

# X Graphics Info

## X Server Software Info

### What is an X Server:

This is a program that runs on your workstation/desktop OS that 'listens' for X-Window transmissions sent from the cluster and redisplay these on your workstation. These transmissions are generated by an application running on a host that you are connected to. For example, if you intend to use Ansys on the cluster, you need to display the Ansys gui interface locally on your desktop.

### What is the best supported option for users?

Contact via email [tts-research@tufts.edu](mailto:tts-research@tufts.edu) with your request for X11 support. Someone will get in touch with you to make arrangements for assessment and possible installation.

### What X server is needed for Windows desktops?

There are many free and commercial X server programs. Cygwin is one of the free choices that works but has a more involved installation. Commercial options include [Exceed](#), [XWin32](#).

## Cygwin X server for Windows

### If I want to install Cygwin myself, where do I get Cygwin?

A&S Cygwin installation documentation can be obtained [here](#) under the X11 section.

### What Cygwin programs do I install?

At a minimum, install base Cygwin, OpenSSH, and OpenGL.

### What X-server solution is recommended?

Contact via email, [staff@asunix.tufts.edu](mailto:staff@asunix.tufts.edu) with your request for X11 support.

### How do I connect to the cluster using Cygwin?

Open an Xterm window and connect with ssh to the head node of the cluster:

```
> ssh -Y -C yourusername@cluster6.uit.tufts.edu
```

### How can I make sure Cygwin is working with the cluster?

To test the cygwin X server, try a simple cluster-side X-window application:

```
> xclock
```

A clock should appear on your desktop.

## Mac X11

### What X server is needed for a Mac?

An X server is either provided with Mac OS X (X11 in newer versions) or when you install the Mac X development tools (older versions).

### How can I check to see if my X server is working on my Mac?

Open up the terminal application on the Mac. At the command line type xlogo. If a small window shows up with an X in it you know X11 is working.

### What happens if that doesn't work?

At the command line type xterm to start up the x11 specific terminal. If a second terminal window shows up, try the xlogo command. This will indicate that you have X installed.

### What if X11 is not installed on your Mac?

Depending on the version of the operating system it is available from the installation DVD. For latest releases of OS X it is available from [xquartz.macosforge.org](http://xquartz.macosforge.org) as a package. You may also try Apple App Store.

### How do I test my installation and cluster X connection?

Once you login to the cluster, type xlogo at the command line just like you did locally on the Mac. If a window with an X shows up you know X11 between the Mac and the cluster is working.

## Linux X info

### What X server is needed for a desktop linux user?

Linux distributions come with Xwindows which provides X server support.

#### **How can I tell if X11 port forwarding is set up?**

One way you can easily verify if X11 forwarding is set up properly is to execute the following when logged into the cluster:  
> echo \$DISPLAY

If X11 forwarding is set up properly then this command should display a string like "tunic6.uit.tufts.edu:xx.0". Where xx is a number, perhaps 10, 11, 12, etc... If X11 forwarding is not set up properly then it will just return a blank line.

#### **Sometimes I get X11 related errors about the .Xauthority file, what to do?**

All accounts have home directories with 500mb quotas. If you are near the limit and try to login or use X based software, you may not be able to. Clean up by deleting some files, also delete the .Xauthority file, logout and back in and you should be all set.

#### **How does one submit a job using as input an interactive program that has a gui but not support for unattended batch submissions?**

There is a command called **xvfb-run** that is an xwindow virtual frame buffer. This creates an environment for the program to run the gui unattended.

For example, it is convenient to use the Mathematica notebook **.nb** file format as input. However this is done normally in an interactive GUI session. To simulate this X based environment use the **Xvfb** functionality. For example, to submit a job:

```
-bash-3.2$ bsub -q normal_public6 xvfb-run mathematica your_notebook.nb
```

Other programs may benefit as well.

**Note:** consider adding to your mathematica notebook the appropriate save and quit commands at the end. This will ensure proper shutdown of the application.