

Raspberry Pi raspbian os installation tutorial without a monitor

By Scott Huang
2019.09

HELLO!

Just call me Scott

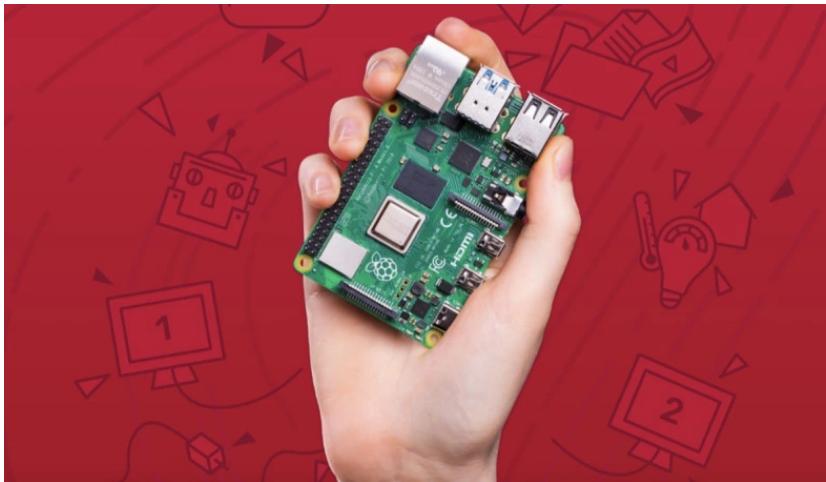
I am here because I love to share.

You can find me here

huangjbyj@gmail.com



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



contents

1. introduction to raspberry pi4 / pi3



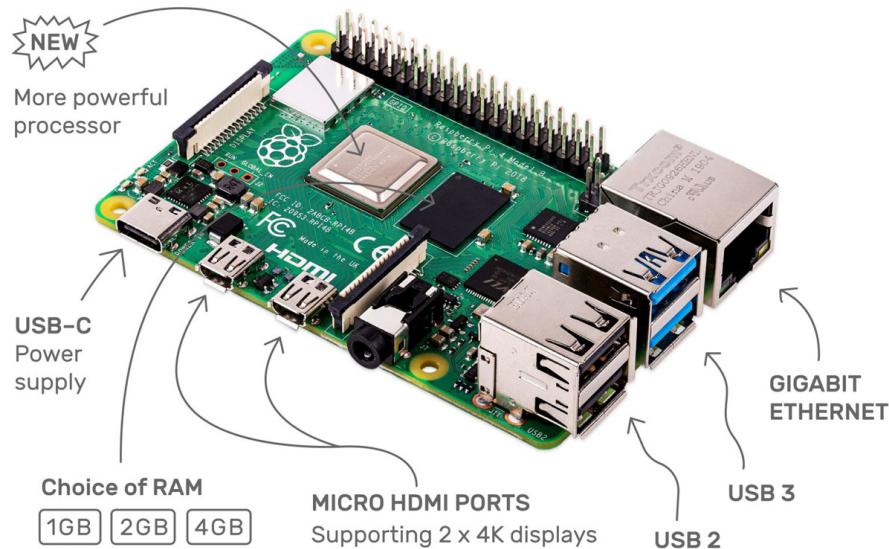
What is raspberry pi

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+



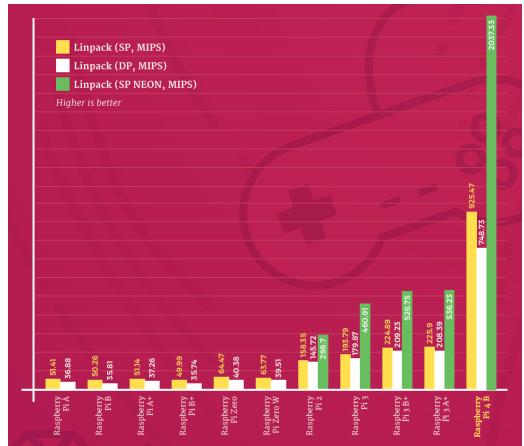
Features/Specs	Raspberry Pi 4 B	Raspberry Pi 3 B+
Release Date	24th June 2019	14th March 2018
SoC Type (Processor)	Broadcom BCM2711 (with metal cover)	Broadcom BCM2837B0 (with metal cover)
Core Type	Cortex-A72 64-bit (ARMv8)	Cortex-A53 64-bit (ARMv8)
No. of Cores	Quad-Core	
GPU	VideoCore VI	VideoCore 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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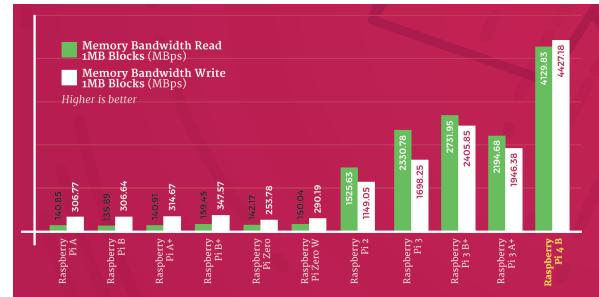
Performance tables



CPU



GPU

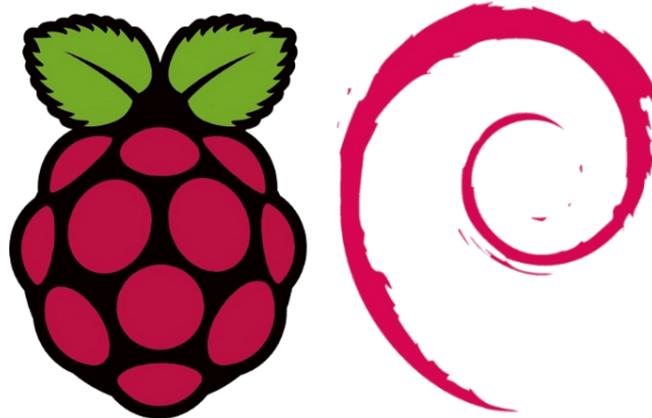


RAM



contents

2. raspbian os installation

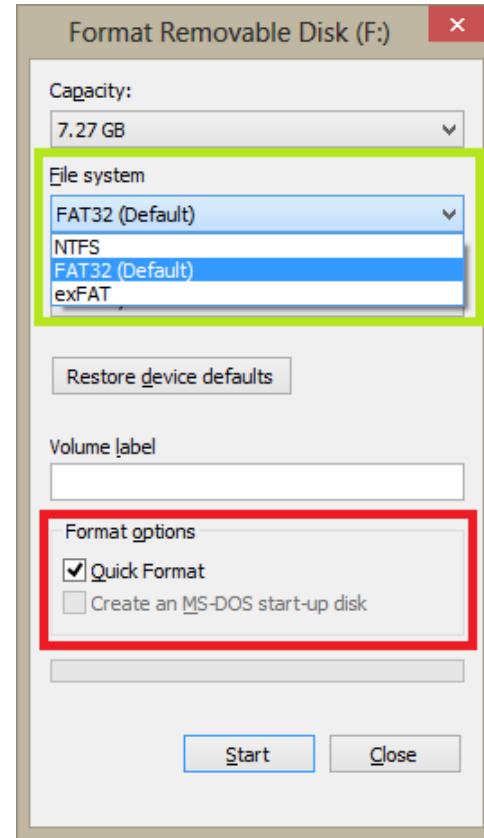


Raspbian



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

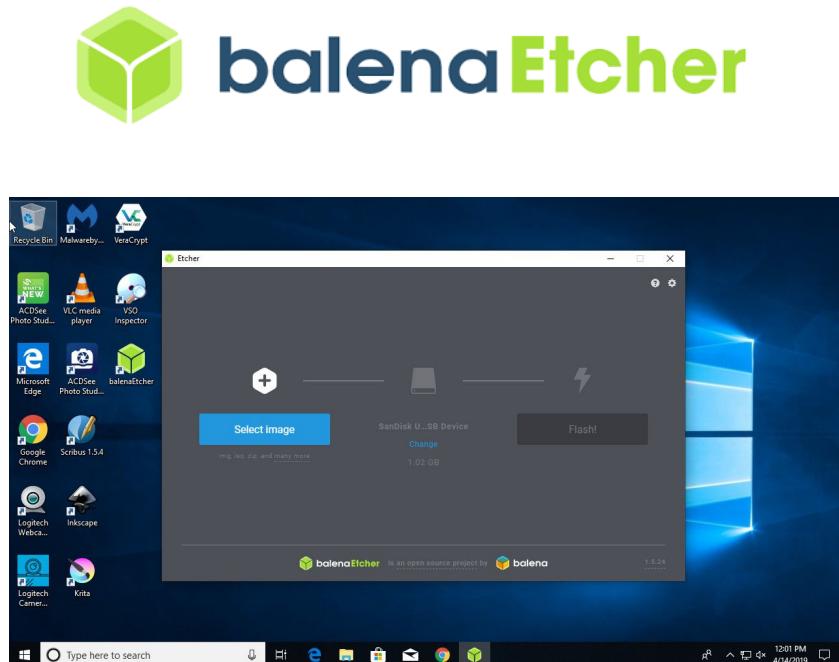
<https://www.raspberrypi.org/downloads/raspbian/>



instructions for installing raspbian

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

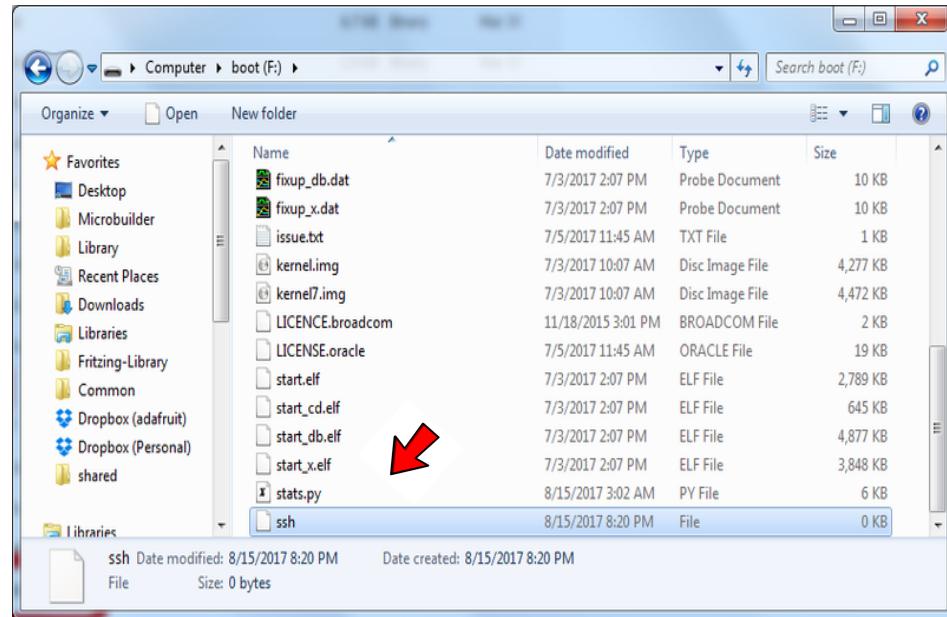
<https://www.balena.io/etcher>





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	3 KB
	fixup_db.dat	4/17/2018 11:50 AM	DAT File	10 KB
	fixup_x.dat	4/17/2018 11:50 AM	DAT File	10 KB
	issue.txt	4/18/2018 1:08 AM	TXT File	1 KB
	kernel.img	4/17/2018 11:50 AM	Disc Image File	4,567 KB
	kernel7.img	4/17/2018 11:50 AM	Disc Image File	4,807 KB
	LICENCE.broadcom	3/9/2018 5:28 PM	BROADCOM File	2 KB
	LICENSE.oracle	4/18/2018 1:08 AM	ORACLE File	19 KB
	ssh	6/28/2018 7:18 PM	File	0 KB
	start.elf	4/17/2018 11:50 AM	ELF File	2,759 KB
	start_cd.elf	4/17/2018 11:50 AM	ELF File	658 KB
	start_db.elf	4/17/2018 11:50 AM	ELF File	4,852 KB
	start_x.elf	4/17/2018 11:50 AM	ELF File	3,821 KB
	wpa_supplicant.conf	6/28/2018 7:41 PM	CONF File	1 KB





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 has a dark background and light-colored text. At the bottom, there's a taskbar with icons for "Places" and "Services".

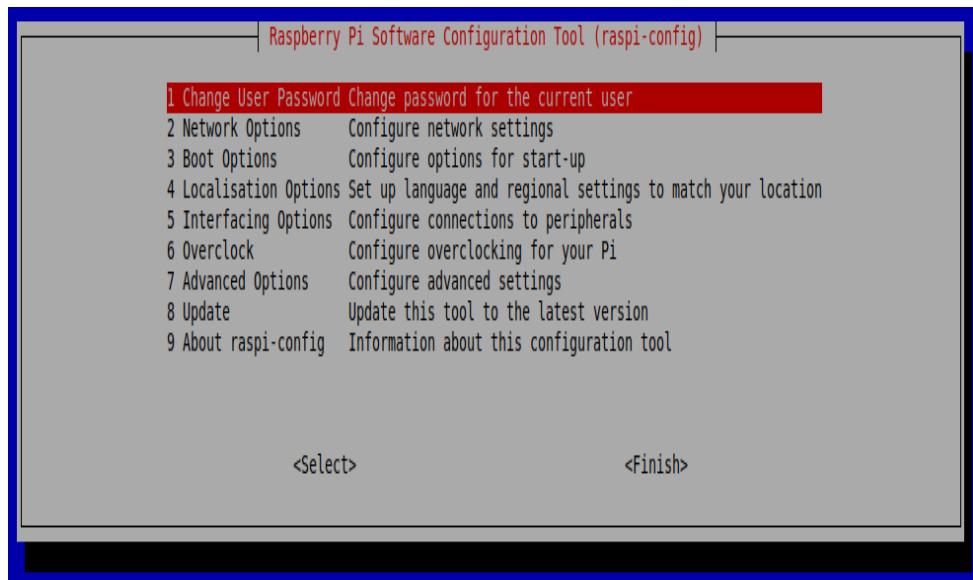


instructions for installing raspbian

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**

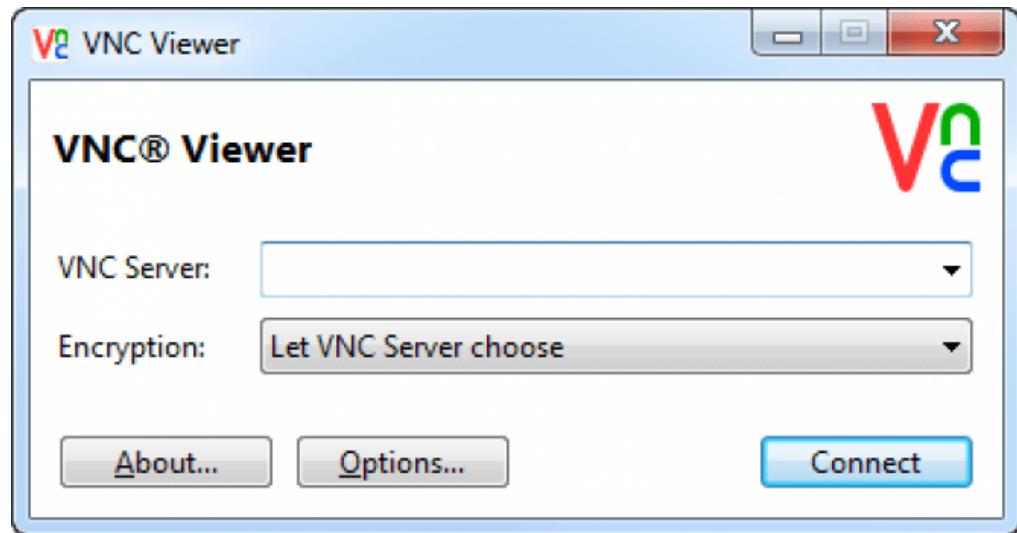
A screenshot of a terminal window titled "alex@ubuntu: ~". The window shows the command "ssh pi@192.168.0.3" being run, followed by the error message "ssh: connect to host 192.168.0.3 port 22: Connection refused". The terminal is part of a desktop environment, with a dock at the bottom containing icons for "Places", "Activities", and "Services".

```
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

12. install VNC viewer for your ms windows.



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

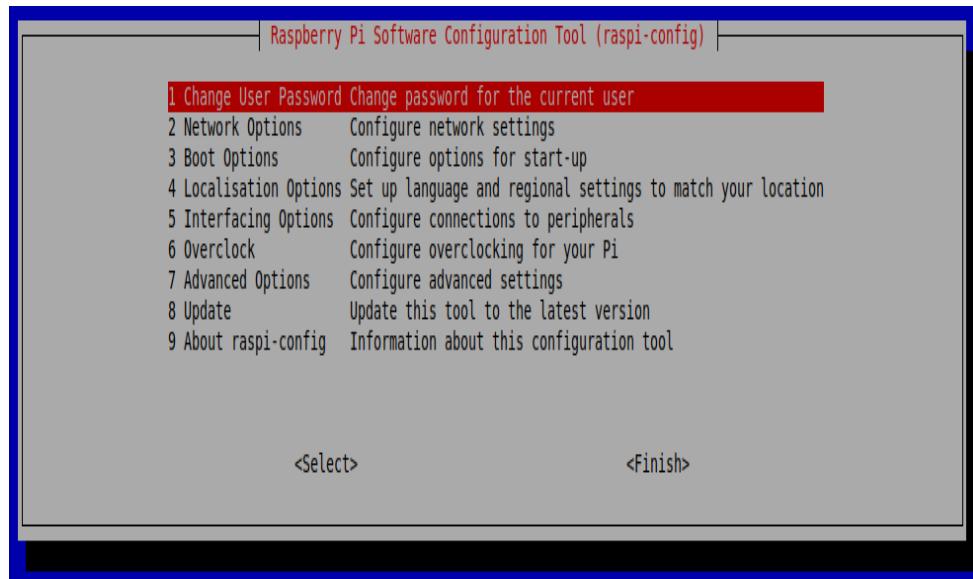


instructions for installing raspbian

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

sudo raspi-congfig

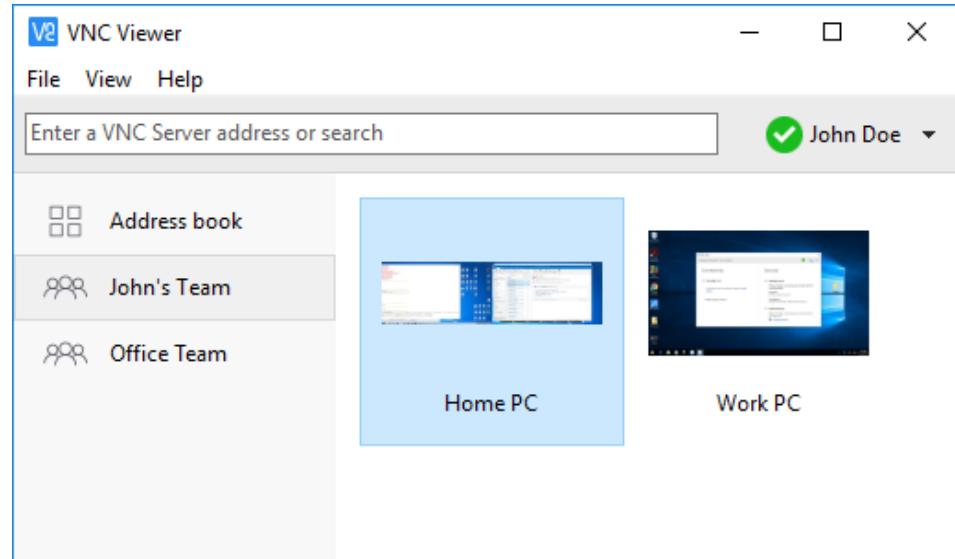
14.Reboot your raspberry_pi.





instructions for installing raspbian

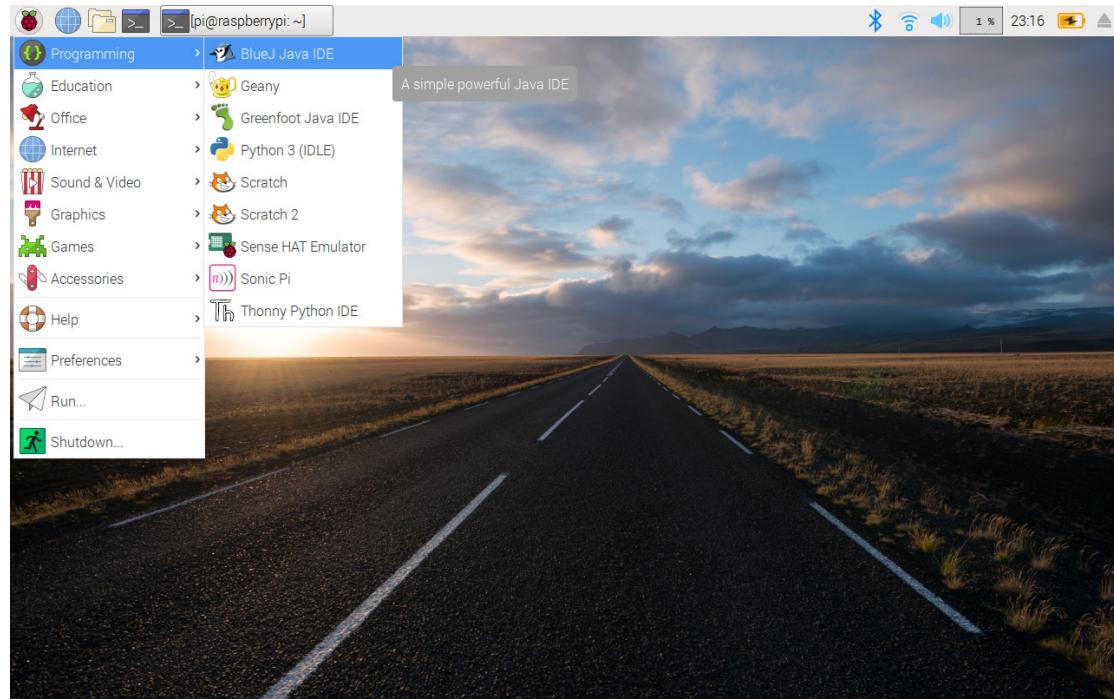
15.run vnc viewer on you ms windows and connect your raspberry_pi by network IP





instructions for installing raspbian

16. 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>

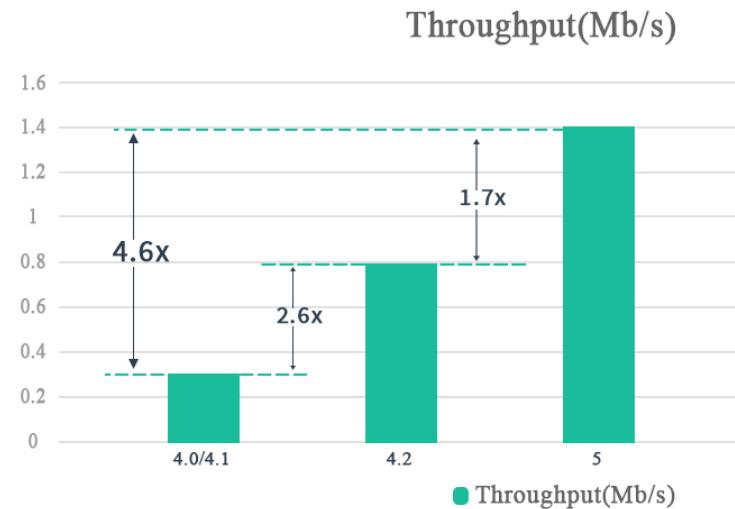
Temperature check

`:~$ 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