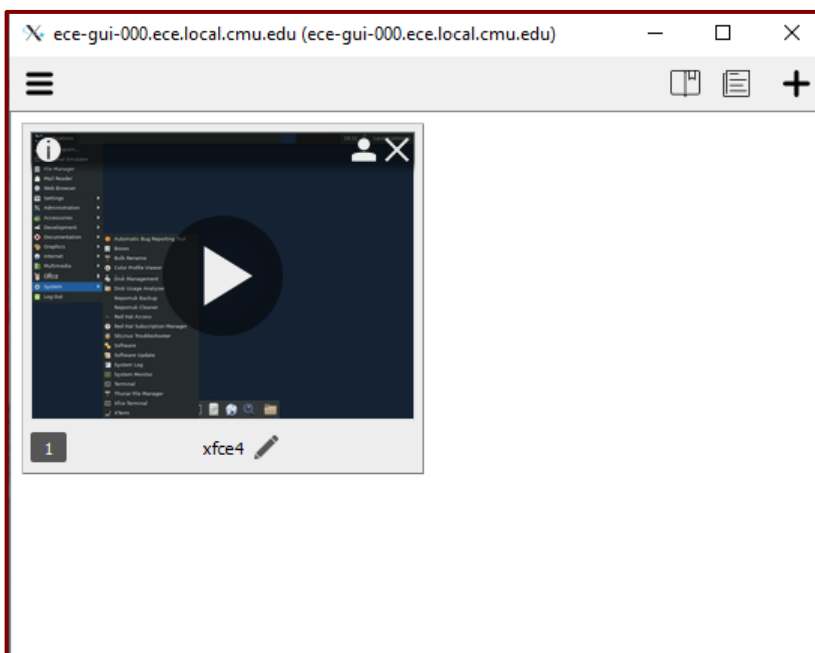


FastX – 1st SSH Connection (cont.)

- ❖ When looking at the hamburger menu (left most button), two graphical options to see the connections are show

Grid mode

■ Default

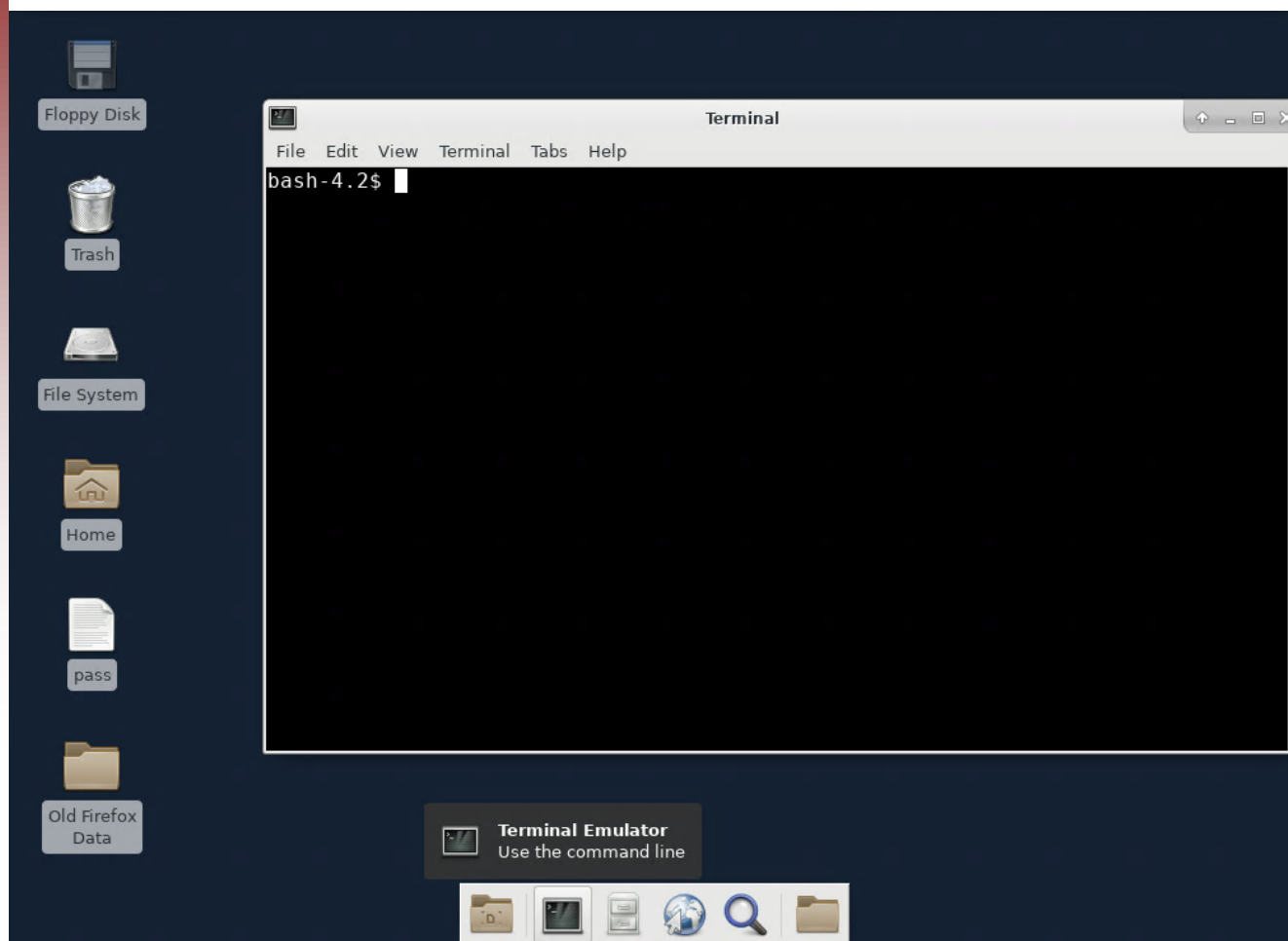


List mode

■ More details (eg, uptime)

Name	Connections	Uptime	Login
xfce4	1 client	3 min	[Login]

FastX – 1st SSH Connection (cont.)



- ❖ Click the ‘terminal’ icon from the tray to open the terminal to write the commands (in the next slide)

Procedures

■ Start with these commands (skip the '\$' symbol)

```
$ kinit  
$ aklog andrew.cmu.edu  
$ aklog ece.cmu.edu  
$ tokens # List my tokens
```

■ Make sure you have the tokens

```
chingyil@ece-gui-000:/afs/ece.cmu.edu/usr/chingyil/Projects/623F22$ tokens  
Tokens held by the Cache Manager:  
User's (AFS ID 2654335) rxkad tokens for andrew.cmu.edu [Expires Aug  9 14:00]  
User's (AFS ID 2654335) rxkad tokens for ece.cmu.edu [Expires Aug  9 14:00]  
--End of list--
```

- ▼ Tokens expire **Every 24 hours**
- ▼ Renew tokens by the following commands (kinit + aklog x 2)

Make Sure You Are in ECE Home Directory

■ There two home directories, use ECE's:

- ▼ Andrew space (Default): `/afs/andrew.cmu.edu/usr/$USER/`
- ▼ ECE space: `/afs/ece.cmu.edu/usr/$USER`
 - ▼ ECE has more space (Andrew space is only 2GB)
- ▼ Change directory to ECE home:
`$ cd /afs/ece.cmu.edu/usr/$USER`
`$ pwd # Make sure you are in ECE's home`
 - ▼ Do this every time you logged into the server

■ (Optional) Pro tips:

- ▼ To make ECE space your default directory, open a terminal and enter:
`$ ln -s /afs/ece.cmu.edu/usr/$USER/`
`/afs/andrew.cmu.edu/usr/$USER/.ecehomedir`
- ▼ The changes will take effect when you open another terminal

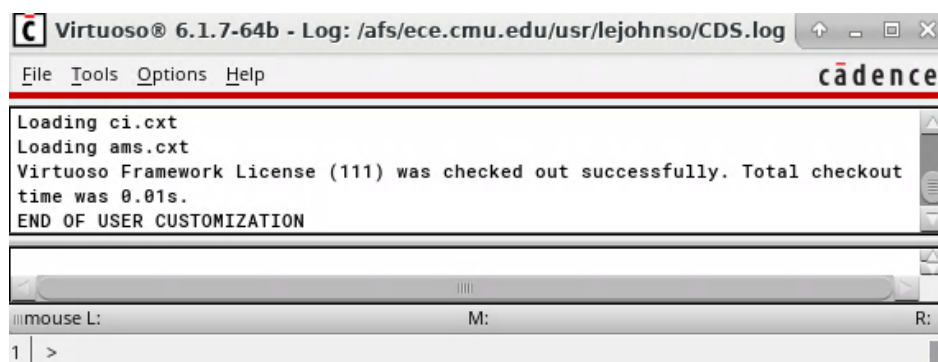
GPDK Installation Procedure (Only for the first time)

1. Open a terminal or continue with the same
2. Create a new folder for Virtuoso, and move into it by the following commands

```
$ mkdir ~/623F23  
$ cd ~/623F23
```
3. Copy the installation/start-up script

```
$ cp /afs/ece.cmu.edu/class/ece623/F23/gpdv045_v_4_0/user_setup/ece623.bash .
```
4. Call the script

```
$ ./ece623.bash
```
5. Get your Command Interpreter Window (CIW)



For starting Cadence **in the future**

- Every time you need to start Cadence, simply type the following [every 24 hours]

```
$ kinit -OR- $ man krenew
```

```
$ aklog
```

```
$ aklog ece.cmu.edu
```

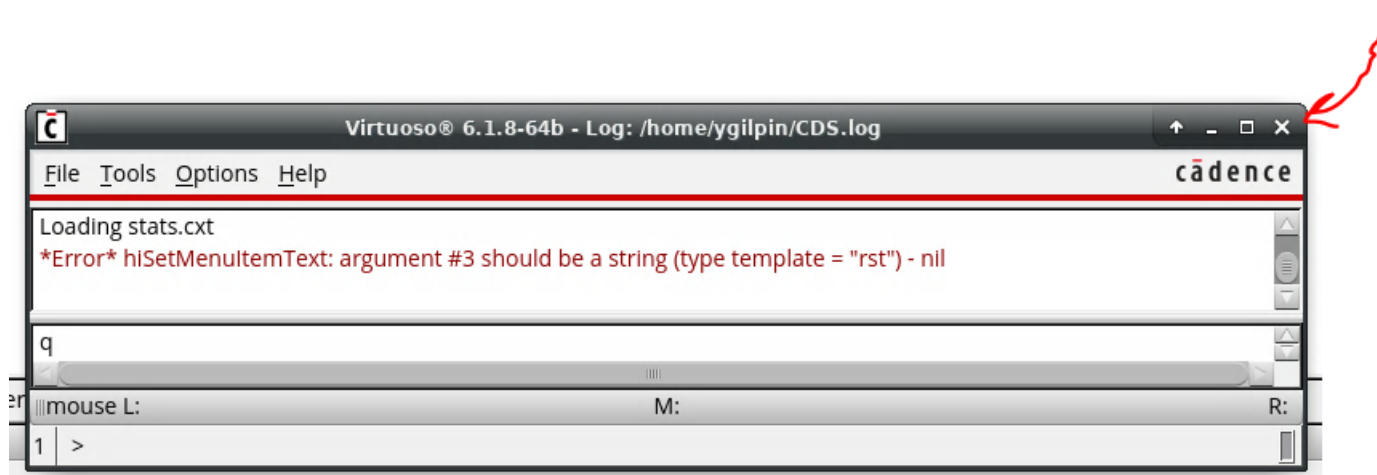
```
$ cd ~/623F23
```

```
$ ./ece623.bash
```

■ Frequently made common mistakes

1. *Permission denied* – This is associated with the server when you forget to periodically call ‘aklog’ commands. Make sure to call the blue commands above every time you renew an old session or start a new one.
2. *File not found* - This is another common problem when you are not in the expected directory. Use ‘pwd’ command to see where you are if you feel lost. Also, you can use ‘ls’ command to list the files of the current directory.
3. We highly recommend that you go through the Linux Basics hand note to familiarize yourself with some common helpful commands

How to close Virtuoso properly



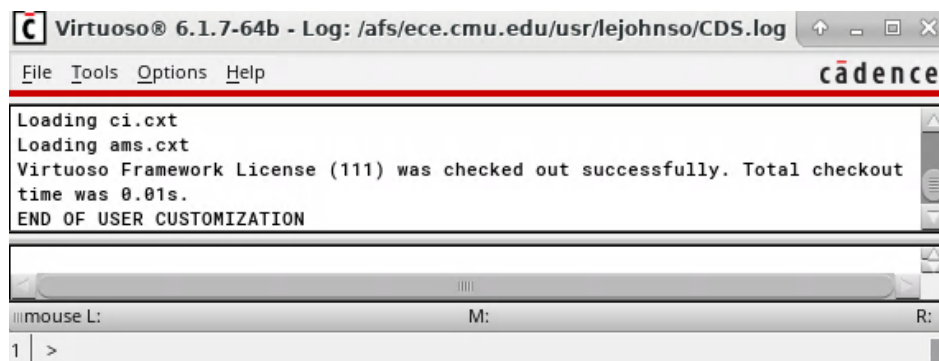
- It's good to restart Virtuoso once a week or so
- To avoid issues with multiple editors, Virtuoso places lock files which it automatically removes when closed properly. If they are not removed, you won't be able to edit and will have to remove them manually (see Linux Pro Tips)

Check List

1. You are in ECE home directory

```
chingyil@ece-gui-000:/afs/ece.cmu.edu/usr/chingyil$ pwd
/afs/ece.cmu.edu/usr/chingyil
chingyil@ece-gui-000:/afs/ece.cmu.edu/usr/chingyil$
```

2. You can open Virtuoso



3. In your “Tools/Library Manager”, you have “gpdk045”

