

Instructions for server connection

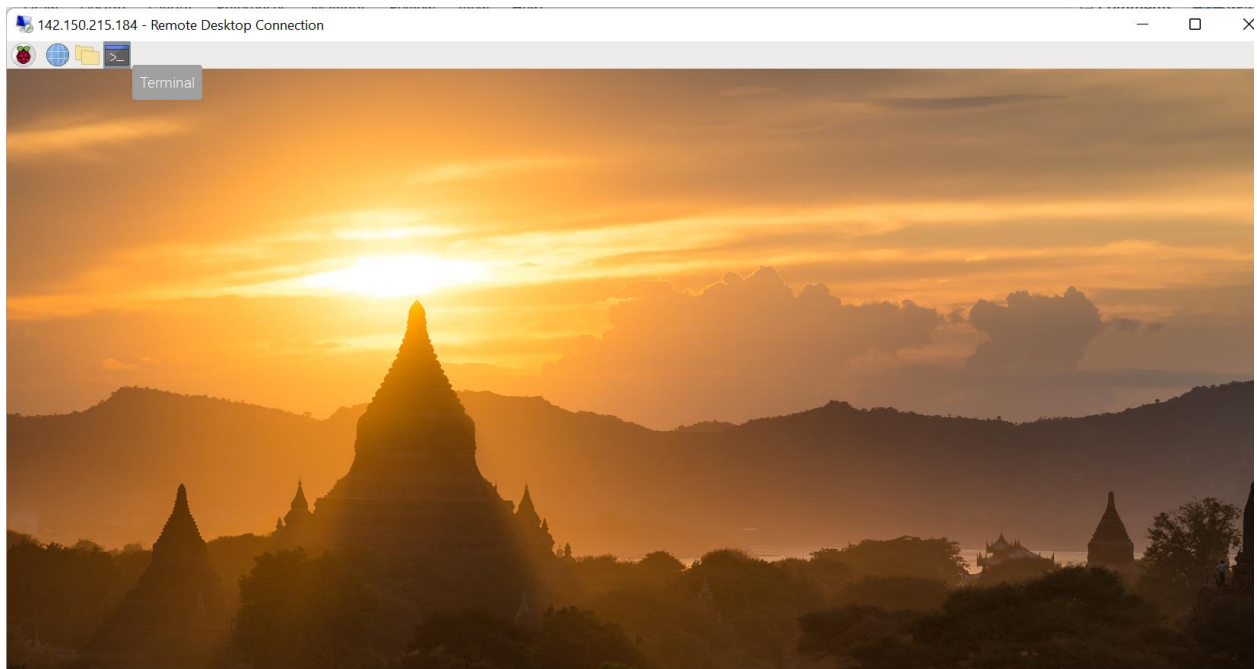
Modified from Tiago Lins

From Raspberry PI board:

Since the board is already connected to the department's internet, no VPN connection is needed for the board itself to connect with the server.

Accessing the server:

Open the terminal below



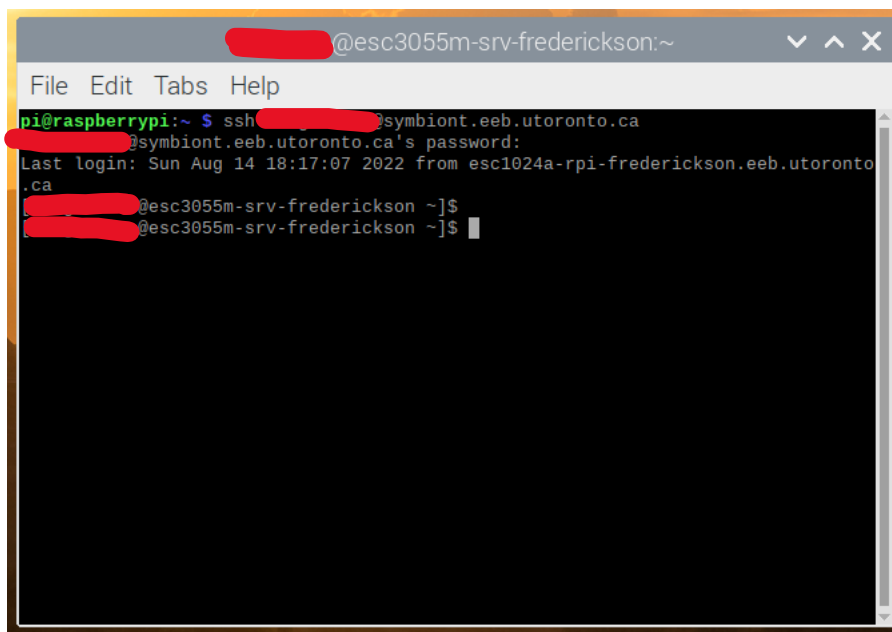
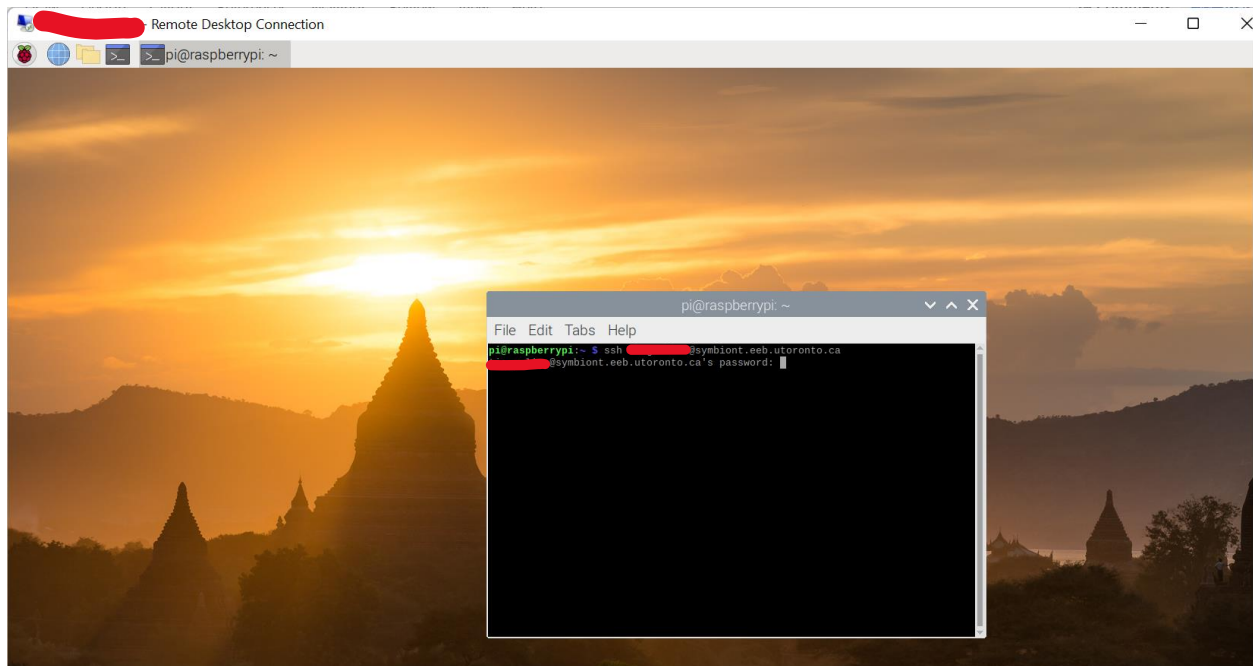
Type

```
>ssh username@symbiont.eeb.utoronto.ca
```

or

```
>ssh username@ip_address
```

It will prompt you to write a password. As you type, you will notice nothing shows up, which is how it is supposed to work. Press Enter once you completed typing your password



Useful commands:

Check contents in the directory:

```
>ls
```

Opening a directory:

>cd *directory_name*

More Linux commands can be found online that works with this server

Copying and pasting

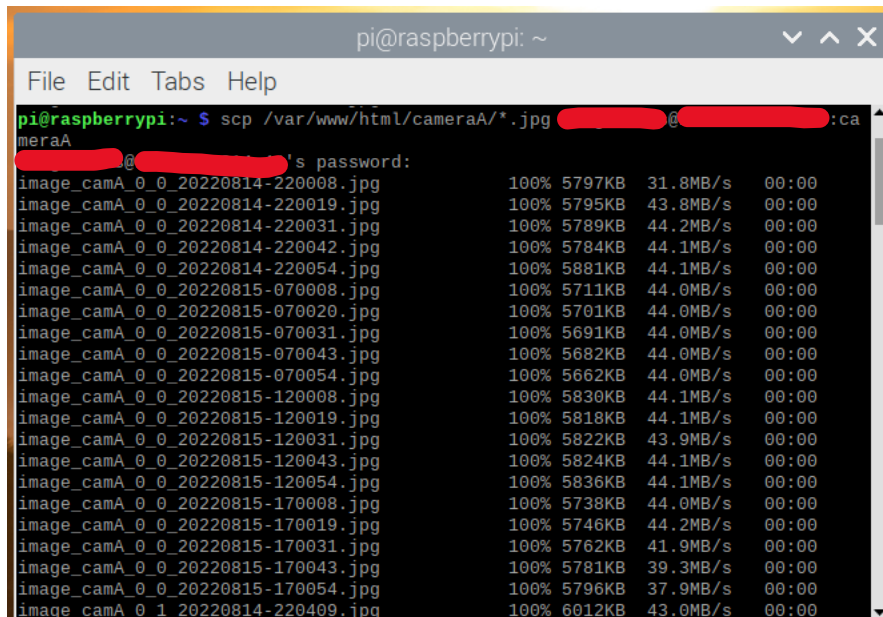
To copy a file into the server, write the following in the command line:

>scp *home_address* *username@servername*: *server_address*

The example below copies all files from camera A that end in “.jpg” in the board and copies them into the server in a directory name cameraA (same name, but not required):

>scp /var/www/html/cameraA/*.jpg [username@ip:cameraA](#)

It will also prompt you to type the password to complete the operation, just like using the ssh command. Once you press enter, the files will be loaded from the local computer to the server, as shown below:



```
pi@raspberrypi: ~  
File Edit Tabs Help  
pi@raspberrypi:~$ scp /var/www/html/cameraA/*.jpg [redacted]@[redacted]:cameraA  
[redacted]'s password:  
image_camA_0_0_20220814-220008.jpg 100% 5797KB 31.8MB/s 00:00  
image_camA_0_0_20220814-220019.jpg 100% 5795KB 43.8MB/s 00:00  
image_camA_0_0_20220814-220031.jpg 100% 5789KB 44.2MB/s 00:00  
image_camA_0_0_20220814-220042.jpg 100% 5784KB 44.1MB/s 00:00  
image_camA_0_0_20220814-220054.jpg 100% 5881KB 44.1MB/s 00:00  
image_camA_0_0_20220815-070008.jpg 100% 5711KB 44.0MB/s 00:00  
image_camA_0_0_20220815-070020.jpg 100% 5701KB 44.0MB/s 00:00  
image_camA_0_0_20220815-070031.jpg 100% 5691KB 44.0MB/s 00:00  
image_camA_0_0_20220815-070043.jpg 100% 5682KB 44.0MB/s 00:00  
image_camA_0_0_20220815-070054.jpg 100% 5662KB 44.0MB/s 00:00  
image_camA_0_0_20220815-120008.jpg 100% 5830KB 44.1MB/s 00:00  
image_camA_0_0_20220815-120019.jpg 100% 5818KB 44.1MB/s 00:00  
image_camA_0_0_20220815-120031.jpg 100% 5822KB 43.9MB/s 00:00  
image_camA_0_0_20220815-120043.jpg 100% 5824KB 44.1MB/s 00:00  
image_camA_0_0_20220815-120054.jpg 100% 5836KB 44.1MB/s 00:00  
image_camA_0_0_20220815-170008.jpg 100% 5738KB 44.0MB/s 00:00  
image_camA_0_0_20220815-170019.jpg 100% 5746KB 44.2MB/s 00:00  
image_camA_0_0_20220815-170031.jpg 100% 5762KB 41.9MB/s 00:00  
image_camA_0_0_20220815-170043.jpg 100% 5781KB 39.3MB/s 00:00  
image_camA_0_0_20220815-170054.jpg 100% 5796KB 37.9MB/s 00:00  
image_camA_0_1_20220814-220409.jpg 100% 6012KB 43.0MB/s 00:00
```

[Tiago] also created an automated script that is already set to run everyday to upload data from all cameras (A, B, C, and D) into the server. You can also run it at anytime, by simply typing the following (it will not ask for password, as it will use Tiago’s instead):

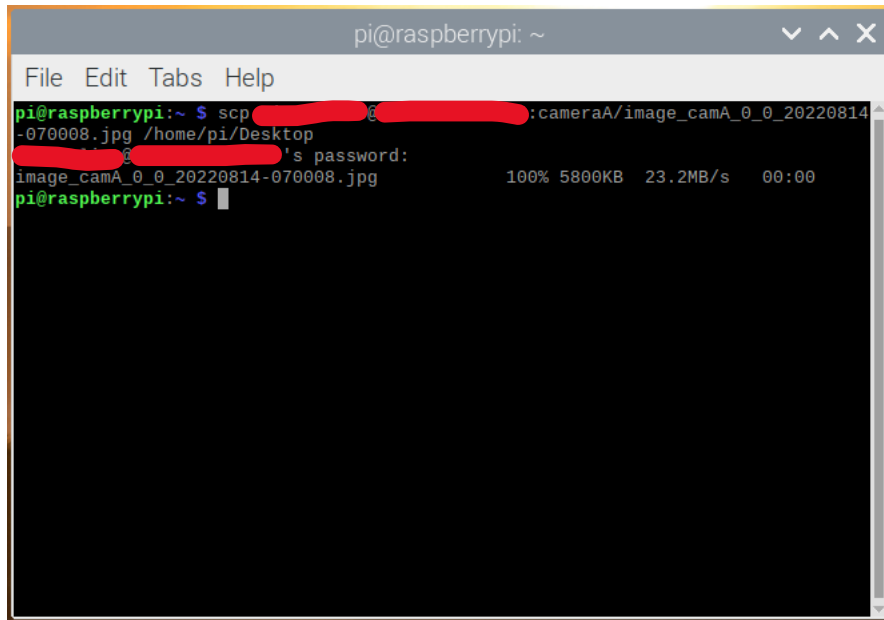
> expect autom.exp

To copy a file from the server, write the following:

>scp *username@servername*: *server_address* *home_address*

In the example below, I copied a single file named image_camA_0_0_20220814-070008.jpg into the desktop:

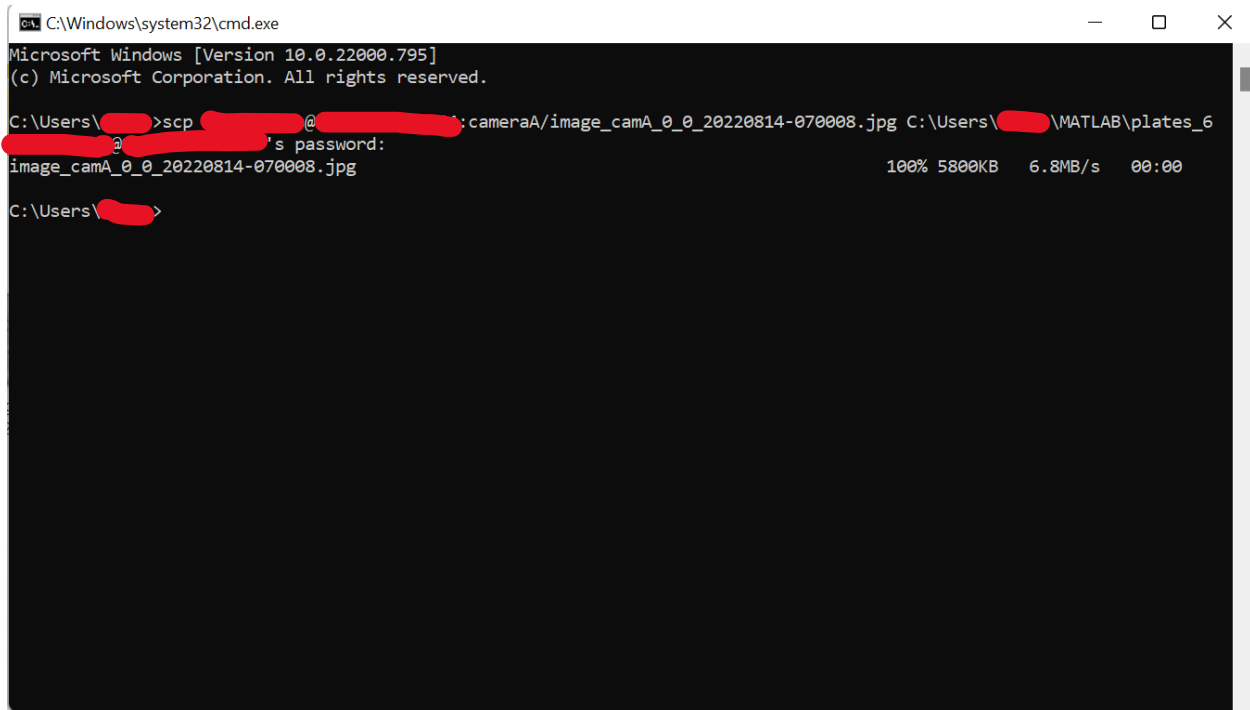
```
scp user@IP:cameraA/image_camA_0_0_20220814-070008.jpg /home/pi/Desktop
```



```
pi@raspberrypi: ~  
File Edit Tabs Help  
pi@raspberrypi:~$ scp [REDACTED]:cameraA/image_camA_0_0_20220814-070008.jpg /home/pi/Desktop  
[REDACTED]'s password:  
image_camA_0_0_20220814-070008.jpg      100% 5800KB  23.2MB/s   00:00  
pi@raspberrypi:~$
```

In Windows:

After connecting to the department's VPN via Wireguard, use a SSH client (i.e. PuTTY, Bitvise, etc). Once successfully connected to the server through the SSH, you can send and transfer files from PC to server or from server to PC via the windows command prompt (Press Windows+R, type "cmd" and press enter). The command below, which is similar to the one used in Raspberry PI, works well in a PC too.



```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 10.0.22000.795]
(c) Microsoft Corporation. All rights reserved.

C:\Users\>scp [redacted]@[redacted]:cameraA/image_camA_0_0_20220814-070008.jpg C:\Users\>[redacted]\MATLAB\plates_6
image_camA_0_0_20220814-070008.jpg
100% 5800KB 6.8MB/s 00:00

C:\Users\>
```

You should be able to use the same scp commands as shown previously to download and to upload files to and from the server.