

# Virtual Access to the Mathematics PC Laboratory Using Windows

## 1 Requirements

To access your Linux account, you need a computer with Internet access and two programs—PuTTY and VNC. For Windows users, these programs can be downloaded from

`http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html`

and

`http://www.realvnc.com/download.html`

Installing each of these is as simple as downloading them to your desktop. For the first program, you want to obtain `putty.exe`, while for the second you want the free edition for Windows (executable).

## 2 Using PuTTY and VNC

Here is a quick overview of the steps involved:

- Use PuTTY to establish a remote connection to the server, `mathvnc.eiu.edu`, logging on to your Linux account.
- Start the `vncserver` program on `mathvnc.eiu.edu` and log off your Linux account.
- Use PuTTY to establish “tunneling” between your computer and the `mathvnc` server.
- Start VNC, allowing you to interact with your Linux desktop.
- Complete your Linux session, closing the desktop when finished.
- Return to your PuTTY session, close the `vncserver` program, and exit.

These steps are explained in more detail in sections 2.1–2.6.

### 2.1 Establish a Remote Connection

By starting the PuTTY program, you should see a window similar to Figure 1. Ensure that the protocol is set to SSH, enter `mathvnc.eiu.edu` for the *Host Name*, then click on the **Open** button.<sup>1</sup> A terminal window will appear, as shown in Figure 2, allowing you to login to your Linux account. Use your Linux login id and password.

### 2.2 Start vncserver

After you have logged in, enter the Linux command:

```
vncserver
```

In response, the system will indicate a new X desktop has been created. For example, Figure 3 shows:

```
New 'X' desktop is OLDM-020010:3
```

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<sup>1</sup>You may receive a security alert from PuTTY the first time you make this connection. You can click on the **Yes** button in the dialog box to avoid subsequent warnings.

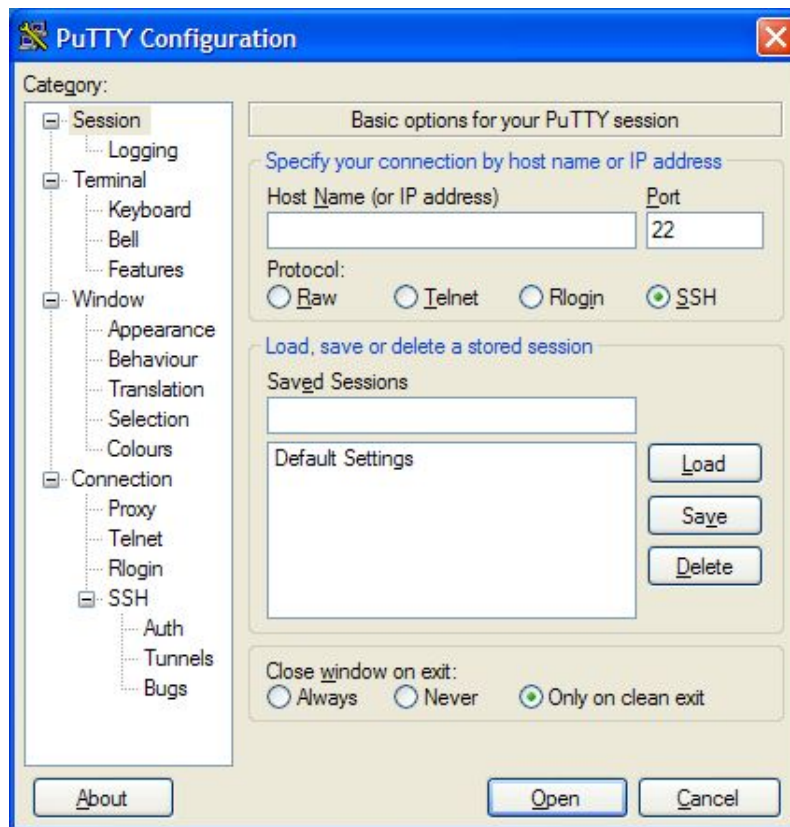


Figure 1: PuTTY configuration window.

which indicates the new desktop is assigned the number 3. Your output may be slightly different. I obtained

```
New 'X' desktop is mathvnc:1
```

which indicated that my desktop number was 1. (This number can be any value between 1 and 20.) **In any event, take note of this desktop number, as it will be needed in the next step.**

Log out of your Linux account by entering:

```
exit
```

in the terminal window.

### 2.3 Establish Tunneling

Launch PuTTY a second time. Before opening `mathvnc.eiu.edu`, however, we are first going to establish what is known as a “tunnel.” To do this, recall the desktop number that was provided by `vncserver`. To this number, add 5900. (You will thus have a number between 5901 and 5920.) In our example, this yields 5903, since the desktop number was 3. We refer to this number as the *port*.

As Figure 4 shows, the PuTTY window has a *Tunnels* option under *SSH* in the *Connection* category. To establish tunneling, select the *Tunnels* option, then:

- Enter the port (5903 in our example) in the *Source port* box.

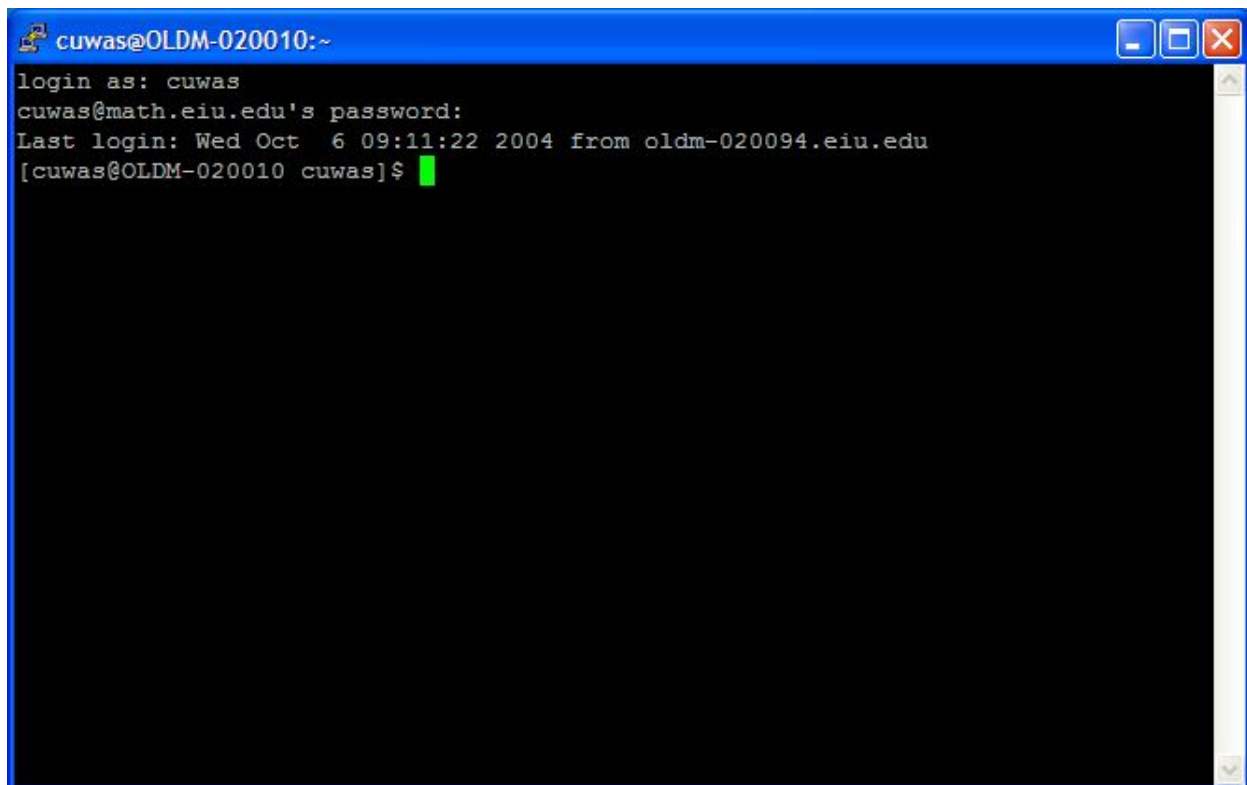


Figure 2: PuTTY window after successful login.

- Enter `mathvnc.eiu.edu:59xx` (using the port number in place of `59xx`) in the *Destination* box.
- Click on the *Add* button. The result will be similar to Figure 5.

Click on the *Session* category, connect to `mathvnc.eiu.edu` and login as described in Section 2.1, providing your Linux user name and password. Do not close this terminal window yet.

## 2.4 Start VNC

From your computer, start the VNC viewer application by clicking on its icon. The first time you logon there will be a short setup routine to go through. Accept all default values. For the server, enter:

```
localhost:59xx
```

(using the appropriate port number you used before). Figure 6 shows the VNC window.

Click on OK, then enter your Linux user name and password as requested. If everything goes well, you should now see your Linux desktop.<sup>2</sup>

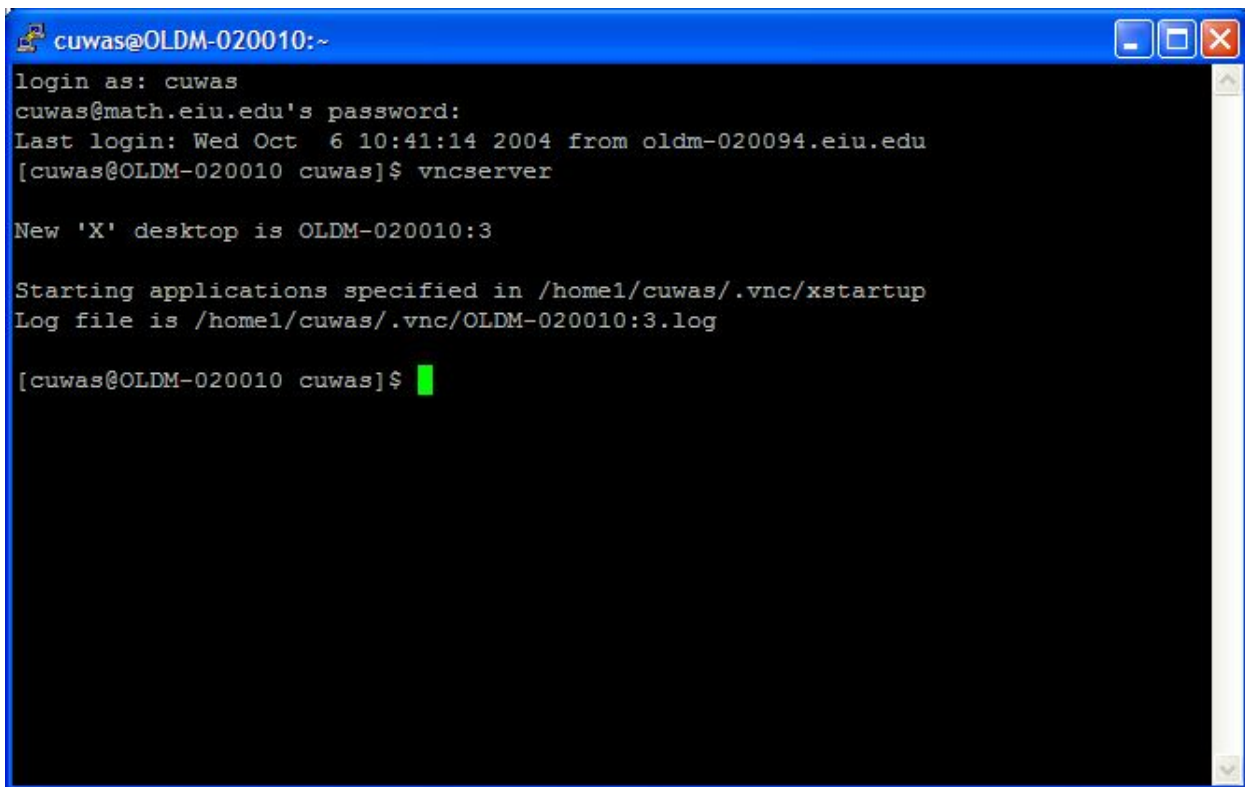
## 2.5 Complete Your Linux Session

For all practical purposes, interactions on this desktop act as if you were in the Old Main lab. You can open a terminal window, change directories, edit files with `emacs`, compile and run your C++ programs, and so forth.

If you try to print anything, however, note that the results will appear in the lab!

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<sup>2</sup>You may see several warnings from the KDE window manager, but these can be safely ignored.



```
cuwas@OLDM-020010:~
login as: cuwas
cuwas@math.eiu.edu's password:
Last login: Wed Oct  6 10:41:14 2004 from oldm-020094.eiu.edu
[cuwas@OLDM-020010 cuwas]$ vncserver

New 'X' desktop is OLDM-020010:3

Starting applications specified in /home1/cuwas/.vnc/xstartup
Log file is /home1/cuwas/.vnc/OLDM-020010:3.log

[cuwas@OLDM-020010 cuwas]$ █
```

Figure 3: PuTTY window after starting VNCserver. Note the X desktop number 3.

## 2.6 Close vncserver

When you are finished working, you can close your Linux desktop by just closing the VNC window it appears in.

The only thing left to do is to stop the `vncserver` session you started and log off your account. Returning to the PuTTY terminal window, the appropriate commands are:

```
vncserver -kill :3
exit
```

In this example, we are stopping the `vncserver` session that produced desktop 3, as shown in the previous examples. For other sessions, use the appropriate desktop number.

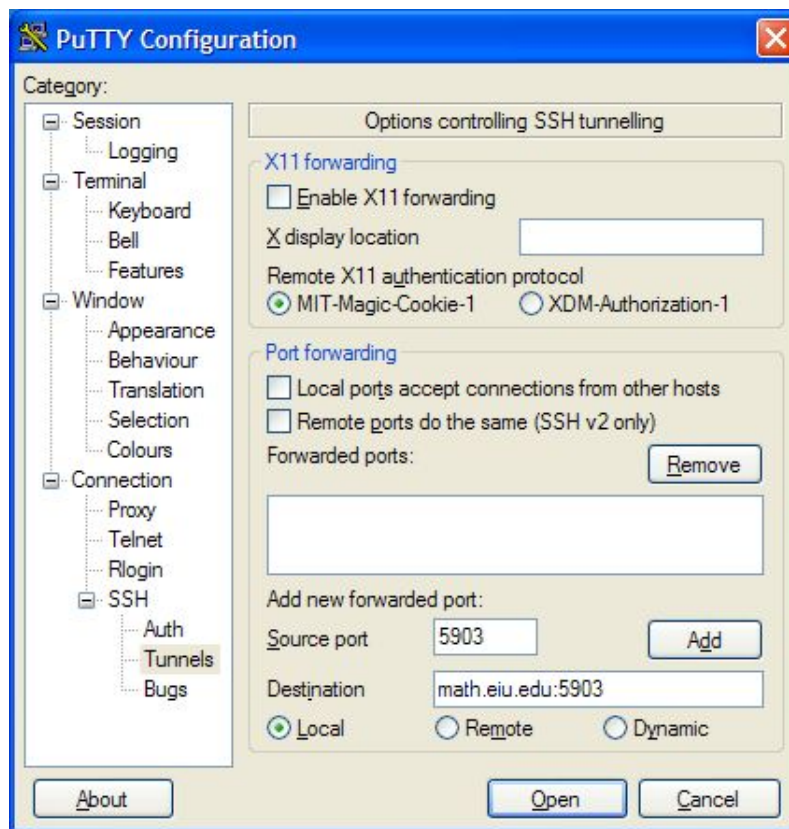


Figure 4: Setting up Tunnels with Putty.

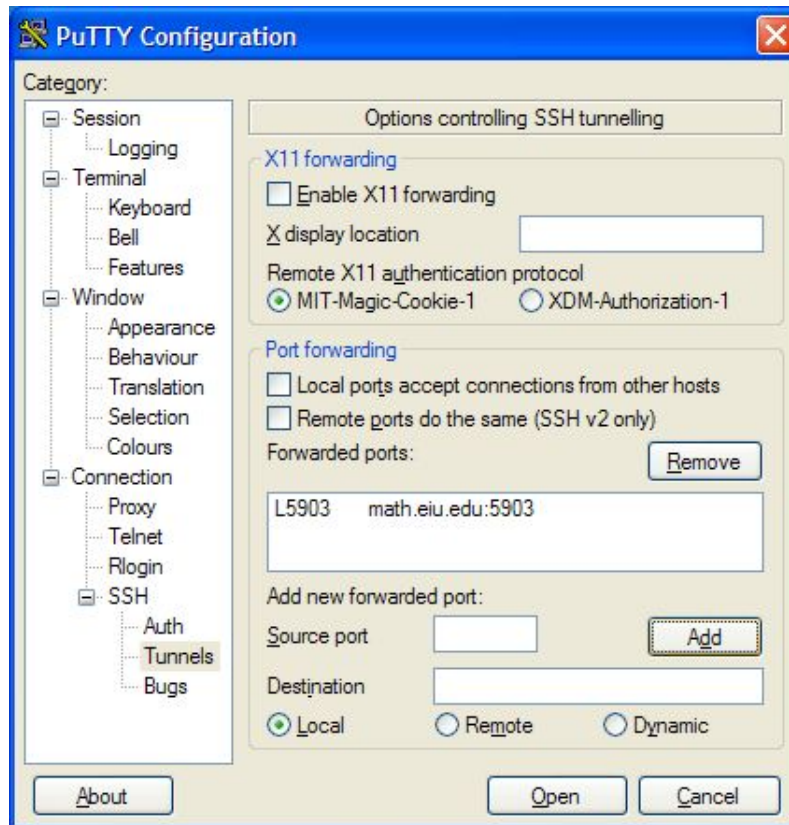


Figure 5: PuTTY window after setting up Tunnels.

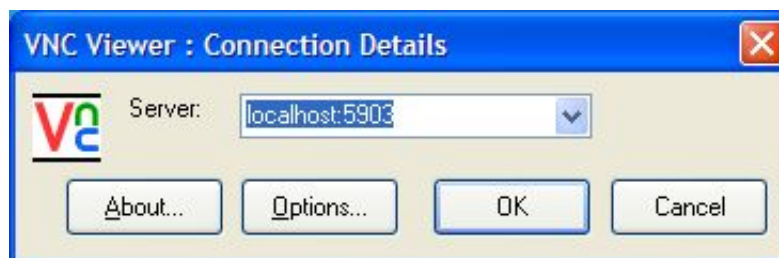


Figure 6: VNC window.