

How do I run graphical programs remotely from a Linux server?

It is common for users of the SoIC Linux systems to want to run graphical applications (such as matlab, mathematica, eclipse, etc) on these Linux servers and display them on their local computers. This document details the steps required to do this for Mac, Windows, and Linux systems.

Mac OS X

1. Install [XQuartz](#) on your Mac, which is the official X server software for Mac
2. Run Applications > Utilities > XQuartz.app
3. Right click on the XQuartz icon in the dock and select Applications > Terminal. This should bring up a new xterm terminal windows.
4. In this xterm windows, ssh into the linux system of your choice using the -X argument (secure X11 forwarding). For example, to log into hulk.soic.indiana.edu you would run something like:

```
ssh -Y username@hulk.soic.indiana.edu
```

5. Once you are logged into the linux system, you can just run the GUI program of your choice (ie. matlab, mathematics, etc) and it will display on your Mac.

Windows

1. Install the [Xming](#) software.
2. If you have not already done so, [download putty.exe](#) from the [PuTTY site](#) and install it.
3. Run Xming on your PC to start the X server. You should see the Xming icon in the taskbar if it is running (although you may have to click the little arrow in the taskbar to see it)
4. Run PuTTY and set things up as follows:

- Enter the server name in *Host Name*
- Make sure the *Connection type* is set to SSH
- Enable X11 forwarding (Connection > SSH > X11)

5. Log in using your normal IU username and passphrase
6. Once you are logged into the linux system, you can just run the GUI program of your choice (ie. matlab, mathematics, etc) and it will display on your PC.

Linux

1. ssh into the linux system of your choice using the -Y argument (secure X11 Forwarding). For example, to log into hulk.soic.indiana.edu you would run something like:

```
ssh -Y username@hulk.soic.indiana.edu
```

2. Once you are logged into the remote linux system, you can just run the GUI program of your choice (ie. matlab, mathematics, etc) and it will display on your Mac.

Alternate Method Using VNC

It is also possible to run graphical programs remotely using VNC. This is a popular tool that lets you run a VNC server on the remote linux server and connect to it using a VNC client on your local system. There is more information about this option in [Using VNC via ssh tunneling](#).

Alternate Method Using Research Desktop (RED) at IU

If you have an account on the [Carbonate system](#) you can also use [Research Desktop \(RED\) at IU](#). This allows you to get a graphical desktop on the Carbonate system and, from there, you could use "ssh -Y" to connect to some other remote linux system and run your GUI programs from there.

Alternate Method Using RDP

The methods listed above are recommended because they put the least amount of load on the servers and should provide adequate performance. However, there is an alternate method using RDP (Remote Desktop) that will work on some of our Linux servers. For those systems you can connect using the native Remote Desktop client (Windows), the Microsoft Remote Desktop App (Mac OS X), or either `xfreerdp` or `rdesktop` (Linux). You will get a full GUI desktop using this method so you can start any GUI application you need. The downside of this approach is that since you are running a full GUI desktop it puts much more load on the server and your performance may suffer. For that reason, we urge you to use the above OS-specific methods and only use RDP as a last resort if those do not work for you.