

## Browse web securely through SSH Tunnel:

If you require a secure connection to UMass online resources (such as access to academic journals, gradebooks, etc) while off-campus or on an insecure network, you can set up your computer to act as a SOCKS proxy in order to access the internet as if you were coming from our department's ssh server. All traffic passed between your local computer and ssh is encrypted, allowing you to browse the web securely.

## Mac Instructions:

### Set up the SSH tunnel:

1. Open a Terminal (Applications → Utilities → Terminal)
2. Type the following command, replacing "username" with your math department username, then hit Enter.

```
ssh -v -D 8080 -f -C -q -N username@ssh.math.umass.edu
```

\* Note: the number following the "-D" option is the port number we want to use for our tunnel. You can use any number between 1025-65536

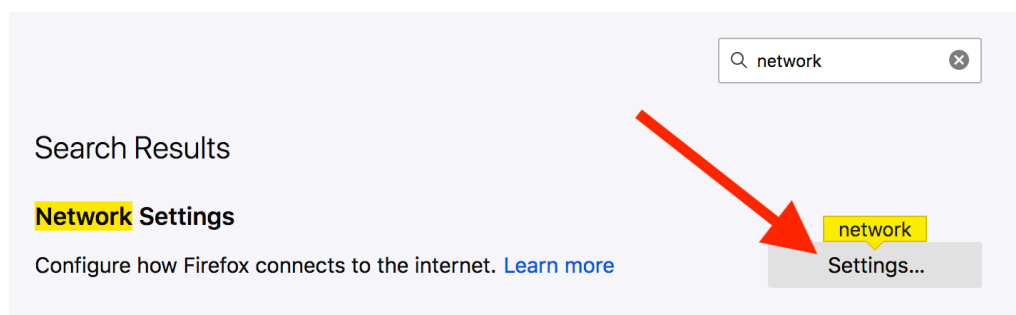
3. Type your password when prompted. Note that the terminal does not display any characters as you type the password – this is normal and your keystrokes are still being recorded by the terminal.
4. The tunnel is now running in the background! Next we will configure a proxy to use it.

### Configure Computer as SOCKS Proxy:

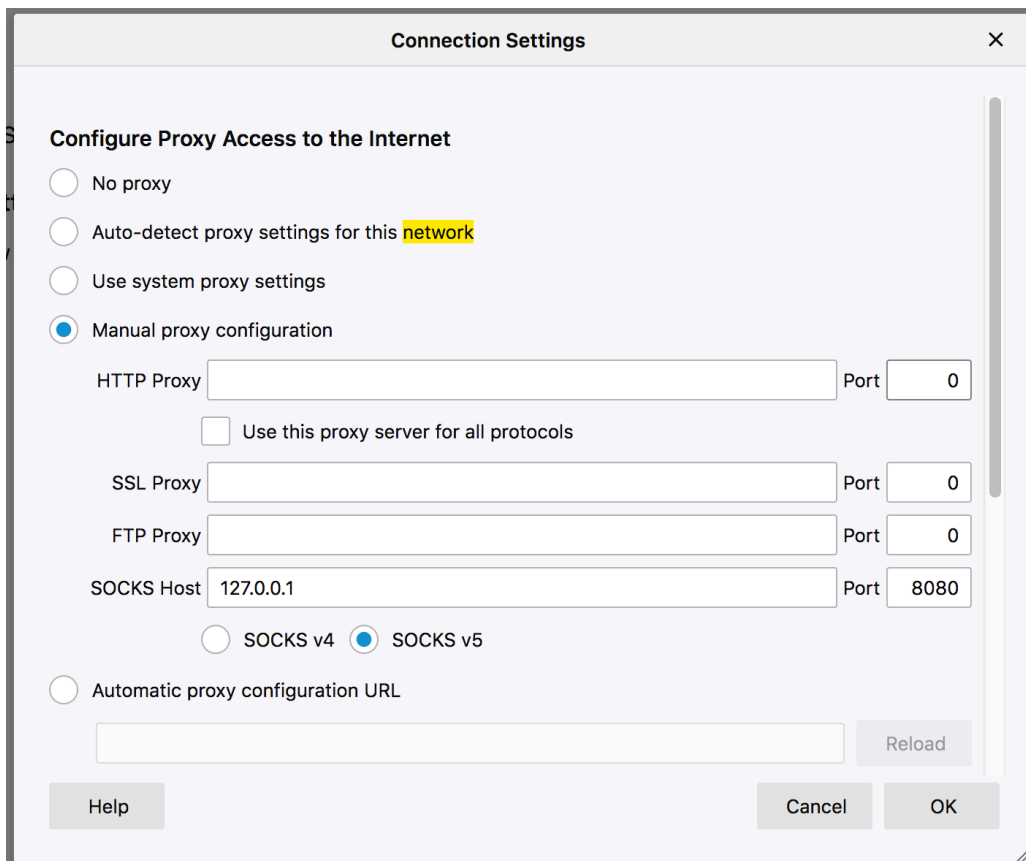
- There are two options for setting up the proxy: system-wide, and application-specific.

**The Firefox browser** allows you to configure just Firefox as a proxy, allowing you to leave your system settings untouched:

1. Open Firefox. Type "about:preferences" into the search bar and hit Enter
2. Search the settings for "Network Settings". Click the button that says "Settings..."



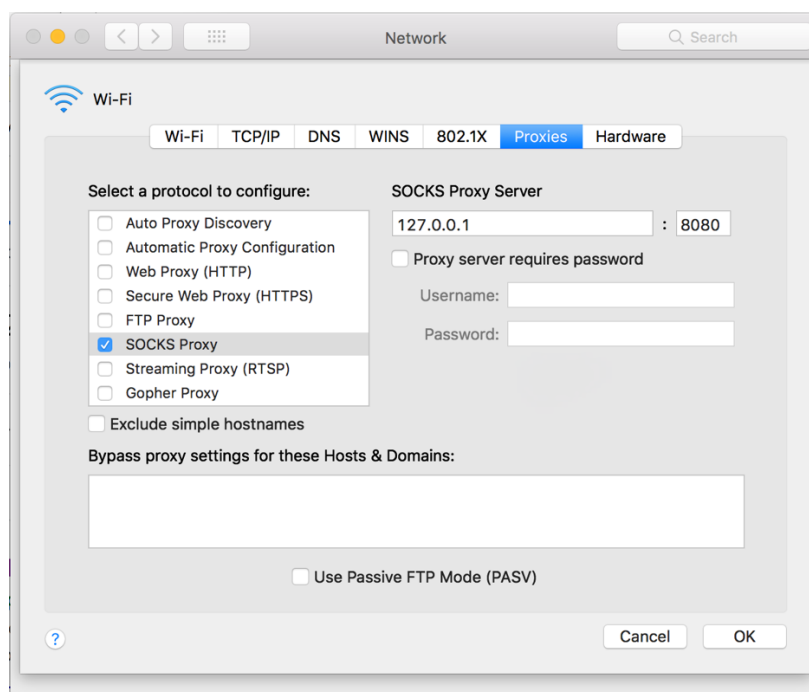
3. Under "Configure Proxy Access to the Internet", select the button for "Manual proxy configuration". Enter "127.0.0.1" as the "SOCKS Host", select "SOCKS v5", and Port "8080" (or whichever port you specified in your ssh command). Click "OK" to confirm the changes.



4. Google “my ip” and confirm that your public IP address matches that of our ssh server (128.119.47.109)

Alternatively, if you would like to use Chrome or Safari to browse the web, you will need to change your **system-wide settings**:

1. Open Network settings in System Preferences (Apple logo in the top left corner → System Preferences → Network)
2. From the sidebar on the left, select the connection you want to use (Wi-Fi, Ethernet, etc). Then click “Advanced...” in the bottom left corner.
3. Select “Proxies” from the menu of the new window. Then check the button next to “SOCKS proxy”. For the SOCKS Proxy Server, enter the localhost IP address (“127.0.0.1”) and the port number you specified when setting up the SSH tunnel (“8080” in the above example). Click “OK”. Then back in the Network window, click “Apply”



#### Confirm the setup:

1. Open your web browser and google “my ip”. You should see that google now sees your public IP address as “128.119.47.109”

#### Shut Down Tunnel:

1. **If using Firefox:** Follow the setup instructions to navigate back to the proxy settings window in Firefox. Switch the option for “Configure Proxy Access to the Internet” back to “Use system proxy settings”. Click “OK”  
**If using system-wide proxy:** Follow the setup instructions to navigate back to the proxy settings in System Preferences, and un-check the box next to “SOCKS Proxy”. Click “OK”, then “Apply”
2. Open a terminal and search for the PID number of the ssh connection, using the following command:

```
ps -ef | grep ssh
```

In the output, you should see a line such as

```
501 66007 1 0 3:33PM ?? 0:00.29 ssh -v -D 8080 -f -C -q -N user@ssh.math.umass.edu
```

The second number in this output (66007 in this example) is the PID number.

3. To shut down the tunnel, enter the following command into Terminal, replacing “66007” with the PID number you found in the previous step:

```
kill 66007
```

4. Confirm SSH tunnel no longer open:

```
ps -ef | grep ssh
```

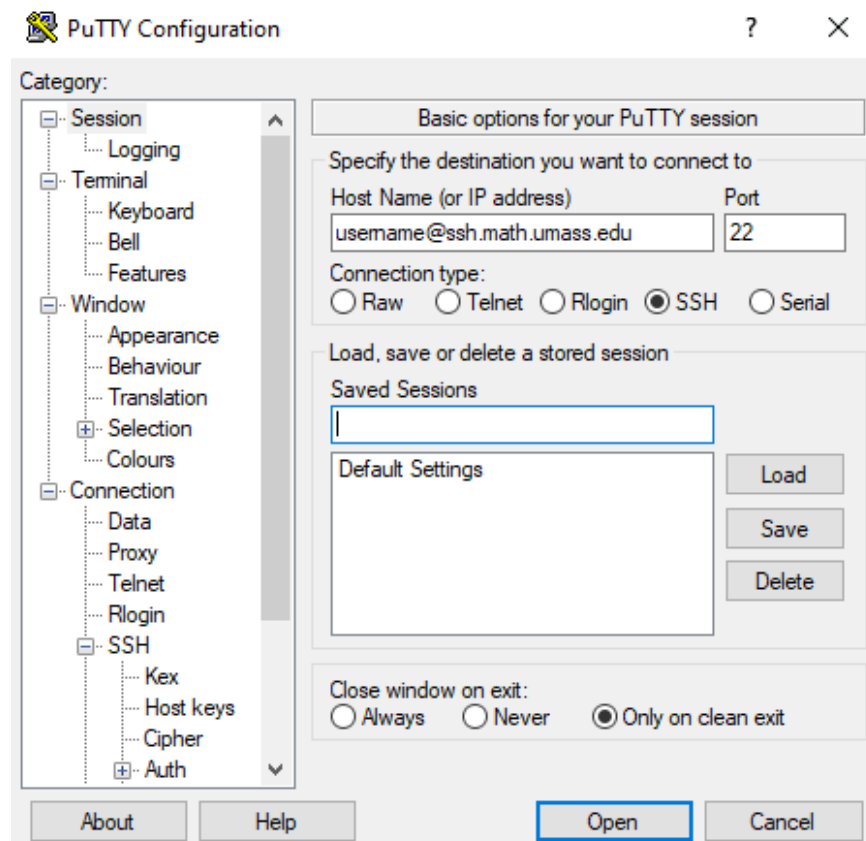
You should no longer see the ssh command in the output

## Windows Instructions:

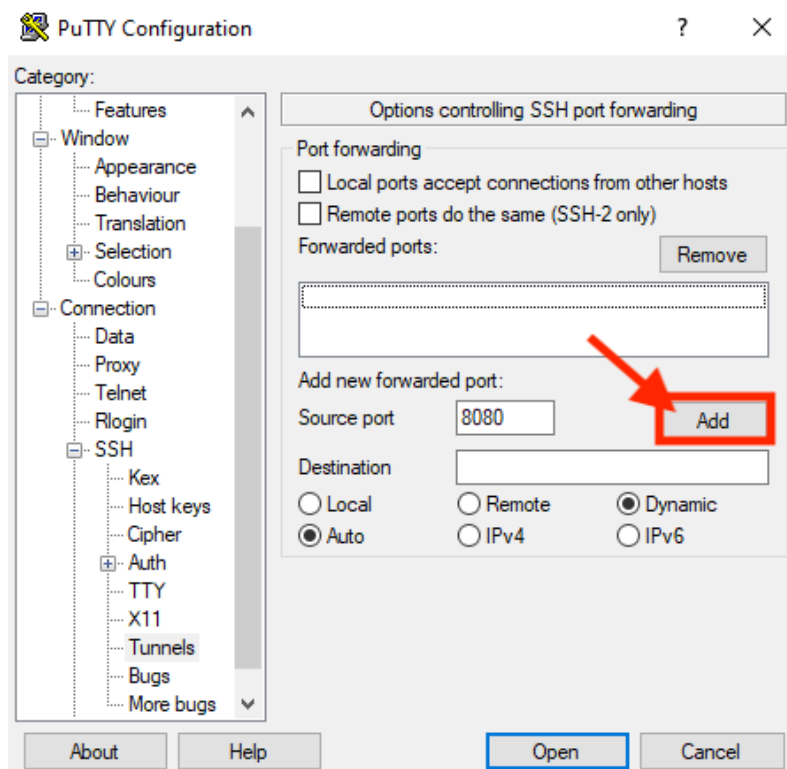
To open the SSH tunnel on Windows, you will need the Firefox browser as well as either PuTTY (<https://www.putty.org/>) or the Windows Subsystem for Linux (<https://docs.microsoft.com/en-us/windows/wsl/install-win10>) installed on your machine.

### Set up SSH Tunnel using PuTTY:

1. Open PuTTY
2. From the sidebar, select "Session". Enter [username@ssh.math.umass.edu](https://ssh.math.umass.edu) for the Host Name (replacing "username" with your department username) and 22 for the port:



3. From the sidebar, select "Tunnels" (located under Connection → SSH → Tunnels). Enter any number between 1025-65536 as the source port. In this example we use 8080. Select the buttons for "Dynamic" and "Auto", then click "Add".



4. You should now see “D8080” (or whichever port number you specified in the previous step) in the list of Forwarded ports. Click “Open” and a terminal should appear with a prompt for your department password. Note that the terminal does not display any characters as you type the password – this is normal and your keystrokes are still being recorded by the terminal.
5. You can now minimize the terminal window and proceed to the next step – configuring Firefox as a SOCKS proxy. Do NOT close the window → this will shut down the connection.

#### Set up SSH tunnel using the Linux Subsystem:

1. Open your linux subsystem terminal
2. Type the following command, replacing “username” with your math department username, then hit Enter.

```
ssh -v -D 8080 -f -C -q -N username@ssh.math.umass.edu
```

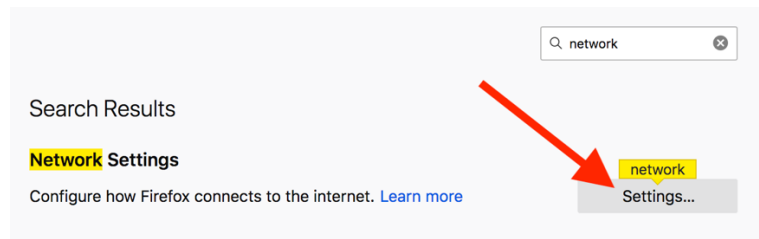
\* Note: the number following the “-D” option is the port number we want to use for our tunnel. You can use any number between 1025-65536

3. Type your password when prompted. Note that the terminal does not display any characters as you type the password – this is normal and your keystrokes are still being recorded by the terminal.
4. The tunnel is now running in the background! Next we will configure a proxy to use it.

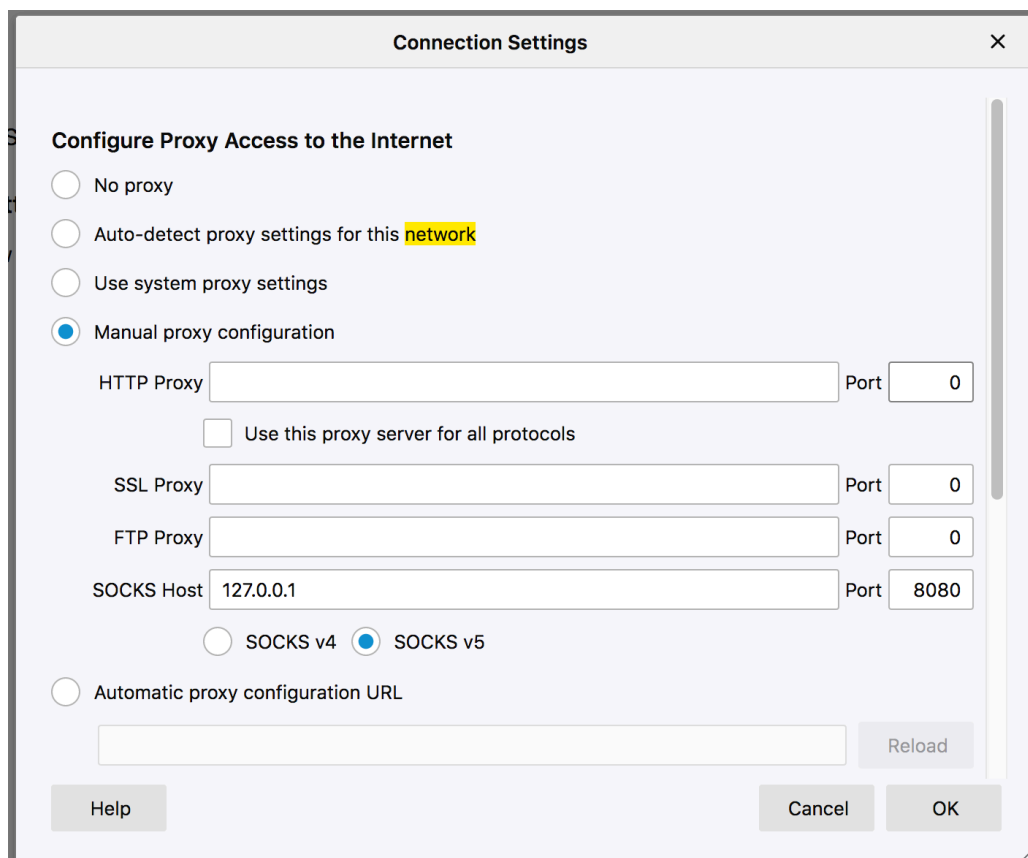
#### Configure Firefox as a SOCKS Proxy:

1. Open Firefox. Type “about:preferences” into the search bar and hit Enter

2. Search the settings for “Network Settings”. Click the button that says “Settings...”



3. Under “Configure Proxy Access to the Internet”, select the button for “Manual proxy configuration”. Enter “127.0.0.1” as the “SOCKS Host”, select “SOCKS v5”, and Port “8080” (or whichever port you specified in your ssh command). Click “OK” to confirm the changes.



4. Google “my ip” and confirm that your public IP address matches that of our ssh server (128.119.47.109)

#### Shut down SSH tunnel using PuTTY:

1. Follow the same instructions as during setup to navigate back to the proxy settings window in Firefox. Switch the option for “Configure Proxy Access to the Internet” back to “Use system proxy settings”. Click “OK”
2. Exit out of the PuTTY application. This will automatically close the connection.

### Shut down SSH tunnel using the Linux Subsystem:

1. Follow the same instructions as during setup to navigate back to the proxy settings window in Firefox. Switch the option for “Configure Proxy Access to the Internet” back to “Use system proxy settings”. Click “OK”
2. Open a terminal and search for the PID number of the ssh connection, using the following command:

```
ps -ef | grep ssh
```

In the output, you should see a line such as

```
user 66007 1  0  3:33PM ??  0:00.29 ssh -v -D 8080 -f -C -q -N user@ssh.math.umass.edu
```

The second entry in this output (66007 in this example) is the PID number.

3. To shut down the tunnel, enter the following command into Terminal, replacing “66007” with the PID number you found in the previous step:

```
kill 66007
```

4. Confirm SSH tunnel no longer open:

```
ps -ef | grep ssh
```

You should no longer see the ssh command in the output

## **Linux Instructions:**

Follow the instructions for a Windows machine using a Windows Linux Subsystem, but use the native Linux terminal.