

# Connecting Windows Linux

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## Abstract

This will show you how to connect your Windoze machine to a Linux/Unix system. You will need both file system access to edit files and command line access to run your python programs.

## 1 File System Access

### 1.1 Connect to Samba Share

Just like the network other drives, K drive for example, we can connect to linux and bring up its hard drive. This will allow us to drag/drop code on the linux system and edit it.

Using this method requires Windows to understand the zeroconfig protocol linux uses. The **only** way I know how to do this is to install *iTunes*. If you don't do this, then you will not be able to connect to the robot, since the IP addresses are served up via DHCP, and they will change from time to time.

1. Click the **Start** button and select **Computer**
2. Click **Map a network drive** on the top toolbar

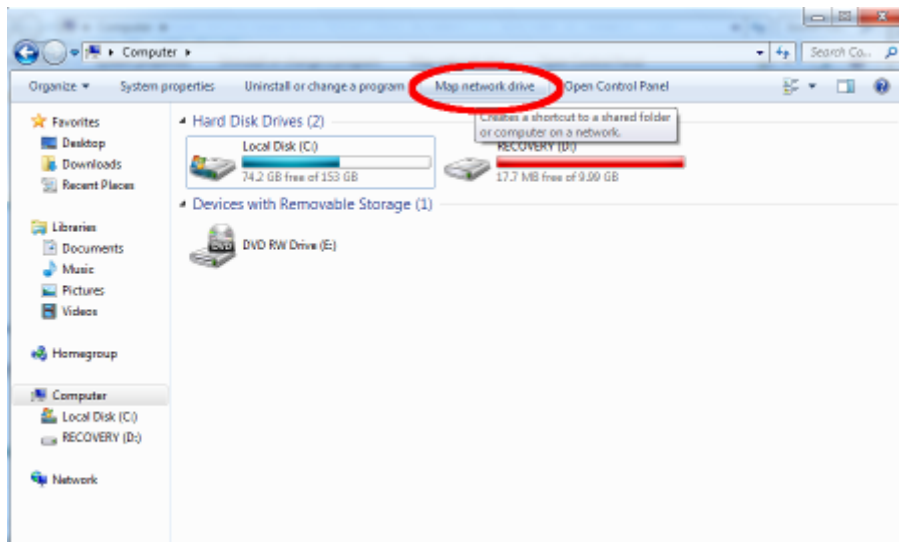


Figure 1:

3. Enter the share name: `\\robot_name.local\pi`
  1. Make sure to check the box **Connect using different credentials**
4. Click **Finish**
5. Input *username* and *password*

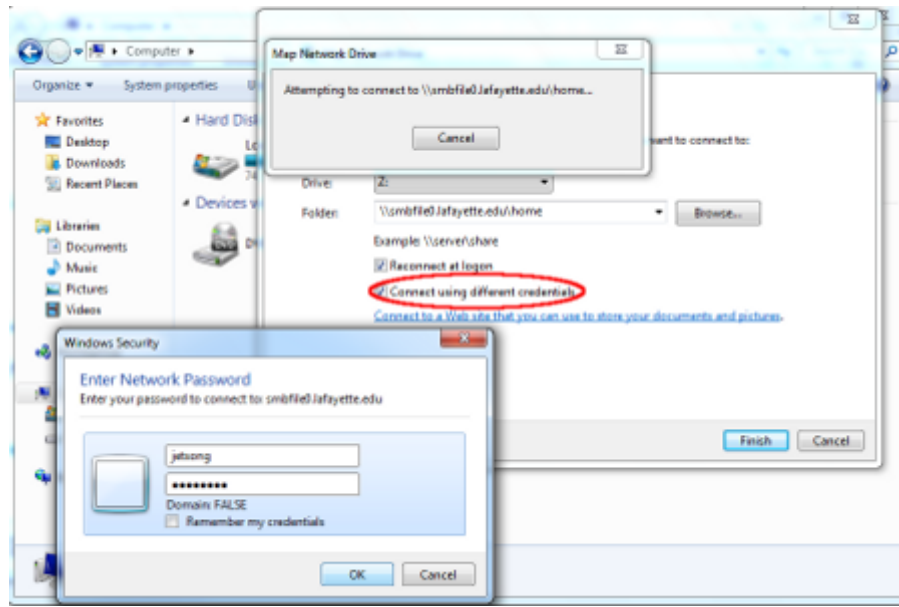


Figure 2:

## 1.2 Disconnect from Samba Share

1. Click the **Start** button and select **Computer**
2. Right click on share
3. Select **Disconnect** from menu

## 2 Command Line

To navigate linux, you need access to the command line. The only way to do that is to use secure shell (ssh). This process is going to allow you to login without having to always supply a *username* and *password*. We will first create an RSA digital certificate (or pubic/private keys) and then install that cert on the robot.

The process will look similar to the screenshot below.

1. Download and install GitBash (this gives you everything you need)
2. Open a terminal window and navigate to your home directory, `cd ~`
3. Then generate an encrypted certificate with: `ssh-keygen.exe`. Just accept the default values and use an empty pass phrase (yes, not the most secure, but oh well ...)
4. Next we have to send that over to our linux system: `ssh-copy-id pi@robot_name.local`. Accept anything that pops up. You will need to put in the *username* and *password* to authenticate you can add this digital cert to the system.
5. Now test it out: `ssh pi@robot_name.local`. It should log you directly into the robot, your authentication is handled via Diffie-Hellman protocol and the certificate we just created.

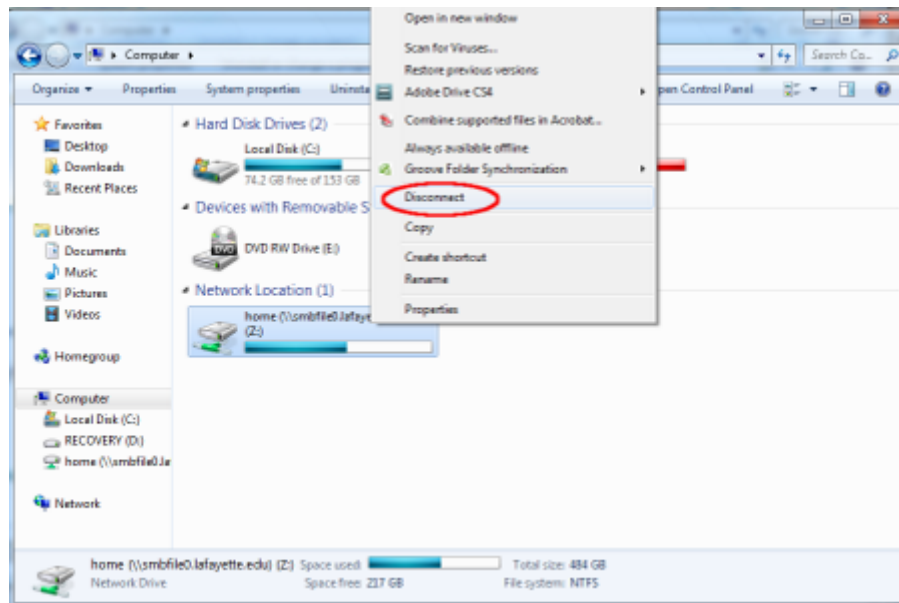


Figure 3:

```

pwatsons-Mac-Pro: ~ pwatson$ ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (/Users/pwatson/.ssh/id_rsa):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /Users/pwatson/.ssh/id_rsa.
Your public key has been saved in /Users/pwatson/.ssh/id_rsa.pub.
The key fingerprint is:
47: 68: 04: f3: 93: a3: af: bd: fc: 86: 60: 30: 47: cd: ea pwatson@pwatsons-Mac-Pro.local
The key's randomart image is:
+--[ RSA 2048 ]-----+
|      o . oo      |
|      + . = o .   |
|      . O .       |
|      o . o =     |
|      = S o       |
|      E +         |
|      . . . .     |
|      . . . .     |
|      oo.         |
+-----+
pwatsons-Mac-Pro: ~ pwatson$

```

Figure 4: