

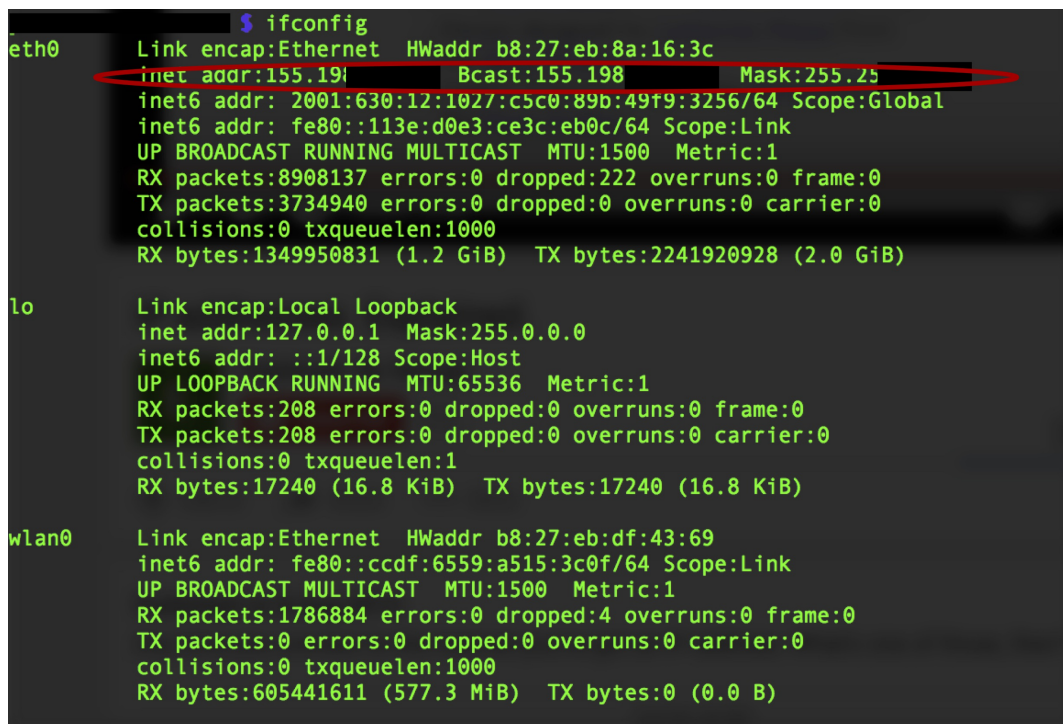
# Remote connection to your Raspberry Pi

## Checking your IP address from the terminal

We can use a command to check the different internet connections available on our system: *ifconfig* or *ifconfig -a*.

```
$ ifconfig
```

This command allows to know the IP addresses assigned to our RPi. The *wlan0*, indicates the status of the WiFi, and *eth0* shows the status of the Ethernet (wired) connection). In the next screen shoot shows an example of a RPi connected to the internet using the ethernet port. The red oval shows where to find the IP address assigned to the RPi.



```
$ ifconfig
eth0      Link encap:Ethernet  HWaddr b8:27:eb:8a:16:3c
          inet addr:155.191.155.198  Bcast:155.198.155.198  Mask:255.255.255.255
          inet6 addr: 2001:630:12:1027:c5c0:89b:49f9:3256/64 Scope:Global
          inet6 addr: fe80::113e:d0e3:ce3c:eb0c/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:8908137 errors:0 dropped:222 overruns:0 frame:0
          TX packets:3734940 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:1349950831 (1.2 GiB)  TX bytes:2241920928 (2.0 GiB)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:65536  Metric:1
          RX packets:208 errors:0 dropped:0 overruns:0 frame:0
          TX packets:208 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1
          RX bytes:17240 (16.8 KiB)  TX bytes:17240 (16.8 KiB)

wlan0     Link encap:Ethernet  HWaddr b8:27:eb:df:43:69
          inet6 addr: fe80::ccdf:6559:a515:3c0f/64 Scope:Link
          UP BROADCAST MULTICAST  MTU:1500  Metric:1
          RX packets:1786884 errors:0 dropped:4 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:605441611 (577.3 MiB)  TX bytes:0 (0.0 B)
```

If you do not know what is an **IP address**, please go to the next [link](#) for a quick explanation. The IPs can be dynamic or static, but what is the difference? When a device is assigned a static IP address, the address does not change. Most devices use dynamic IP addresses, which are assigned by the network when they connect and change over time.

## Why do I need to know my IP address?

We already know how to connect through weaved service, but we know the connection last just 30 minutes and lets just to work on a terminal session at the time. Therefore, with the help of weave and another command we can connect to or RPi for longer and using multiple terminals.

- First connect as usual to your weaved account and then connect to your RPi using the terminal of your laptop of desktop as you already did when you [set up weaved](#).
- Then, you need to know the IP address assigned to your RPi:
-

```
$ ifconfig
```

Once you know the IP (e.g. your IP is 192.31.123.122), you can access using other terminal to the RPi as:

```
$ ssh pi@192.31.123.122
```

Remember that the **root username** is **pi**, the syntax for the ssh command is: `ssh username@IP` or `ssh username@machine_name`.

**Note:** Since at Imperial network the IPs are dynamic, the IP is constantly changing, so could be that the IP changes in a day or hours (could be sometimes longer) and you need to repeat the procedure using weaved.

## Copying files from my laptop to my RPi

### Using terminal

If are programing in your laptop and you want to transfer your code to test it in your RPi, you can use either Security Shell ([ssh](#)) or File Transfer Protocol ([sftp](#)).

### SSH

Commands	Description	Example	Syntax
<code>scp</code>	Copy files from your machine to your RPi.	<code>scp program.py pi@123.232.232.3:/home/pi</code>	<code>scp filename username@IP_of_machine:/path/where/to/Cc</code>
<code>scp -r</code>	Copy folders from your machine to your RPi.	<code>scp -r code pi@123.232.232.3:/home/pi</code>	<code>scp -r folder username@IP_of_machine:/path/where/to/Cc</code>

### SFTP

Commands	Description	Example	Syntax
<code>sftp</code>	Establishing SFTP session.	<code>sftp pi@123.232.232.3</code>	<code>sftp username@remote_hostname_or_I</code>
		<code>sftp pi@123.232.232.3:/home/pi/code</code>	<code>sftp username@remote_hostname_or_IP:/pa</code>

	Establishing SFTP session from where we want to get or put a file.	
--	--	--

Once establish the connection through SFTP, we can transfer files as:

Description	Description	Syntax
<b>Transferring Remote Files to the Local System</b>	Once we get into to SFTP session and we would like download files from our remote host.	<code>get remoteFile</code>
	Copy the remote file to a different name by specifying the name afterwards.	<code>get remoteFile localFile</code>
	Copy a directory and all of its contents by specifying the recursive option.	<code>get -r someDirectory</code>
<b>Transferring Local Files to the Remote System</b>	We can use the command "put".	<code>put localFile</code>
	The same flags that work with "get" apply to "put". So to copy an entire local directory	<code>put -r localDirectory</code>

**Note:** More details and examples of SFTP in this [link](#).

## Using Software

Instead a terminal, we can use to transfer files using a software that mounts any remote server storage as a local disk in the Finder.app on Mac and the File Explorer on Windows. We suggest:

- [Cyberduck](#)

# Cyberduck Quick Reference Guide

By Andrew Fogo & Becca Schmidt



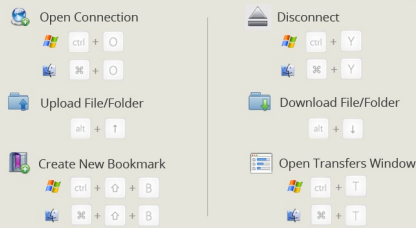
## Open a Connection

1. Open the **Open Connection** dialog box by either
  - (a) Clicking the Open Connection icon (🌐) on the toolbar
  - (b) Selecting **File > Open Connection** from the menu bar
  - (c) Pressing **ctrl + O** (PC) or **⌘ + O** (Mac) on your keyboard
2. From the dropdown box, select your desired connection type
3. Enter your necessary credentials
4. Press the **Connect** button



Your directory and list of files will appear.

## Helpful Shortcuts



## Transfer Files

First make sure you are in your desired connection location.

### Upload

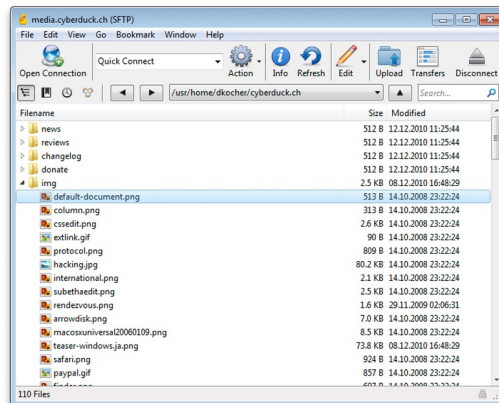
1. Upload file(s) or folder(s) by either
  - (a) Clicking the Upload icon (📁) on the toolbar
  - (b) Selecting **File > Upload** from the menu bar
  - (c) Pressing **alt + ↑** on your keyboard
  - (d) Clicking the Action icon (⚙️) and selecting Upload
2. Browse for the file(s) or folder(s) you wish to upload
3. Press the **Choose** button

The Transfer dialog box will appear and indicate the status of the transfer.

### Download

1. Select the file(s) or folder(s) you wish to download
2. Download file(s) or folder(s) by either
  - (a) Right click your mouse and press download
  - (b) Selecting **File > Download** from the menu bar
  - (c) Pressing **alt + ↓** on your keyboard
  - (d) Clicking the Action icon (⚙️) and selecting Download

Tip: You may also drag & drop files or folders to upload and download them.



**Foot Note:** The next command is for updating and upgrading the Linux packages in the operative system, but it won't be executed during the workshop since it can take a while. It is always good to keep the system up to date:

```
$ sudo apt-get -y update && sudo apt-get -y upgrade
```