



# Remote Access Tutorial

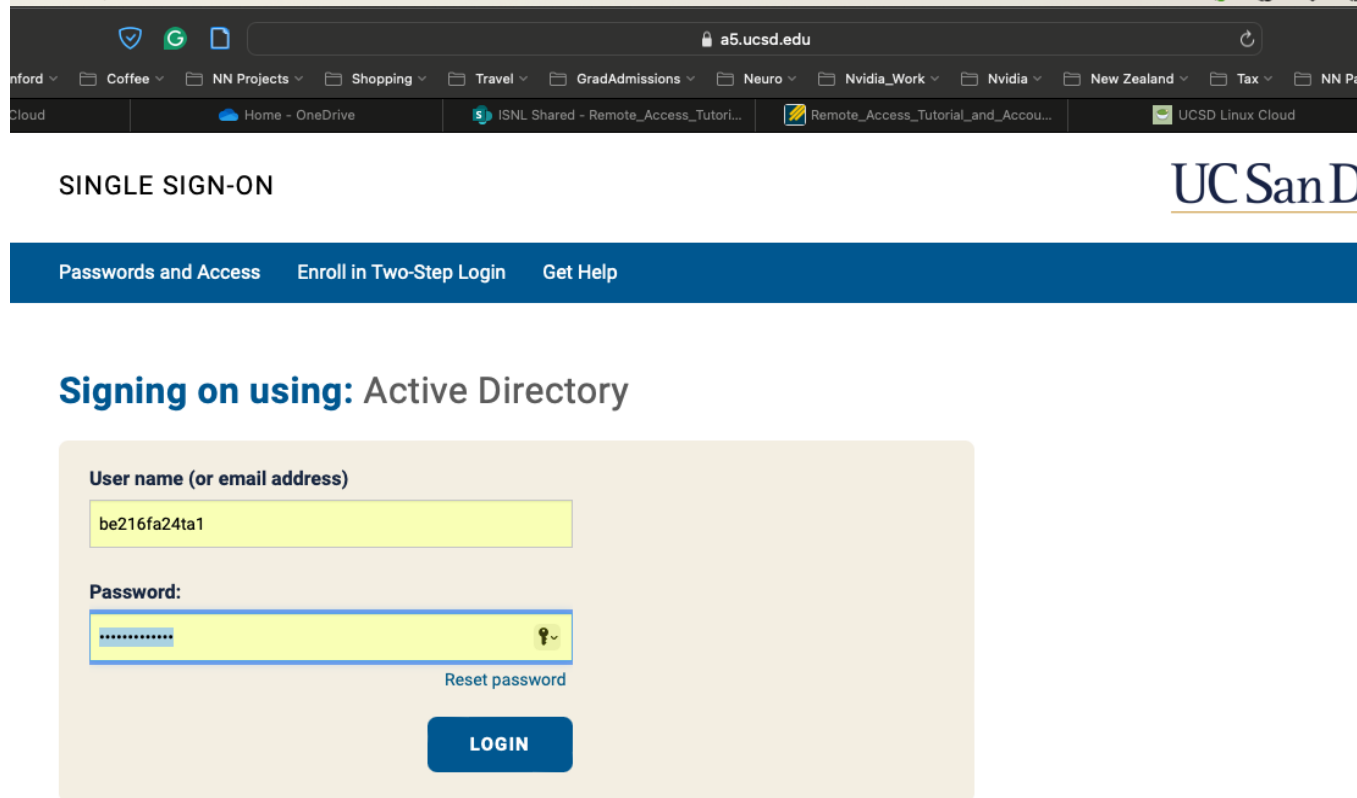
**BENG 216 – Neuromorphic Integrated Bioelectronics**

\*Slides adapted from ECE 165 – Thanks to Prof. Patrick Mercier and his TA team



# Section 1: Remote Access/Login

# Login with your UCSD SSO



The screenshot shows a web browser window with the address bar displaying 'a5.ucsd.edu'. The browser's address bar contains several tabs: 'Home - OneDrive', 'ISNL Shared - Remote\_Access\_Tutori...', 'Remote\_Access\_Tutorial\_and\_Accou...', and 'UCSD Linux Cloud'. The main content area of the browser shows the UCSD SSO login page. At the top, it says 'SINGLE SIGN-ON' and 'UC San D...'. Below this is a blue navigation bar with links for 'Passwords and Access', 'Enroll in Two-Step Login', and 'Get Help'. The main heading is 'Signing on using: Active Directory'. The login form has two input fields: 'User name (or email address)' with the value 'be216fa24ta1' and 'Password:' with a masked password. There is a 'Reset password' link and a blue 'LOGIN' button.

**i** Sign out and close your browser when you're finished.

# Connect to UCSD VPN (optional but recommended)

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You may need to connect to UCSD VPN if not on UCSD network. Follow the steps in the link below to connect to UCSD VPN. You will find information for both Mac and Windows users:

[https://ucsd servicedesk.service-now.com/its?id=kb\\_article\\_view&sysparm\\_article=KB0020109&sys\\_kb\\_id=ad77a860db3ed850a4bc41db13961902](https://ucsd servicedesk.service-now.com/its?id=kb_article_view&sysparm_article=KB0020109&sys_kb_id=ad77a860db3ed850a4bc41db13961902)

# Access Linux Cloud through Browser (preferred)

- Go to <https://linuxcloud.ucsd.edu/>
- Type in the UCSD SSO information  
DO NOT click on login because you need to setup DUO first
- Click on “Enroll your account to Duo here” if you are not already enrolled

UCSD LINUX CLOUD

be216fa24ta1

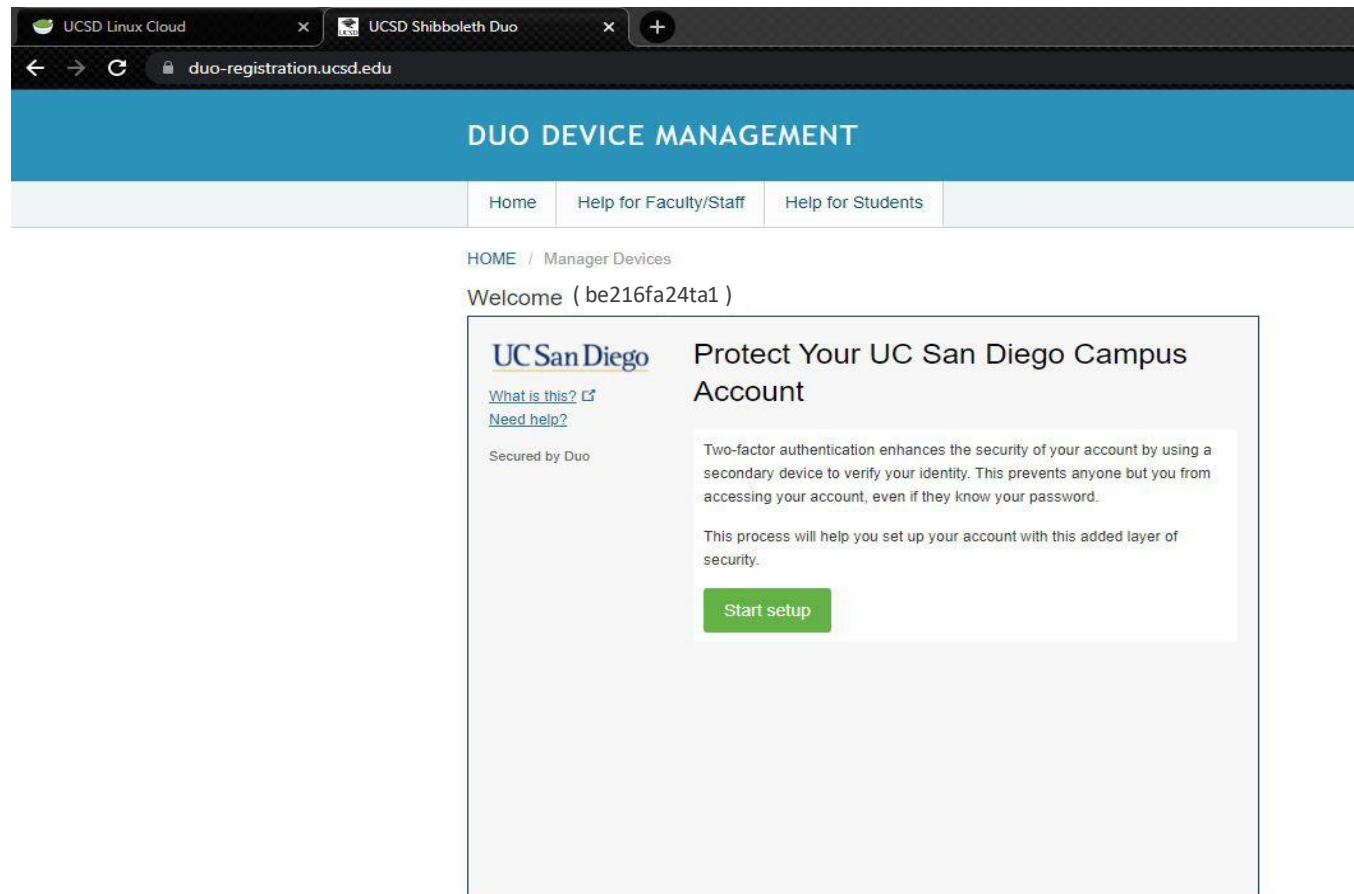
.....

Login

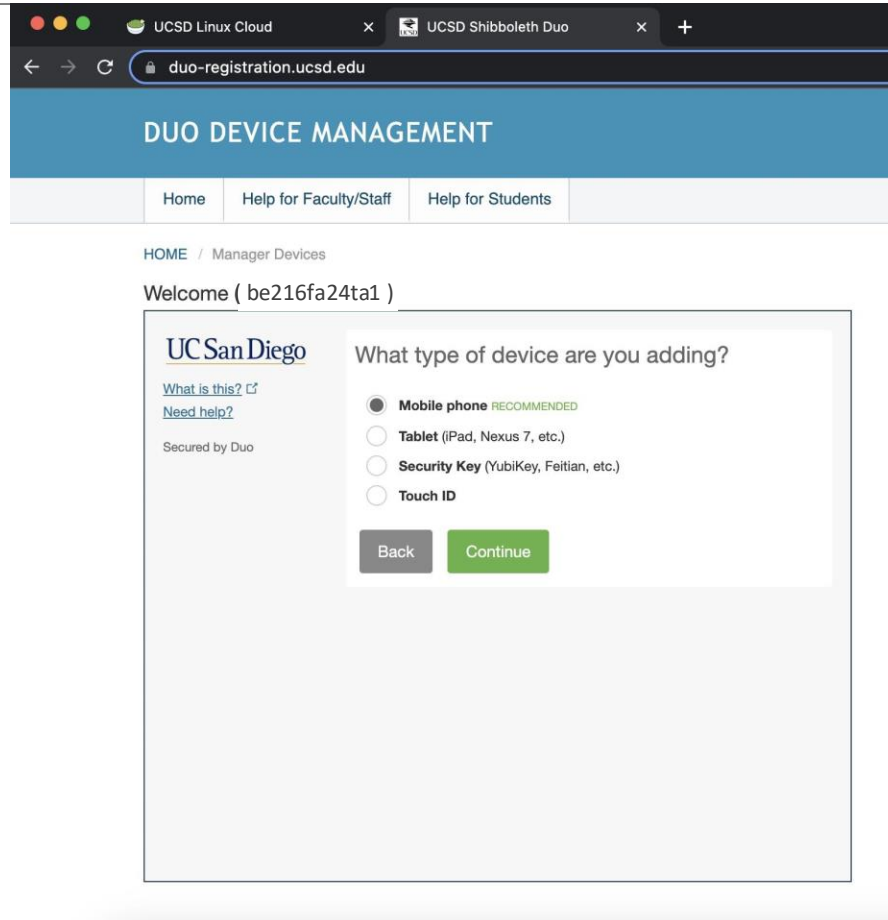
Welcome to UCSD Linux Cloud

Please login with the account you intend to use on the ETS Linux systems. Accounts without access will be denied.  
You may need to use a course specific account instead of your personal account.  
Unsure of which account to use? Please use the [Account Lookup Tool](#).  
All accounts must be registered in Duo. If you receive a "This account is not enrolled" error after login, please [enroll your account in Duo here](#).  
This service is based off Apache Guacamole. You can find a [basic user guide](#) here.

# Click on Start Setup

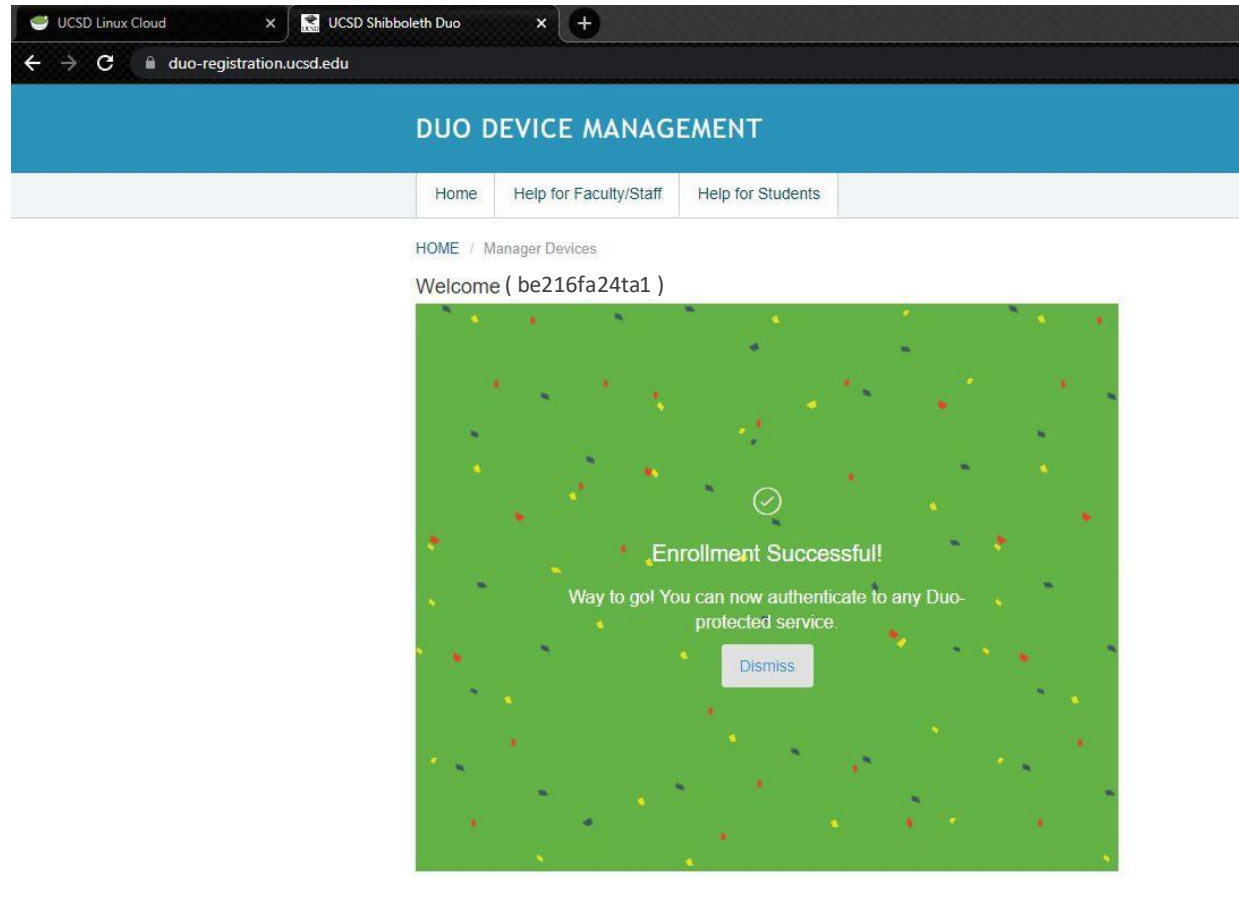


# Choose your preferred device for Duo



Proceed through  
next steps based on  
your choice of login

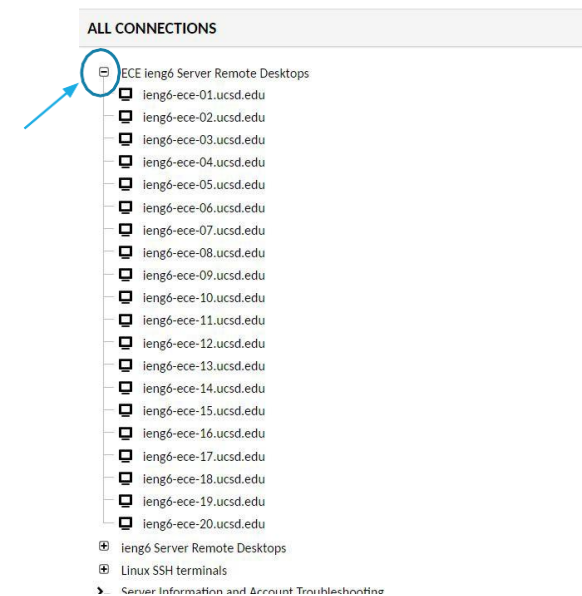
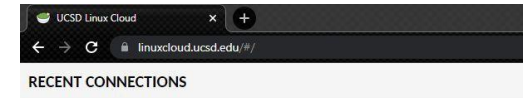
# Yay, your UCSD account is set with Duo



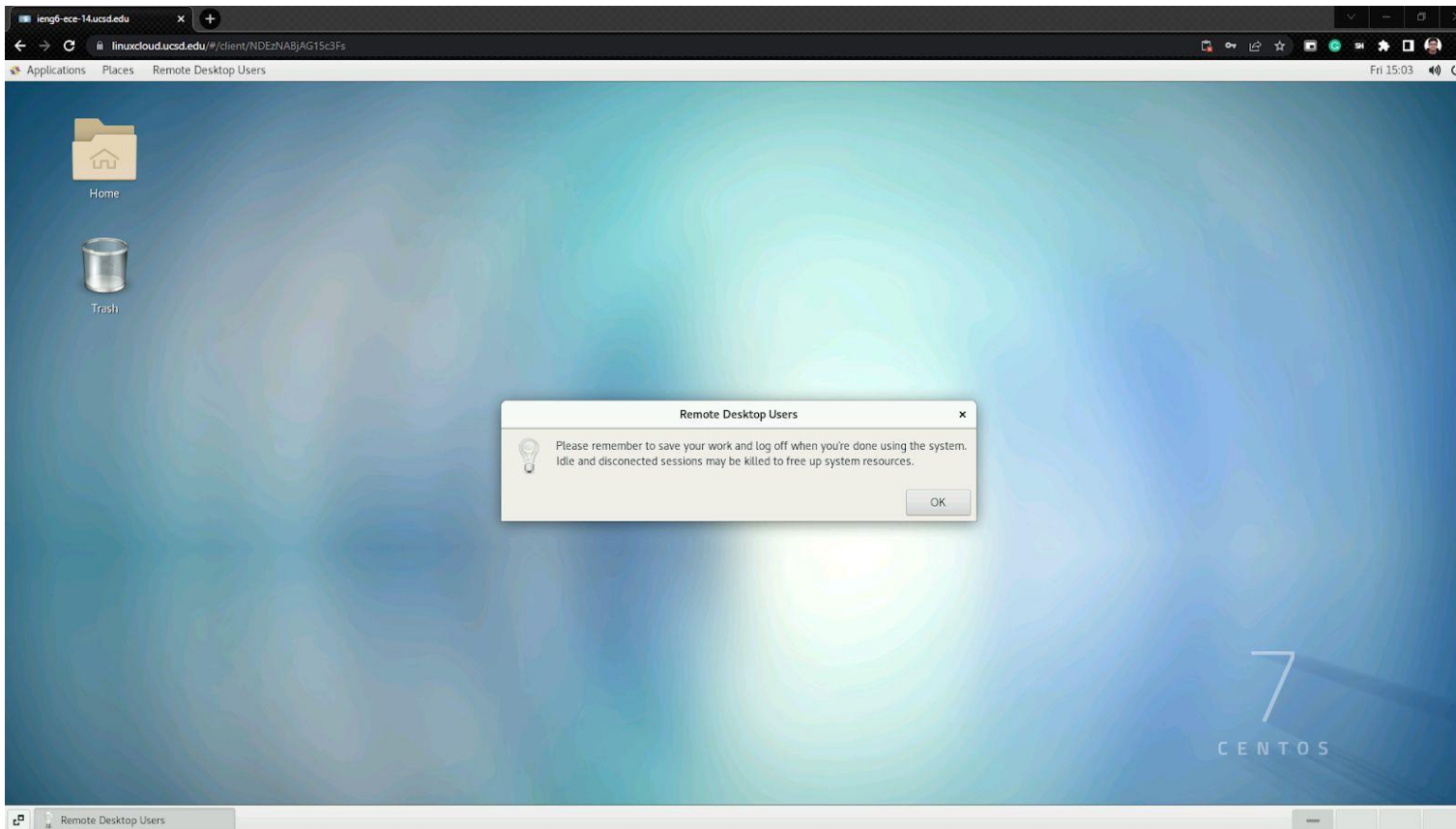


# Back to <https://linuxcloud.ucsd.edu/>

- Login with your UCSD SSO account and it will prompt you for Duo login.
- Once you are logged in, you should see a window as shown in figure. Click on '+' icon under **ieng6-ece Server Remote Desktops**. Select **any one** of ieng6-ece-\*.ucsd.edu servers



# Woo-hoo, you are logged in!



- You may now proceed to do Cadence Tutorials located under Modules on Canvas.
- Remember to logout once you done with your work.
- Whenever you re-login, try to use the same server as before. It should be available under 'Recent Connections' window. If there is any problem, try a different server.



# Alternative For Windows Users (Not preferred)

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Step 1: Setup UCSD VPN connection as in Slide 3 (Mandatory)

## Step 2: Setting up Remote Desktop Connection

- To connect remotely to campus computer, follow the instructions in the link below.  
<https://blink.ucsd.edu/technology/network/connections/off-campus/remote-desktop.html#Using-a-home-Windows-7-/10-comp>
- The same link also has some troubleshoot guidelines that could be of help



# Alternative For Windows Users (Not preferred)

## Step 3: Connecting to the ieng6-ece servers

- In the Remote Desktop Connection app choose the computer as 'ieng6-ece-**XX**.ucsd.edu' (**XX is any number from 01 to 20**)
- Connect with your username to enter into the desktop environment. Here, enter your password.

(Skip to slide 16 for FAQs)





# Alternative For macOS Users – ssh & X-forwarding (Not preferred)

Step 1: Setup UCSD VPN connection as in Slide 3 (Mandatory if not on UCSD network)

Step 2: Check if you have ssh and X-Forwarding installed. See instructions on how to enable X-Forwarding here: <https://docs.cse.lehigh.edu/xforwarding/xforwarding-mac/>

Step 3: ssh -X [be216fa24\\*\\*@ieng6-ece-##.ucsd.edu](https://docs.cse.lehigh.edu/xforwarding/xforwarding-mac/) where \*\* is your specific account and ## is a number between 01 and 20

```
> ssh -X be216fa24ta1@ieng6-246.ucsd.edu
(be216fa24ta1@ieng6-246.ucsd.edu) Password:
Last login: Wed Aug 21 14:54:37 2024 from bioe-25-173.ucsd.edu
Hello be216fa24ta1, you are currently logged into ieng6-246.ucsd.edu

You are using 0% CPU on this system

Thu Aug 22, 2024 1:01pm - Prepping be216fa24
Currently Loaded Modulefiles:
  1) modules                4) tex                    7) my                    10) nonrdist64           13) x11                  16) cadence-xcelium2303
  2) acms-aliases           5) mutt                   8) common64             11) matlab-64            14) cadence-pegasus231  17) calibre-2021.4
  3) acroread               6) pine                   9) common                12) gcc64                15) cadence-spectre231  18) cadence-ic618.83
[be216fa24ta1@ieng6-246]:~:101$
```



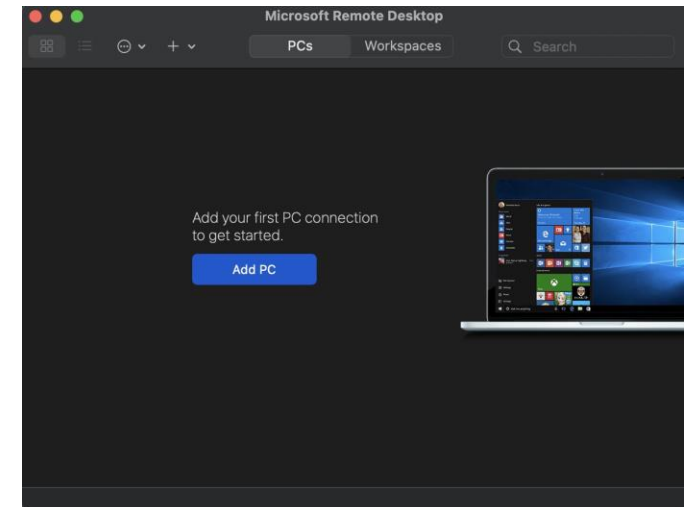
# Alternative For macOS Users – Remote Desktop (Not preferred)

Step 1: Setup UCSD VPN connection as in Slide 3 (Mandatory)

Step 2: Setting up Microsoft Remote Desktop

- Download Microsoft Remote Desktop which can be found in the app store

For more information regarding remote desktop access, [https://blink.ucsd.edu/technology/network/connections/off-campus/remote-desktop/index.html#Remote-Access-Protocol-\(RDP\)](https://blink.ucsd.edu/technology/network/connections/off-campus/remote-desktop/index.html#Remote-Access-Protocol-(RDP))

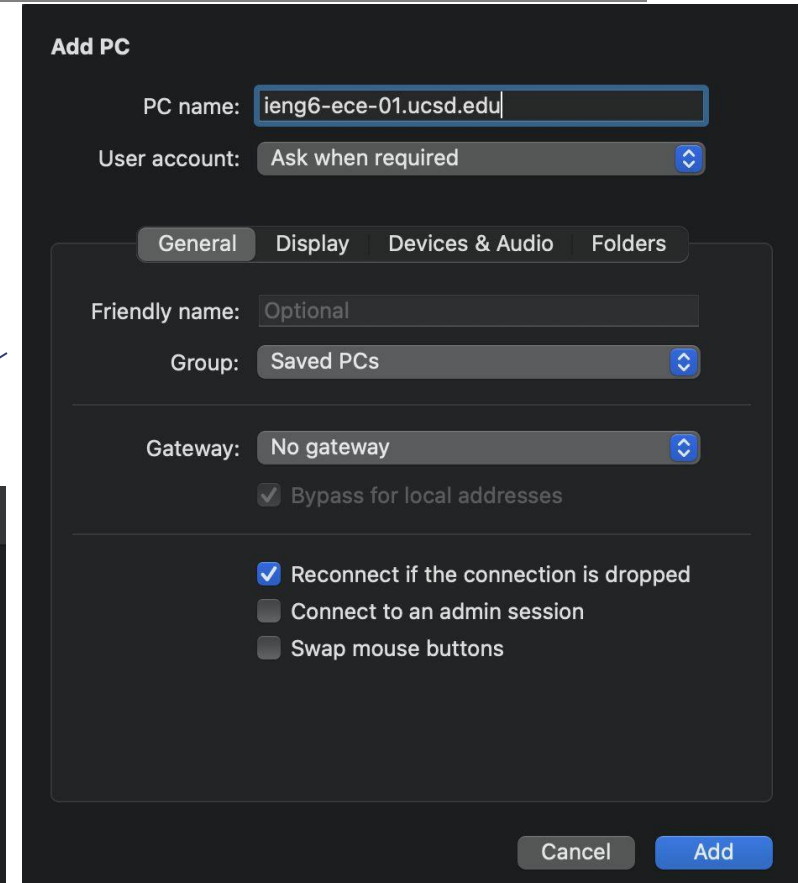
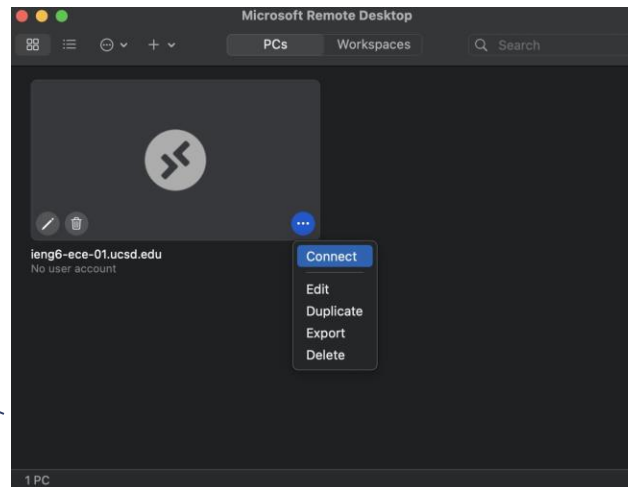
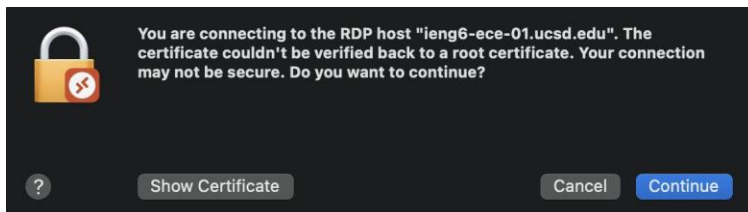




# Alternative For macOS Users – Remote Desktop (Not preferred)

## Step 3: Connecting to the ieng6 servers

- In the Microsoft Remote Desktop app, select **Add PC**. Choose the PC name as 'ieng6-XX.ucsd.edu' (**XX is any number from 240 to 253**) and click **Add**.
- Select **Connect** as shown in the bottom right image. When prompted, enter your username and password.
- If the below message appears on your screen, select **Continue** and you will enter into the Desktop Environment





## Section 2: Launching Cadence Virtuoso



# Launching Virtuoso

Once you are successfully connected to the remote machine, there are some extra steps for when you use your account for the first time. See this linux commands cheatsheet for some basic commands to get started - <https://www.geeksforgeeks.org/linux-commands-cheat-sheet/>

Step 1: Open Terminal. Right click anywhere on the screen > Open Terminal

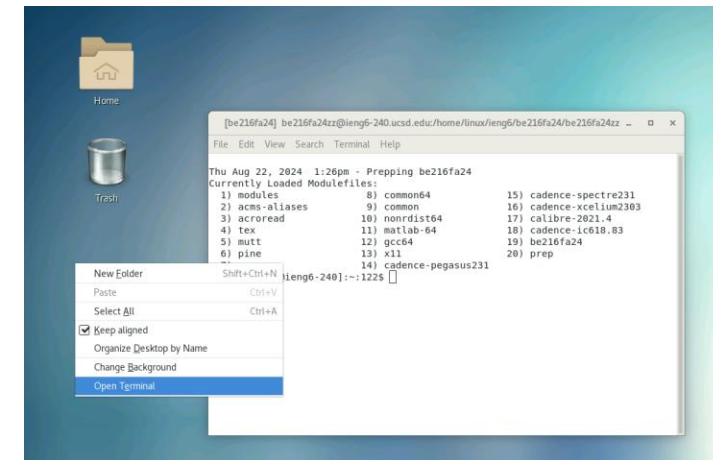
Step 2: For the course specific setup, type the course name [be216fa24]

Step 3: Once you do that, you should see a folder called be216fa24\_setup and within that folder the configuration files cds.lib, display.drf, .cdsinit and .cdsenv

If not, see *FAQ: Issues with config files*

```
[be216fa24zz@ieng6-240]:~:123$ ls
CDS.log.1 Desktop Downloads Pictures Templates be216fa24_setup test1
CDS.log.2 Documents Music Public Videos perl5
```

```
[be216fa24zz@ieng6-240]:~:127$ ls -l be216fa24_setup/
total 140
-rw-r-xr-x 1 be216fa24zz ieng6_be216fa24 204 Aug 21 14:00 cds.lib
-rw-r-xr-x 1 be216fa24zz ieng6_be216fa24 129234 Aug 19 15:48 display.drf
```



# Launching Virtuoso

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If all of the config files exist and are correctly defined, cd into the folder and start virtuoso using the following command:

- `cd be216fa24_setup`
- `virtuoso &`

```
[be216fa24zz@ieng6-248]:~:127$ cd be216fa24_setup && virtuoso &  
[1] 27787
```



# FAQs



# FAQs – Black Screen/ Windows

## Why am I seeing a black screen?

There are a couple of reasons why this happens, i.e. the computer you are accessing is overloaded or it is misconfigured. When this happens please wait for a while as it might take some time for the desktop environment to be loaded. Or try a different server.

## Do I need windows 10 pro to run remote desktop?

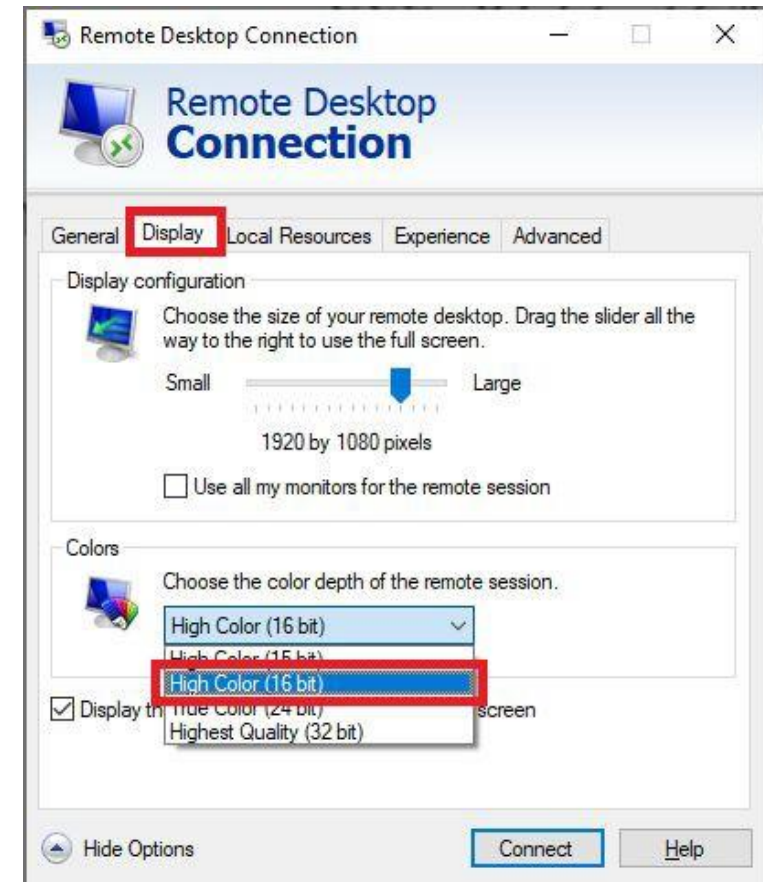
The remote desktop option in the settings app is an advanced tool which we don't need. Windows also has an app named 'remote desktop connection' which is available in all the editions. This is the app we will be using.





# FAQs – Display Errors

- You've logged into one of the servers and try to launch virtuoso and see the following ERROR message: "Display XX doesn't support 24-bit, 16 bit or 15-bit true color needed to run this application. Please reconfigure X server with an appropriate visual".
- This usually means that the settings in your Remote Desktop Application need to be changed. One solution that has worked has been to change the color depth. You can do so by going to "Show Options" -> "Display" -> "Colors" -> "High Color (16-bit)" as shown below (for Windows). On a Mac you could also try changing the resolution (Preferences->Resolutions).



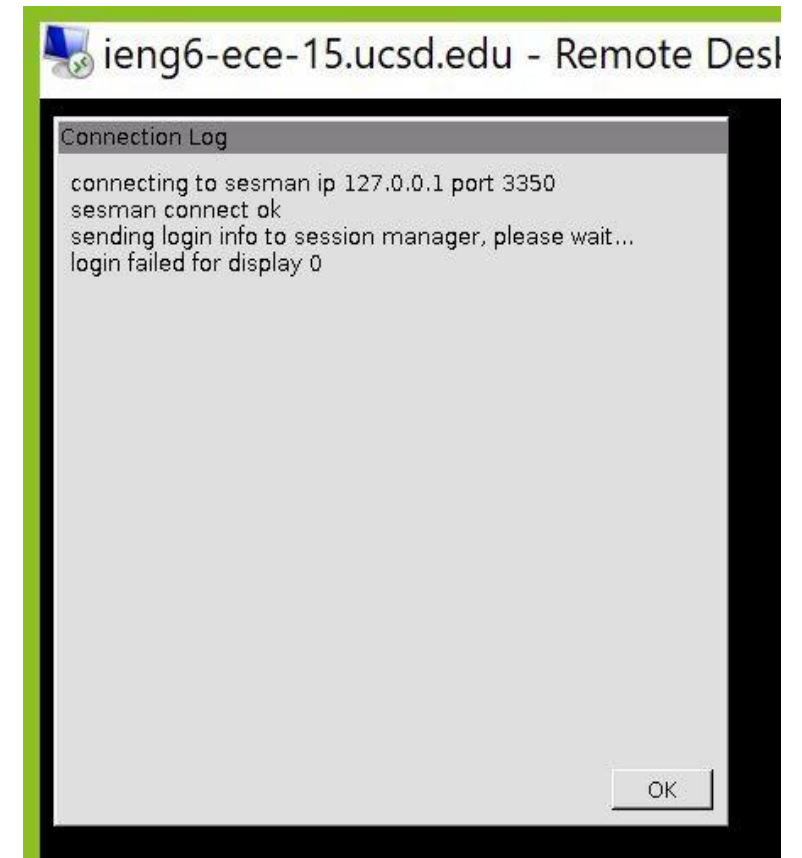


# FAQs – Login Issues

## Login Issues

Some students have not been able to connect to the servers with their course username and password. You may see this error message after entering your password.

- First, please use the account lookup tool to make sure you are using the right username (<https://sdacs.ucsd.edu/~icc/index.php>)
- Second, try using a different server (ieng6-XX.ucsd.edu where XX is from 240-253).
- Third, if you see the error message, try to click ok and wait for a minute or two. It might prompt you for a password again.
- Lastly, if you have tried the previous suggestions, you could try changing your password here:  
<https://sdacs.ucsd.edu/~icc/password.php>  
Some students have reported that changing their password helped.





# FAQs – Issues with config files

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If somehow any of these files are still missing, make sure you ran `ls -la` and not just `ls`. If they are still missing, you can copy them directly as below.

```
$ ls -la
[...]
```

>	-rwxr-----	1	be216fa24	ieng6_be216fa24	[...]	.cdsenv
>	-rwxr-x---	1	be216fa24	ieng6_be216fa24	[...]	.cdsinit
>	-rwxr-----	1	be216fa24	ieng6_be216fa24	[...]	cds.lib

```
[be216fa24zz@ieng6-240]:be216fa24_setup:142$ pwd
/home/linux/ieng6/be216fa24/be216fa24zz/be216fa24_setup
[be216fa24zz@ieng6-240]:be216fa24_setup:142$ cp ../../public/config_files/cds.lib .
[be216fa24zz@ieng6-240]:be216fa24_setup:143$ cp ../../public/config_files/display.drf .
[be216fa24zz@ieng6-240]:be216fa24_setup:144$ cp ../../public/config_files/.cdsinit .^C
[be216fa24zz@ieng6-240]:be216fa24_setup:144$ cp ../../public/config_files/.cdsenv .
```



# FAQs – Issues with config files

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The *cds.lib* file contains paths to all the circuit libraries we will use (and more), including the SKY130 PDK libraries. You can think of this as a PATH for Virtuoso® for where it should look for any of the circuits and components you will need.

The *.cdsinit* and *.cdsenv* files are essential for Virtuoso® to be able to configure itself correctly for our chosen PDK. As you become more familiar with the Virtuoso® environment, you can also use these files to customize the environment, such as setting default values for certain options.

Copy this tutorial's library files from the *public* directory into your current directory '.', which we assume is your home directory `be216fa24zz_setup`. If you had navigated away, you can return home with `> cd ~/be216fa24zz_setup` or `> cd $HOME/be216fa24zz_setup`