

ssh Basics

BZAN 583

Drew Schmidt

Preliminaries

This document will show you how to connect to the Newton HPC cluster. If you have trouble with your Ubuntu VM, you can use Newton to run example commands and solve the homework exercises. However, you will not have access to root, so you will not be able to run any command prefaced by **sudo**.

We will return to this (ssh, but not necessarily Newton) when we get to cloud computing.

Software

If you're on a Mac (or Linux), you don't need to install these. You have a terminal and ssh tools already on your OS. You can open a terminal in Finder, under the utilities section (called **Terminal.app**).

Windows users will need to install some additional software:

1. PuTTY (ssh): <http://www.putty.org/>
2. WINSCP (scp/sftp): <https://winscp.net/eng/download.php>

Connecting to Newton

Windows

Open PuTTY. In the configuration window, under "Session", enter:

- **Host Name (or IP address):** `my_netid@login.newton.utk.edu` (replace `my_netid` with your UTK netid)
- **Port:** 22
- **Connection type:** SSH

At this point, you are encouraged to give a name for this session (for example, **newton**) in the "Saved Sessions" field, then click the "Save" button. Then you only have to double click on **newton** (or whatever you named it) under your saved sessions to connect to Newton.

Once you connect, you will be asked to enter your password. Enter your UTK netid password and press enter. You should now be connected to Newton.

Mac and Linux

Open a terminal, and enter:

```
ssh my_netid@login.newton.utk.edu
```

Where `my_netid` is your UTK netid. You will then be asked for a password; enter your UTK netid password. You should now be logged in.

Transferring Files

Windows

Open winscp. Log in with:

- **Host name:** login.newton.utk.edu
- **Port number:** 22
- **User name:** Your UTK netid

You can probably take it from here.

Mac and Linux

We will cover the use of sftp; you can also use scp if you prefer. Using sftp:

```
sftp my_netid@login.newton.utk.edu
```

Now use the command `put` to upload (from your laptop, to Newton), `get` to download (the reverse). A subset of shell commands will work in sftp, such as `ls`, `mkdir`, and `rm`. See `man sftp` for more details.

Private Keys

On many systems, you can avoid having to enter a password by use of “ssh keys”. To generate ssh keys, follow the guide below based on your OS:

- [Windows users](#)
- [Mac and Linux users](#)

Then add the contents of your generated `id_rsa.pub` file to `~/.ssh/authorized_keys` on Newton.

Notes for Mac and Linux Users

There is a way to configure ssh to be much simpler to use, so you do not have to remember numerous cumbersome host names (like `login.newton.utk.edu`), usernames, etc. You can store the relevant information in the `~/.ssh/config` file (which you will create if it does not already exist). Here’s a sample configuration:

```
Host newton
Port 22
HostName login.newton.utk.edu
User your_user_name
TCPKeepAlive yes
ForwardX11 no
ServerAliveInterval 30
```

Now, instead of having to remember all of this information, you can simply type:

```
ssh newton
```

or whatever name you provided in the `Host` field if you want to ssh to Newton. If you want to sftp:

```
sftp newton
```

As you gain accounts to other systems, you can simply add more such configurations to `~/.ssh/config`.