

X11

So one can run X11 (graphical) apps on the cluster and see the output on your local display, you may need to see one of the below links if you don't already have this configured.

- [X11 for Mac](#)
- [X11 for Windows](#)
- [X11 for Linux](#)

X11 for Mac

MacOS 10.9 and later (11.2 “Big Sur” Working as of 4 March 2021):

1. Upgrade OS to latest available (not always necessary, but usually avoids bugs)
2. Upgrade to (or install) [XQuartz-2.8.5](#)
3. Log out/Log in to your Mac (may not be needed for upgrades from earlier 2.8.0 releases)
4. starting Mac terminal (or x2go, if installed) should trigger xquartz.
5. For OpenGL graphics to work, you may need to turn on indirect GLX by typing the following into your terminal:

```
defaults write org.xquartz.X11 enable_iglx -bool true
```

Troubleshooting:

- If `glxgears` gives the error: “couldn’t get an RGB, Double-buffered visual”, add the following to your GreenPlanet `.bash_profile` or equivalent:

```
export __GLX_VENDOR_LIBRARY_NAME=mesa
```

- If Matlab windows keep blanking out, create a file "java.opts" in your GreenPlanet home folder with the following content:

```
-Dsun.java2d.xrender=false  
-Dsun.java2d.pmosffscreen=false
```

(If you start Matlab from a different folder, the `java.opts` may need to be put there instead.)

Before 10.9, use [XQuartz 2.7.11](#)

- Warning: Some ancient apps may require an even *older* version (2.7.8) of XQuartz due to incompatibilities with “El Capitan” and “Mojave”

X11 for Windows

Here are a list of X Windows servers for Windows

X2Go

Requires an X2Go server on the target server. Creates a full remote desktop connection.

- <https://wiki.x2go.org/doku.php>
- <https://wiki.x2go.org/doku.php/doc:installation:x2goclient>

Note: X2Go is great for overcoming platform specific bugs like requiring certain versions of XQuartz for a given app on macOS

MobaXterm

Terminal / SSH client with X11 support.

- <https://mobaxterm.mobatek.net/download.html>
- <https://mobaxterm.mobatek.net/download-home-edition.html> (select Installer edition)

Note: works great for accessing CentOS/Ubuntu, but haven't fully tested this personally to access X apps on macOS

Cygwin

- <https://x.cygwin.com/>

Note: mileage varies depending on the repo (i.e., if it's not up to date).

XMing X Server

- <https://sourceforge.net/projects/xming/>
- <http://www.straightrunning.com/XmingNotes/>

Windows Subsystem for Linux

- <https://docs.microsoft.com/en-us/windows/wsl/install-win10>

Inspired by <https://statistics.berkeley.edu/computing/x11-forwarding>

X11 for Linux

X2Go

Requires an X2Go server running on the target server. Creates a full remote desktop session.

Client can be installed through the system repos, eg on Ubuntu:

```
sudo apt install x2goclient
```

X11 Forwarding

As long as your current environment supports X11, X11 forwarding can be enabled for an SSH connection using the `-Y` flag, eg:

```
ssh -Y username@gplogin3.ps.uci.edu
```

The forwarding can be tested by running `glxgears`.