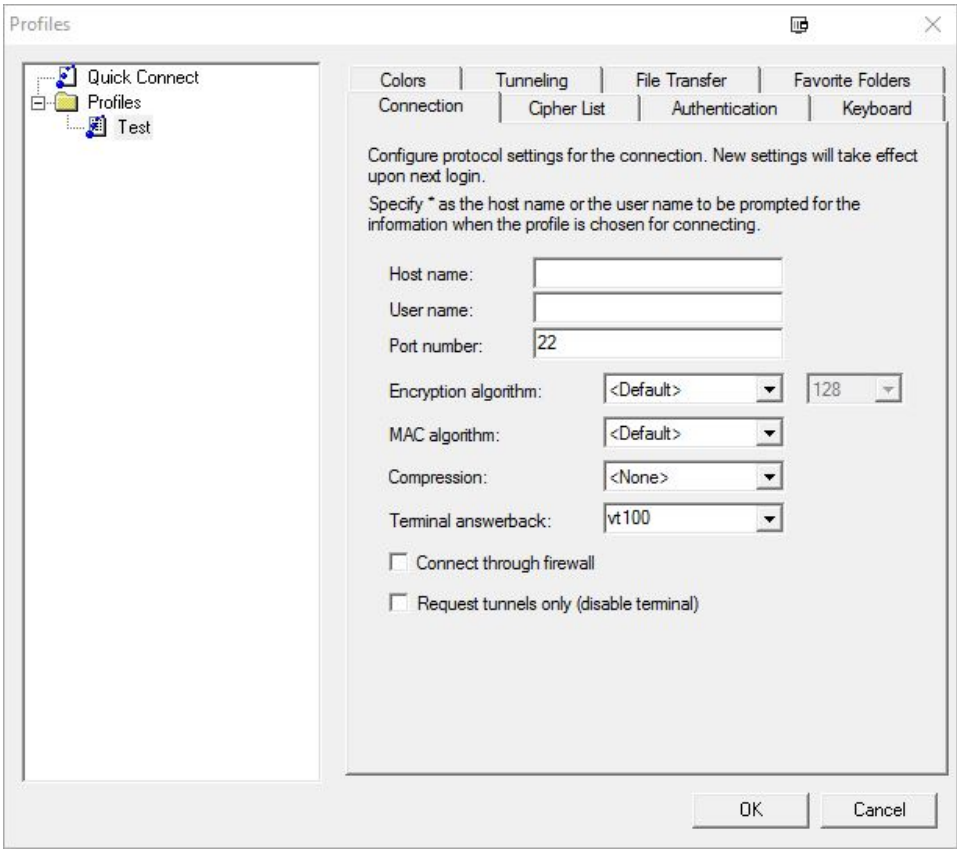
What is an X-Server?

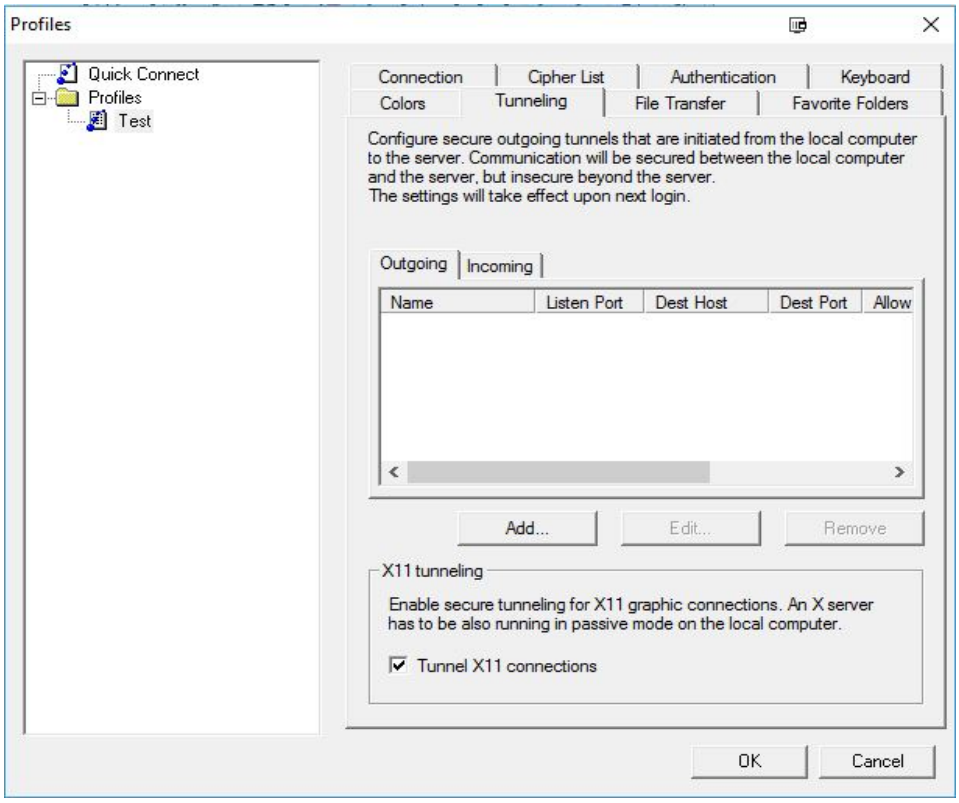
- An X-server allows you to display graphical problems from a UNIX/Linux machine on your local computer.
- Examples of programs with graphical front-ends include Matlab, R, S-Plus, SAS and emacs
- Typically, you would use graphical front-ends only for short calculations or displaying graphs
- This means that you can have graphical interfaces on your machine from computers anywhere in the world. You can view graphs, documents, and programming interfaces from your home or office.
- Wikipedia (http://en.wikipedia.org/wiki/X_server) provides this definition:
    - "X uses a client–server model: an X server communicates with various *client* programs. The server accepts requests for graphical output (windows) and sends back user input (from keyboard, mouse, or touchscreen).

How to use X-Server

- There are two parts to using an X-Server securely, an ***SSH Client*** and an ***X-Server***
- **SSH Client**
    - Versions that are available free for academic can be found here:
        - SSH Client Listings
        - Or via UGA there is: SSH Secure Shell Client
    - Select "Add Profile" from the profile menu, create a name for the profile, and enter the host name and your user name you wish to use.



- After you create a profile, select the tunneling tab and check the “Tunnel X11 connections” box
- Make sure you create a profile for each computer you’ll connect to (rcluster, plot, etc)



- **X-Ming**
  - Download here: https://sourceforge.net/projects/xming/
  - You can accept all the defaults for installing X-Ming
  - Once X-Ming is installed, all you have to do is double click the “X-Ming” icon your desktop
  - Make sure that xming is running: look for the icon in the system tray
  - It looks like an “X”
  - Now just connect to the remote computer and type a command that gives you a graphic interface, such as matlab
    - [jesseb][plot][/home/support/jesseb]:matlab&
  - Notice the ampersand after the command. This gives you the prompt back so you can run other commands

The Hard Way

- Sometimes you won’t have a profile to work with, or you might have to connect a second machine for the first one
- The initial steps are the same: Make sure you have SSH and X-Ming installed, double click X-Ming to start the X-Server, and connect to the host you wish to have graphic output from

- The following basic addition instructions are also located on the GACRC wiki page here: https://wiki.gacrc.uga.edu/wiki/Frequently_Asked_Questions#How_do_I_connect_to_a_GACRC_machine.3F

    - Determine your IP address or host name, i.e., bargmann06.stat.uga.edu or 128.192.7.106
    - On windows, you can start a CMD prompt (Start->Run->cmd) and type “ifconfig” which will tell you your IP address
    - Now you know your IP address. So we need to tell the remote computer what your address is
    - This is set through an “environmental variable” called “DISPLAY”. How you set your DISPLAY variable depends on the shell you’re using (plot is csh, rcluster is bash)
        - **csh/tcsh**: setenv DISPLAY variable hostname.dept.uga.edu:0
        - **sh/bash/ksh**: DISPLAY=hostname.dept.uga.edu:0 ; export DISPLAY
    - You can check to see if your display has been set by typing “echo $DISPLAY”
    - You should see the IP or host name you entered
    - Start your commands!
    - It’s much easier to create a profile and let SSH do the work of setting your environmental variables