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 machines we will use are named teer<##>.oit.duke.edu (where <##> is 01-45) and are accessible either by directly logging into the machines in the Teer building, or more commonly using remote access (see below). The machine names are teer01.oit.duke.edu, teer02.oit.duke.edu, ... teer45.oit.duke.edu. Note that the machines 1-9 require the leading 0.

Remote Access to Machines

A convenient way to access a linux machine is remotely over the Internet. The main item necessary for this is a secure shell client, but we will also utilize X-windows so we can run programs with graphical interfaces (GUIs). I use teer23.oit.duke.edu as the machine for my examples, however you can use any of the machines. Occasionally the machine you try will not respond, do not panic if this occurs, simply try another machine.

MAC OS

2. Logout of your MAC
3. Login to your MAC

X-windows is now ready for use on your MAC. Next up is the secure shell client, on a MAC this is easy since it has a shell built in via the Terminal Application.

4. Open the Terminal App. You can find Terminal in the Applications/Utilities folder or by searching in Spotlight for Terminal.
5. At the command prompt type `ssh -X netID@teer23.oit.duke.edu` where `netID` is your Duke `netID`. This command initiates a secure shell connection to the machine `teer23.oit.duke.edu`. You can pick any of the 45 teer machines. If this is the first connection that you've made to `teer23.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.

6. Enter your password. Note the characters you type are not displayed on your screen, neither are any *** corresponding to the characters. So, if login fails you may have to try again.
Ta-dah! You are now successfully connected to a remote machine over the Internet. 
Goto the “At the remote machine command prompt” section after the Windows information below.

**Windows**

1. Download and install x-win32 from the OIT software website at 
   https://oit.duke.edu/comp-print/software/license/detail.php?id=119
2. 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.
3. Download and install PuTTY from the OIT software website at 
   https://oit.duke.edu/comp-print/software/license/detail.php?id=7
   a. PuTTY is also available at 
      http://www.chiark.greenend.org.uk/~sgtatham/putty/, you can look at the 
      Docs section of that website for more detailed information.
4. Start x-win32 (i.e., run the program)
5. Open a PuTTY terminal window
   a. First time use you should get a configuration screen. For Host Name put in 
      teer23.oit.duke.edu or some other random teer machine.
   b. Connection type should be SSH and Port should be 22.
   c. Go to Connection category open the SSH option and click X11, ensure the 
      check box next to X11 forwarding is checked.
6. Sessions: You can save sessions for subsequent use by giving it a name and saving the session. Then you can later reload the session by selecting it and clicking load.
   a. You can adjust various options for a session (e.g., screen color, etc) and save the session...
7. Click Open to start the PuTTY session. This will open a Terminal window and prompt you for your netID (i.e., login as:).
8. Type your Duke netID
9. Type your password. Note the characters you type are not displayed on your screen, neither are any *** corresponding to the characters. So, if login fails you may have to try again.

Ta-dah! You are now successfully connected to a remote machine over the Internet.

**Linux**

If you are using Linux then you probably don’t need these instructions, but just in case...

Simply start at step 4 of the Mac instructions.
   1. Open a Terminal
   2. Type SSH –X netID@teer23.oit.duke.edu at the prompt

**At the remote machine command prompt**

You now have a terminal session that is connected to teer23.oit.duke.edu.
You should see a command prompt that is something like [netID@teer23 ~]$ with a blinking cursor after the $. Note that you may have a slightly different prompt, e.g., with a > or % instead of the $, not a big deal... look for the blinking cursor.

1. Type date at this prompt, this is a unix command to display today’s date, as shown below (I did this in August 2013).
2. 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.

```bash
[alvy@teer23 ~]$ xterm
```
3. Click in the xterm window to activate it. Close the new xterm window by typing exit at the prompt (`[alvy@teer23 ~]$ exit`) within the xterm window or by clicking the x button of the xterm window.

4. 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:
   ```
   [alvy@teer23 ~]$ xterm&
   [alvy@teer23 ~]$ xterm&
   ```
   The & tells unix to run the specified program in the background (in this case it is xterm). Now you can click around and type date in each of the three windows.

5. Close the two xterm windows (type exit in them or click the close button).

6. Type logout at the prompt in your initial session window to end the SSH connection and disconnect from the remote machine (`[alvy@teer23 ~]$ logout`).

Unix Tutorial
You are now ready to go through the Unix tutorial available at