

Remote Access to Unix Machines

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Overview

We are using OIT Linux machines for some homework this semester. Therefore, you need to ensure your account is activated, that you can remotely access the machines, and that you become familiar with using Linux to create files, move around the directory (folder) structure, etc. This tutorial is aimed at getting you up to speed on these aspects before the semester starts, so you can hit the ground running.

Machine Names

The machine we will use is login.oit.duke.edu. Note that this machine name provides a load-balanced Linux service. In other words, the machine name references a group of machines running Linux. And users are distributed among machines to reduce congestion.

Remote Access to Machines

Users will access the Linux machines remotely, via the Internet. The main tools necessary for remote access are (i) the secure shell client, (ii) X-windows. The client provides access and the X-windows supports graphic interfaces.

Instructions for Mac OS

First, we download and install X-windows.

1. Download and install Xquartz from <http://xquartz.macosforge.org>.

If you have difficulty with the latest published version (XQuartz2.7.7), consider using the beta version available at the link below. For the more recent versions of Mac OS, using the beta version can address the following issue – “Warning: untrusted X11 forwarding setup failed: xauth key data not generated Warning: No xauth data; using fake authentication data for X11 forwarding.”

http://xquartz.macosforge.org/downloads/SL/XQuartz-2.7.8_beta2.dmg

Next, we turn to the secure shell client, which is built into the Terminal Application on a Mac.

2. Open the Terminal App. You can find Terminal in the Applications/Utilities folder or by searching in Spotlight for Terminal.
3. At the command prompt type `ssh -X netID@login.oit.duke.edu` where *netID* is your Duke *netID*. This command initiates a secure shell connection to the machine login.oit.duke.edu. If this is the first connection that you've made to login.oit.duke.edu, you will receive a warning about the authenticity of the host and

RSA key fingerprint. This is expected behavior for first-time connections. If you typed the machine name correctly, you can just type *yes* and the appropriate information will be added to your local machine, and you shouldn't see the error again on subsequent connections to this same machine.

4. Enter your password. Note that neither characters nor ******* appear as you type. If login fails, you may have to try again.

You are now successfully connected to a remote machine over the Internet. Go to the "At the remote machine command prompt" section after the Windows instructions.

Instructions for Windows

1. Download and install x-win32 from the OIT software website at <https://software.oit.duke.edu/comp-print/software/>
You should be sure to download the latest version and follow the instructions in the PDF for licensing. If you want to use X-Win from off campus you should use the Activation License not the License Server.
2. Download and install PuTTY from the OIT software website <https://software.oit.duke.edu/comp-print/software/>
For more information and documentation on PuTTY, look at the following <http://www.chiark.greenend.org.uk/~sgtatham/putty/>
3. Start and run the x-win32 program
4. Open a PuTTY terminal window
 - a. If you're using PuTTY for the first time, you get a configuration screen. For Host Name put in login.oit.duke.edu.
 - b. Connection type is SSH and Port is 22.
 - c. Go to Connection category, open the SSH option, click X11, and ensure the check box next to X11 forwarding is checked.
5. You can save sessions for subsequent use by giving it a name and saving the it. Later, reload the session by selecting it and clicking load.
6. Click Open to start the PuTTY session. This will open a Terminal window.
7. Enter your Duke *netID* when prompted (i.e., login as).
8. Enter your password when prompted. Note that neither characters nor ******* appear as you type. If login fails, you may have to try again.

The Remote Machine's Command Prompt

You now have a terminal session that is connected to login.oit.duke.edu. You should see a command prompt such as `[netID@login-teer-12 ~]$` with a cursor after the `$`.

1. Type `xterm` at the prompt. This should open a window on your machine's screen that gives you another terminal on the remote machine. If this fails, you've done something wrong in setting up X-windows, please review the steps above according to your operating system.
2. Click in the xterm window to activate it. Close the new xterm window by typing `exit` at the prompt (`[netID@login-teer-12 ~]$ exit`) within the xterm window or by clicking the `x` button of the xterm window.
3. Background jobs are often useful since they allow you to use multiple windows simultaneously. For example, let's say you want to have two xterms running and use

both along with the original session window. To achieve this you can type:

```
[netID@login-teer-12 ~]$ xterm &
```

The & tells unix to run the specified program in the background (xterm in this case).

Now you can click around and type commands in each of the three windows.

4. Close the two xterm windows (type exit in them or click the close button).
5. Type logout at the prompt in your initial session window to end the SSH connection and disconnect from the remote machine ([netID@login-teer-12 ~]\$ logout).

Unix / Linux Tutorial

You are now ready to go through the Unix tutorial at

<http://www.cs.duke.edu/~alvy/courses/unix tut>.