

Connecting to and Using the Raspberry Pi

MAC Formula Electric

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1 Setting up SSH

Unfortunately, until a better solution can be found, one must have mobile hotspot capabilities on their computer (likely available on most Windows 10 computers). This guide assumes you have a Windows 10 machine.

1. Go to Settings → Network → Mobile Hotspot.
2. Modify your hotspot settings to have:
 - SSID: `rpi`
 - Password: `mfehatch2019`
3. Turn on the hotspot, and leave the settings window open.
4. Reboot the pi. You should see “pithree” appear under “Connected devices” on Hotspot Settings.
5. Use the local IP address given to “pithree” with your choice of SSH client (PuTTY works well for Windows).
 - Username: `pi`
 - Password: `raspberrypi`

2 Some useful commands

In order to execute most useful commands on the Raspberry Pi, one must use the `sudo` prefix when running commands (e.g. `sudo git clone https://github.com/fakerepo`). This just means one executes the command with more permission. When using `sudo`, it will initially ask for a password, which is the same as the login password (`raspberrypi`).

To update the pi (recommended to do this once a day or every few days) one should run the following two commands, in this order:

1. `sudo apt-get update`
2. `sudo apt-get upgrade`

Similarly, to install a linux program, like git, one will use a similar command:

- `sudo apt-get install [package name here]`

In the case of git, the command would be:

```
sudo apt-get install git
```

To reboot or shut down the pi, run the following:

- `sudo reboot now` for rebooting
- `sudo shutdown now` to shut down

It is advised to wait for the yellow light to stop flashing before unplugging power from the Pi after a shutdown command.

3 Accessing the RPi GUI interface

If SSH is not sufficient for your purposes, you can use the RPi desktop interface with RealVNC. You can assume the RPi already has this set up, if any issues are encountered, please message Karim Eltanahy on Slack! Please note: you still must follow the SSH steps above in order to obtain the RPi's local IP.

1. Download VNC Viewer, install, etc.
2. If the RPi is on and plugged into a monitor, simply enter the local IP in the VNC Viewer search bar, and you're all set.
3. If the RPi is not connected to a monitor, it is likely that it is not running a desktop and VNC must create a virtual environment: SSH into the RPi. Run the command `sudo vncserver`. When prompted for a password, enter the same one used to SSH into the RPi.
4. Take note of the local IP returned when the command is run, then enter that into the VNC Viewer search bar.

4 Raspi-config and Issues with VNC

To access some very useful Raspberry Pi settings, one should run the command `sudo raspi-config`. You will be greeted with a big blue menu, which contains loads of useful commands. NOTE: This menu is slightly unintuitive to browse; to highlight checkboxes,

use the SPACE key (not ENTER!), and to agree with everything onscreen at the moment (i.e. you have checked all boxes) use the ENTER key. Conversely, use ESC to cancel the current screen. Use the up and down arrows to navigate.

Sometimes, when using the VNC viewer, the resolution may be undesirable. To fix the issue, one should run `sudo raspi-config`, browse to **7 Advanced Options** → **A5 Resolution**, and adjust to the desired resolution. A reboot may be required, which will either be offered by `raspi-config` on exit, or must be done manually (see Section 2).