

Raspberry Pi raspbian os installation tutorial without a monitor

By Scott Huang
2019.09

HELLO!

Just call me Scott

I am here because I love to share.

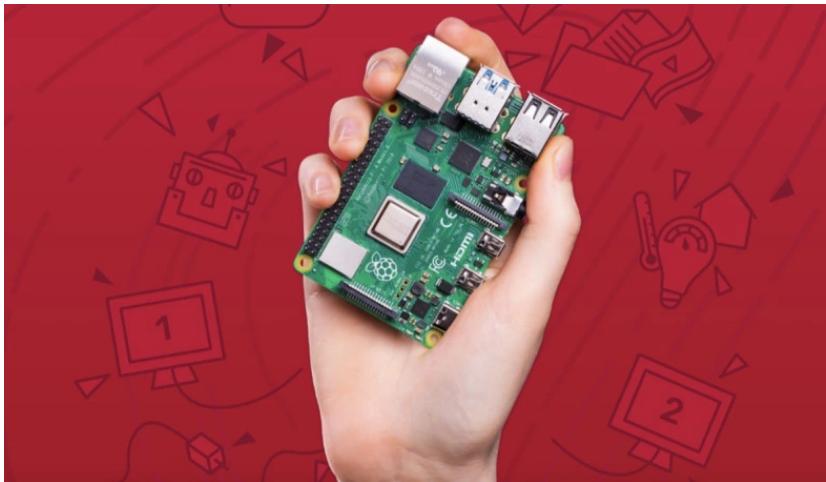
You can find me here

Gmail:huangjbyj@gmail.com

Github:<https://github.com/smiletoeveryone>



contents



- 1. introduction to raspberry pi4 / pi3**
- 2. raspbian os installation**
- 3. more information**



contents

1. introduction to raspberry pi4 / pi3



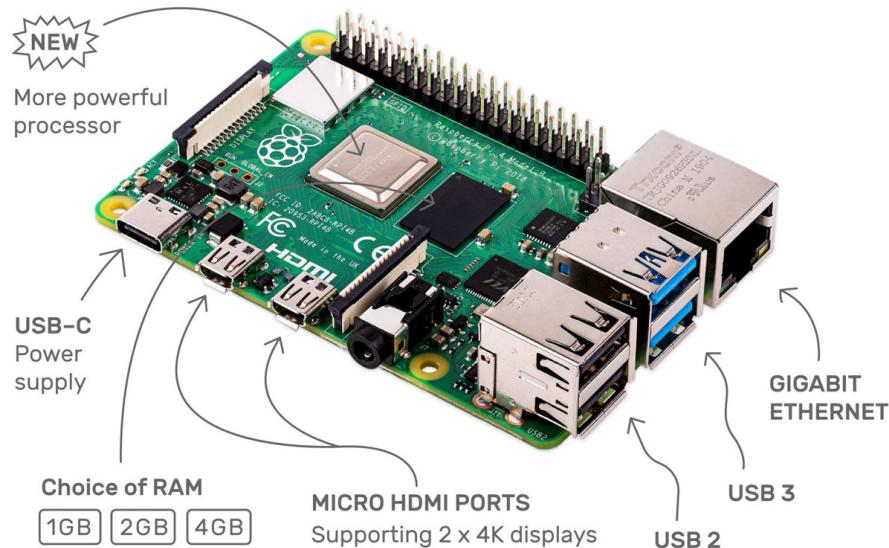
What is raspberry pi

1.low cost

2.credit card size

3.learn programming language, like scratch and python

4.for all ages of people and makers



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Raspberry pi 4B vs 3B+

Raspberry Pi 4B vs 3B+



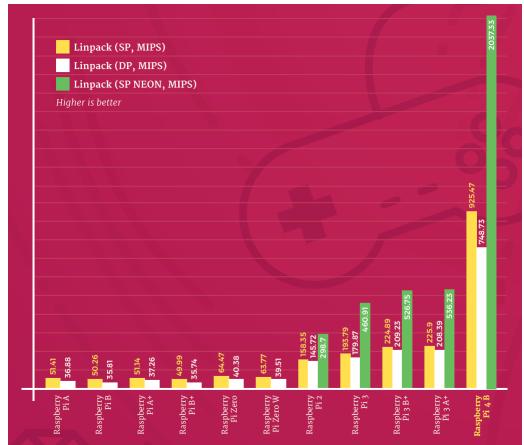
Features/Specs	Raspberry Pi 4 B	Raspberry Pi 3 B+
Release Date	24th June 2019	14th March 2018
SoC Type (Processor)	Broadcom BCM2711 (with metal cover)	Broadcom BCM2837B0 (with metal cover)
Core Type	Cortex-A72 64-bit (ARMv8)	Cortex-A53 64-bit (ARMv8)
No. of Cores	Quad-Core	
GPU	VideoCore VI	VideoCore IV
Multimedia	H.265 decode (4Kp60) H.264 decode (1080p60) H.264 encode (1080p30) OpenGL ES 1.1, 2.0, 3.0 Graphics	H.264, MPEG-4 decode (1080p30) H.264 encode (1080p30) OpenGL ES 1.1, 2.0 Graphics
CPU Clock	1.5 GHz	1.4 GHz
Memory/OS storage	microSD	
RAM	LPDDR4 1GB, 2GB and 4GB options	LPDDR2 1GB
Ethernet	True Gigabit Ethernet	Gigabit over USB 2.0 (Max 300Mbps)
USB Port	2 x USB 3.0 + 2 x USB 2.0	4 x USB 2.0
HDMI	2 x micro HDMI support Dual Display	1 x full size HDMI
WiFi	802.11 b/g/n/ac (2.4GHz+5GHz & Shielded)	
Bluetooth	5.0 + BLE (Shielded)	4.2 + BLE (Shielded)
Antenna	PCB Antenna (Similar to Rpi Zero W)	
GPIO	40 pins (Fully backwards-compatible with previous boards)	
Operating System	Raspbian (> 24 June 2019)	Raspbian (> March 2018)
Dimension	85mm x 56mm	
Power Input	5V via USB Type C (upto 3A) 5V via GPIO header (upto 3A) Power over Ethernet, requires PoE HAT	5V via USB Micro B (upto 2.5A) 5V via GPIO header (upto 3A) Power over Ethernet, requires PoE HAT

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contents

Performance tables



CPU



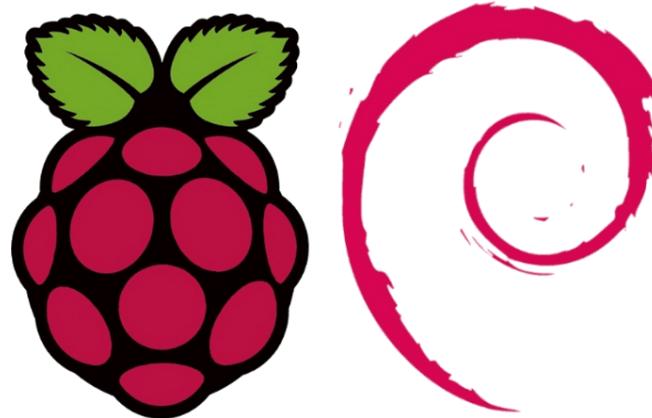
GP
U



RA
M



2. raspbian os installation

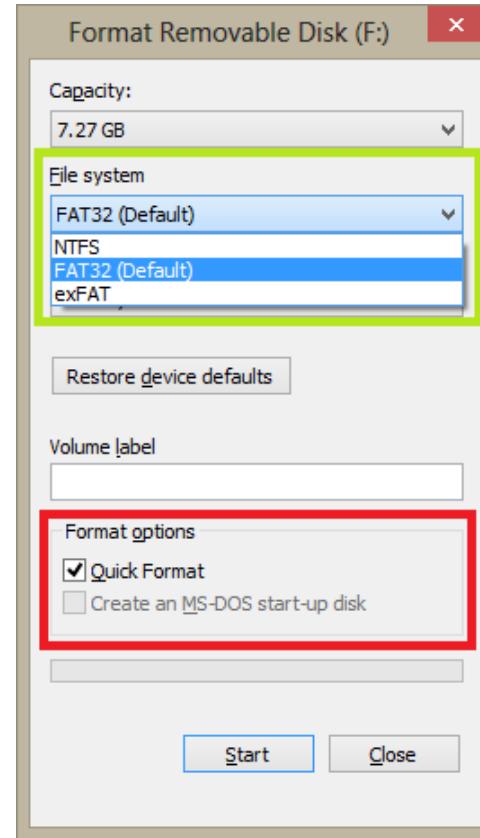


Raspbian



instructions for installing raspbian

1. a laptop or a desktop
2. prepare a micro SD card
that volume is 8-32GB.
3. format it as FAT32.





instructions for installing raspbian

3.Download raspbian OS

Raspbian Buster with desktop and recommended software
Image with desktop and recommended software based on Debian Buster

Version: June 2019
Release date: 2019-06-20
Kernel version: 4.19
Size: 1945 MB

[Release notes](#)

[Download Torrent](#) [Download ZIP](#)

SHA-256: 7c0dec54e9ad694d6f306f495f793d1a5021020e7c46a6df02b6c84
478473e17

Raspbian Buster Lite
Minimal image based on Debian Buster

Version: June 2019
Release date: 2019-06-20
Kernel version: 4.19
Size: 426 MB

[Release notes](#)

[Download Torrent](#) [Download ZIP](#)

SHA-256: 9009409a9f969b117602d85d992d90563f181a904bc3812bdd880fc
493185234

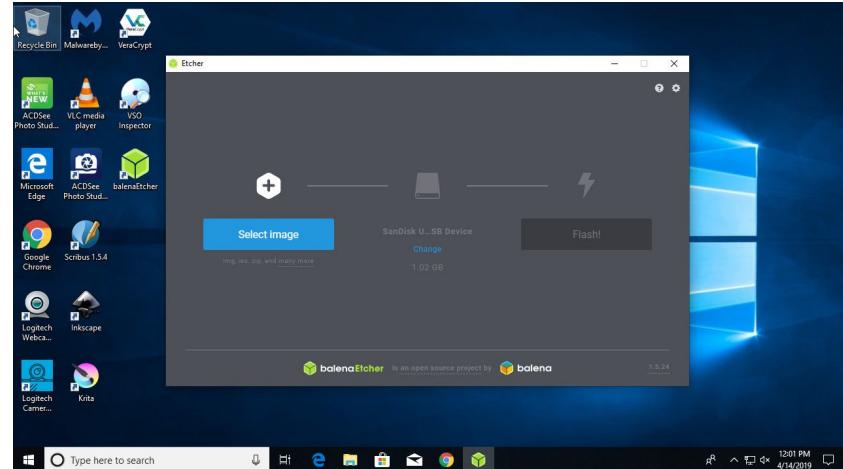
<https://www.raspberrypi.org/downloads/raspbian/>



instructions for installing raspbian

4. Download balenaEtcher
and install it for flashing the
OS image into SD card.

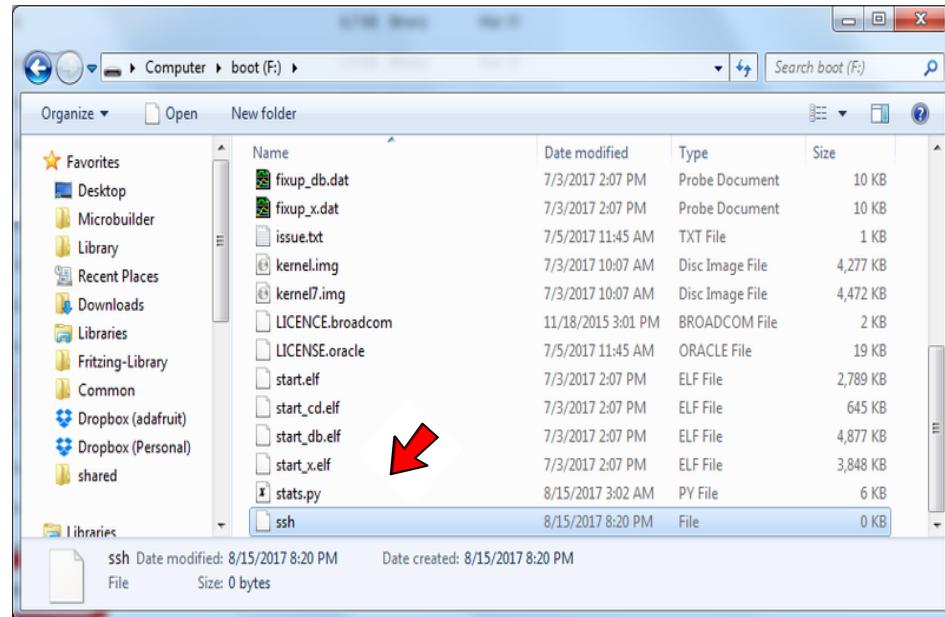
<https://www.balena.io/etcher>





instructions for installing raspbian

5.create a ssh file without extension for turning on ssh in the boot area of SD card.





instructions for installing raspbian

**6.create a
wpa_supplicant.conf as well
in the same area as ssh file
for connecting to the wifi.**

country=US

**ctrl_interface=DIR=/var/run/wpa_supplicant
GROUP=netdev**

update_config=1

network={

ssid="NETWORK-NAME"

psk="NETWORK-PASSWORD"

}

**Please make sure you have the authority to access the ap.
ex. your phone hotspot, home wifi router...**

This PC > boot (E:)			
	Name	Date modified	Type
			Size
	fixup_cd.dat	4/17/2018 11:50 AM	DAT File
	fixup_db.dat	4/17/2018 11:50 AM	DAT File
	fixup_x.dat	4/17/2018 11:50 AM	DAT File
	issue.txt	4/18/2018 1:08 AM	TXT File
	kernel.img	4/17/2018 11:50 AM	Disc Image File
	kernel7.img	4/17/2018 11:50 AM	Disc Image File
	LICENCE.broadcom	3/9/2018 5:28 PM	BROADCOM File
	LICENSE.oracle	4/18/2018 1:08 AM	ORACLE File
	ssh	6/28/2018 7:18 PM	File
	start.elf	4/17/2018 11:50 AM	ELF File
	start_cd.elf	4/17/2018 11:50 AM	ELF File
	start_db.elf	4/17/2018 11:50 AM	ELF File
	start_x.elf	4/17/2018 11:50 AM	ELF File
	wpa_supplicant.conf	6/28/2018 7:41 PM	CONF File





instructions for installing raspbian

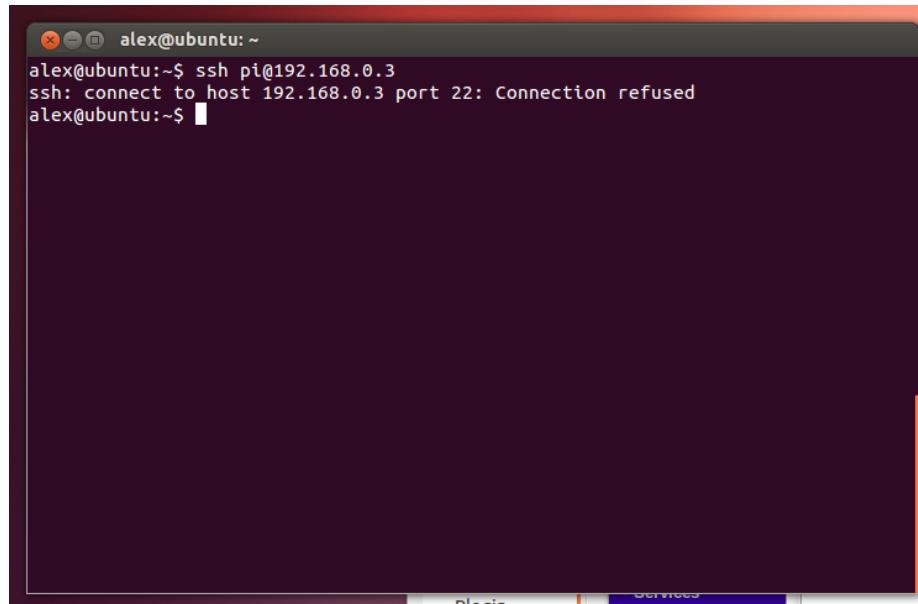
7.finishing above steps, place the SD card in your raspberry pi3/4 and reboot/power on it.

8.try to get the ip address of your raspberry pi3/pi4 in the wifi router.

**9.ssh pi@192.168.XXX.XXX
default password:raspberry**

if you got an error message as "Hot key verification failed", input the command as below in the terminal.

ssh-keygen -R 192.168.xxx.xxx



A screenshot of a terminal window titled "alex@ubuntu: ~". The window shows the command "ssh pi@192.168.0.3" being run, followed by the error message "ssh: connect to host 192.168.0.3 port 22: Connection refused". The terminal is set against a dark background with light-colored text. The bottom of the screen shows the Unity desktop interface with icons for Dash, Home, and other applications.

```
alex@ubuntu:~$ ssh pi@192.168.0.3
ssh: connect to host 192.168.0.3 port 22: Connection refused
alex@ubuntu:~$
```

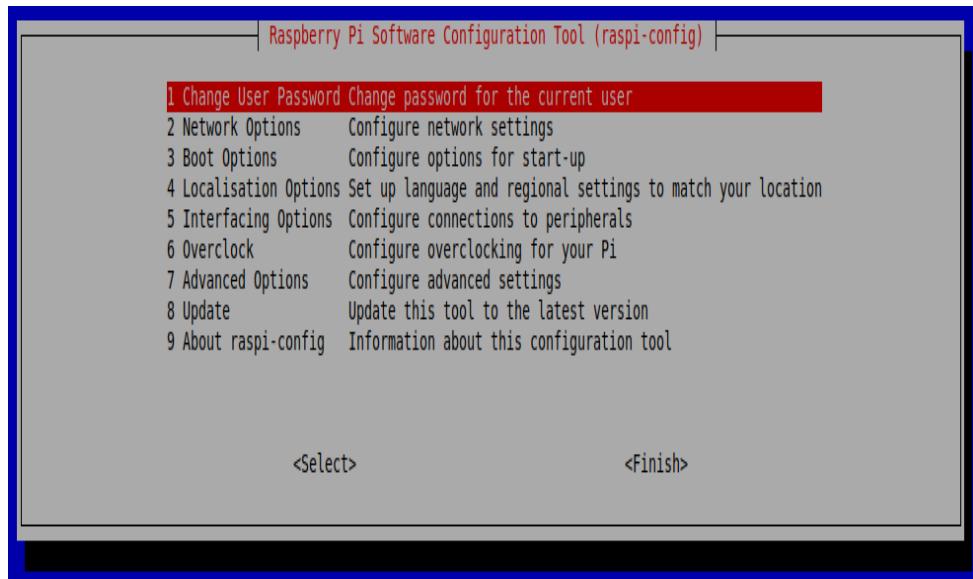


instructions for installing raspbian

10.get into interfacing options of the config menu for turning VNC and SSH on that you would be able to control your raspberry pi3/p4 remotely by the command as below.

In windows powershell(ubuntu terminal):

sudo raspi-config





instructions for installing raspbian

11. install vnc viewer and server.

In windows powershell(ubuntu terminal):

i.**sudo apt-get update**

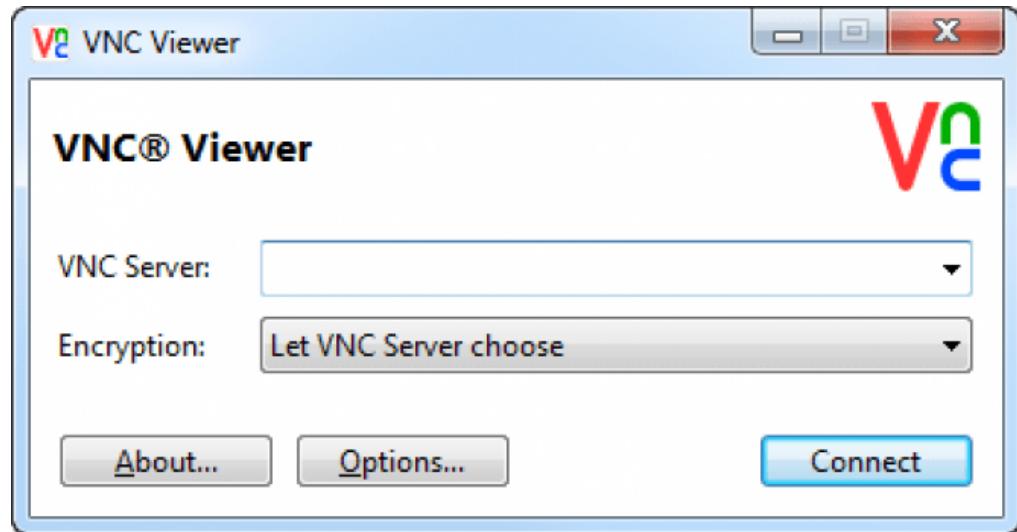
ii.**sudo apt-get install realvnc-vnc-server
realvnc-vnc-viewer**

A screenshot of a terminal window titled "alex@ubuntu: ~". The window shows the command "ssh pi@192.168.0.3" being run, followed by the error message "ssh: connect to host 192.168.0.3 port 22: Connection refused". The terminal has a dark background and a light-colored text area. At the bottom, there is a taskbar with icons for "Places" and "Services".



instructions for installing raspbian

12.install VNC viewer for your ms windows.



<https://www.realvnc.com/en/connect/download/viewer/>



instructions for installing raspbian

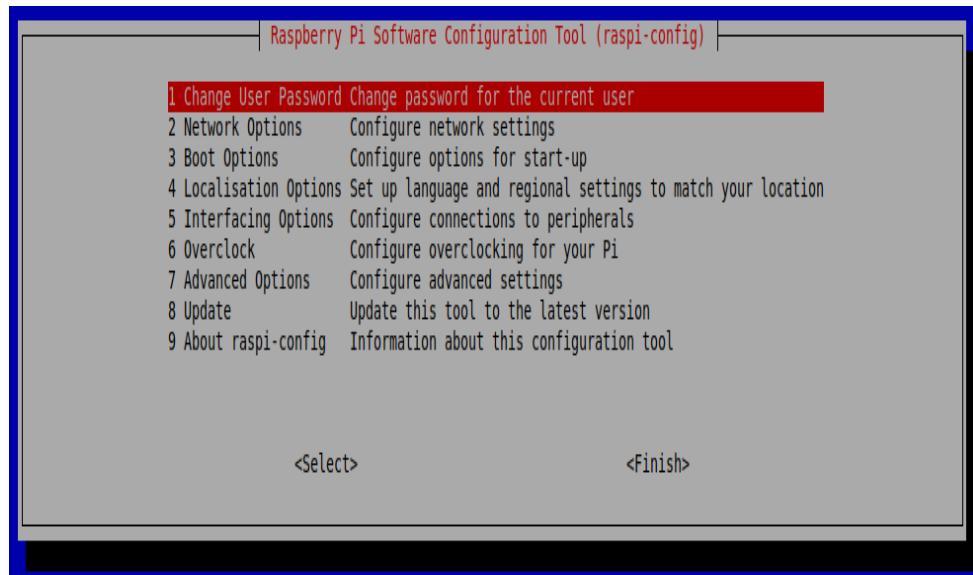
sudo raspi-config

13.get into the setup menu again for booting into the graphic desktop later, meanwhile try to adjust a correct screen revolution.

14.enter "3. boot options" for choosing "B1 Desktop/CLI".

15.then enter "B3 Desktop" or Desktop Autogin" what you like.

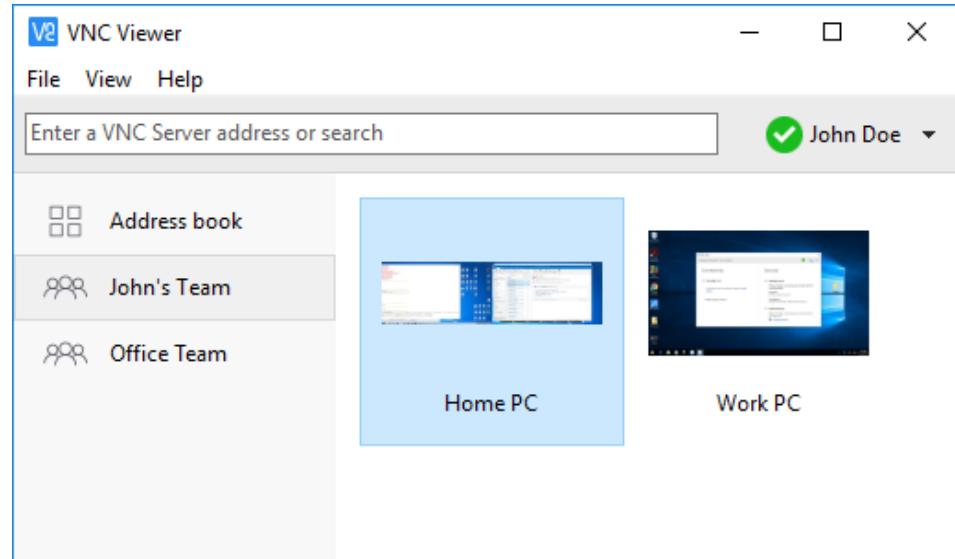
16.Reboot your raspberry_pi.





instructions for installing raspbian

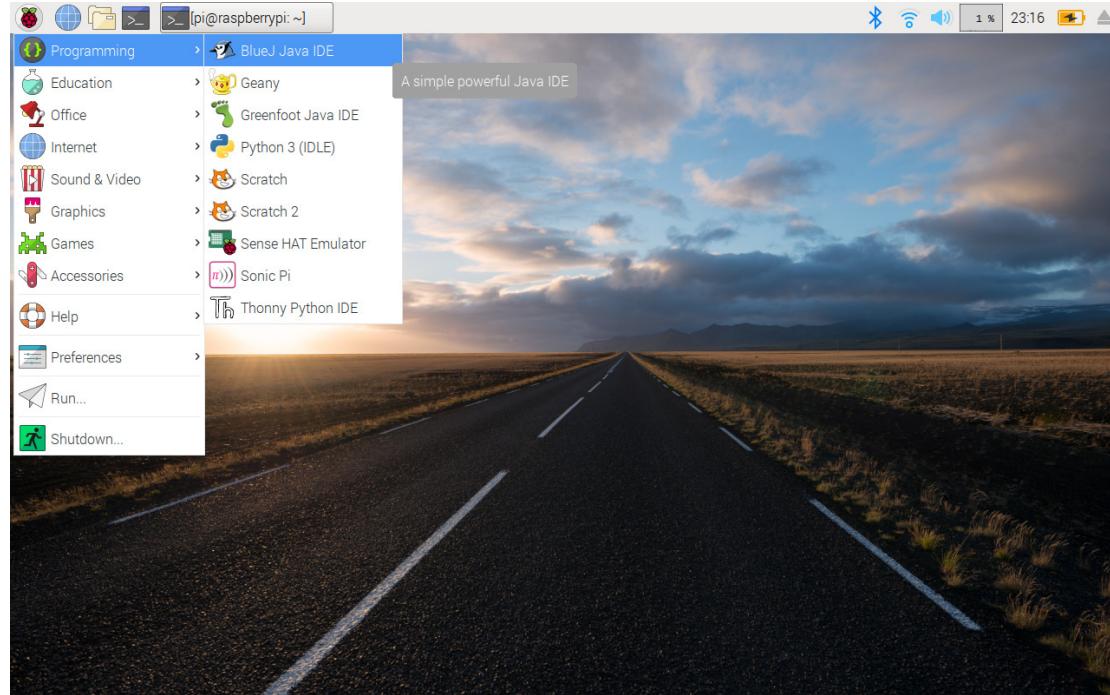
17.run vnc viewer on you ms windows and connect your raspberry_pi by network IP





instructions for installing raspbian

18. It is all done for
installing the OS.





contents

3. more information



Raspberry Pi Documentation

<https://www.raspberrypi.org/documentation/>

The Best Memory Cards for Raspberry Pi

<https://www.mymemory.co.uk/blog/the-best-memory-cards-for-raspberry-pi/>

Win32 Disk Imager

<https://sourceforge.net/projects/win32diskimager/>

Raspberry Pi 4 vs NVIDIA Jetson Nano Developer Kit

<https://buildazure.com/raspberry-pi-4-vs-nvidia-jets-on-nano-developer-kit/>



Differences Between Bluetooth 5 vs 4.2

<https://www.amarinfotech.com/differences-comparisons-bluetooth-5-vs-4-2.html>

如何在 Micro-SD 上安裝 Raspbian 等 Linux 系統

<https://www.techapple.com/archives/15642>

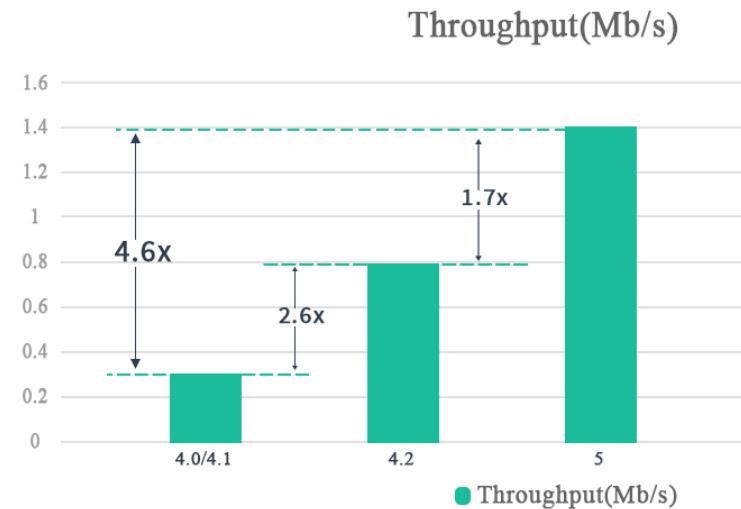
Temperature check

```
:~$ vcgencmd  
measure_temp
```



Differences Between Bluetooth 5 vs 4.2

<https://www.amarinfotech.com/differences-comparisons-bluetooth-5-vs-4-2.html>





Thank you so much