https://www.halvorsen.blog

Raspberry Pi

Installation and Remote Access

Hans-Petter Halvorsen

Contents

- Raspberry Pi
- Raspberry Pi Imager
- Advanced Options
- PuTTy
- VNC
- Remote Desktop Connection (RDC)
- VNC Viewer

Introduction

- We will install Raspberry Pi OS on the Raspberry Pi using the **Raspberry Pi Imager**
- If you have a Monitor (+ MicroHDMI to HDMI cable), Keyboard and a Mouse, you are ready to start using Raspberry Pi
- What if you don't have a Monitor, Keyboard and Mouse and want to setup and use the Raspberry Pi remotely?
- We will use the **Advanced options** in Raspberry Pi Imager to setup **SSH**, **WiFi**, etc.
- Then we can use **PuTTy** to get remote Terminal access to the Raspberry Pi
- Then we will use PuTTY to configure the Raspberry Pi by enabling **VNC** and make it ready for using the Raspberry Pi remotely using **Remote Desktop Connection (RDC)**
- An alternative to RDC is **VNC Viewer**

Raspberry Pi

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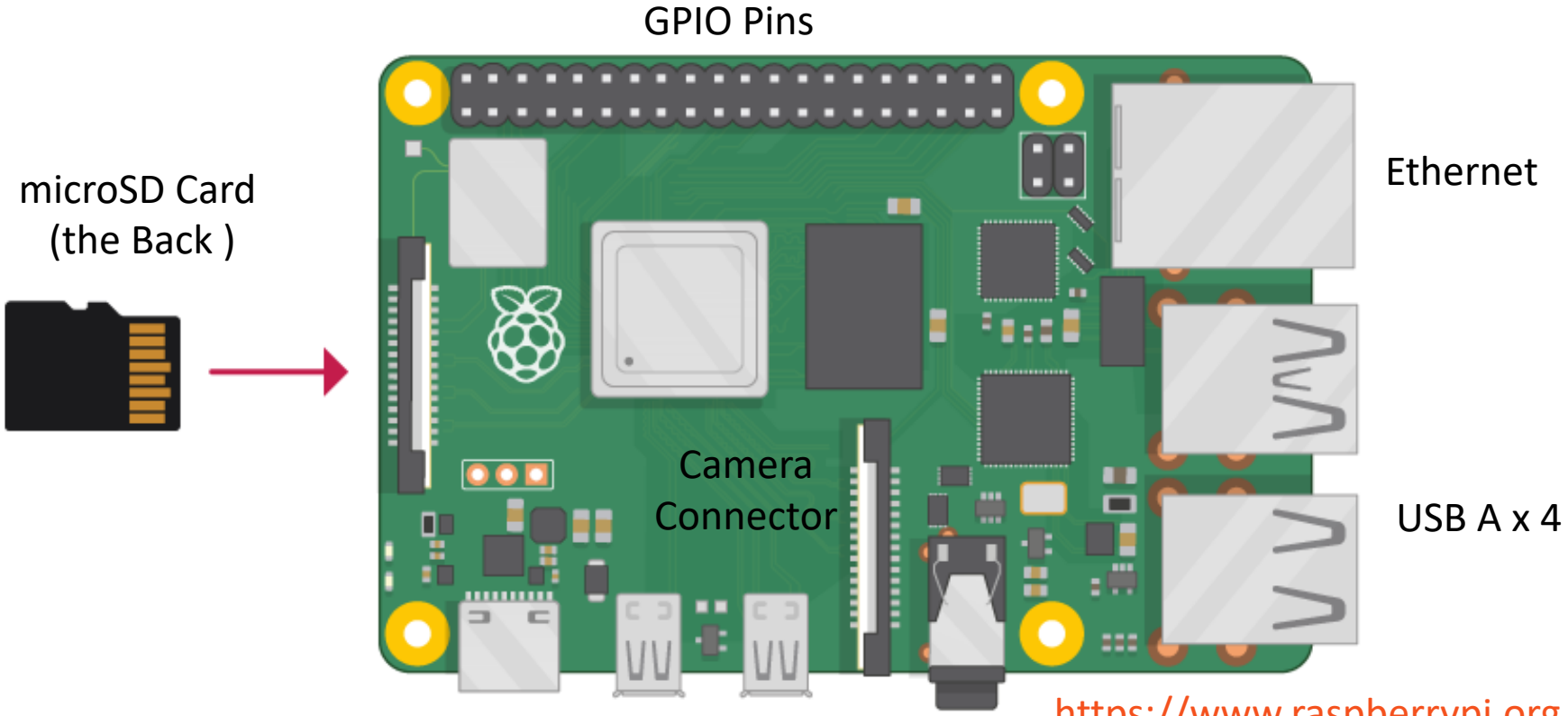
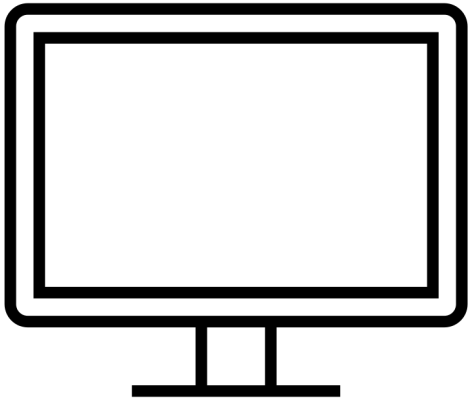
Raspberry Pi



What Do You Need?

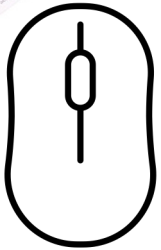
USB C **Power Supply**
15W (5V, 3A)

Monitor (with HDMI)

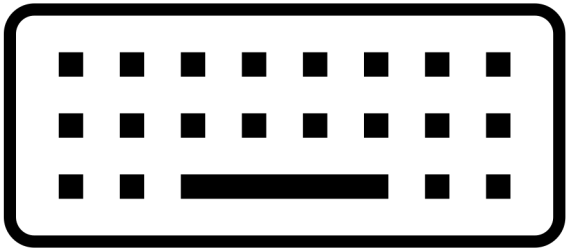


microHDMI to HDMI Cable

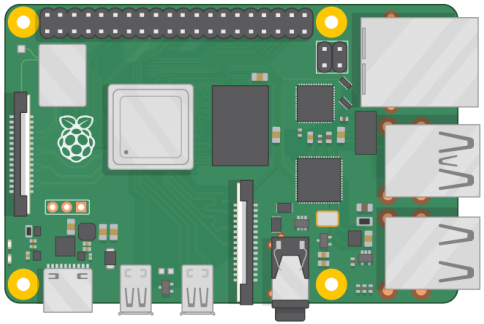
Mouse



Keyboard



Raspberry Pi



Micro SD Card (+ Adapter)

(8GB or more)

https://www.raspberrypi.org

Raspberry Pi OS

- In order make your Raspberry Pi up and running you need to install an Operating System (OS)
- The OS for Raspberry Pi is called Raspberry Pi OS (previously known as Raspbian)
- Raspberry Pi runs a version of an operating system called Linux (Windows and macOS are other operating systems).
- To install the necessary OS, you need a microSD card
- Then you use the **Raspberry Pi Imager** in order to download the OS to the microSD card

https://www.raspberrypi.org/software/

Raspberry Pi Imager

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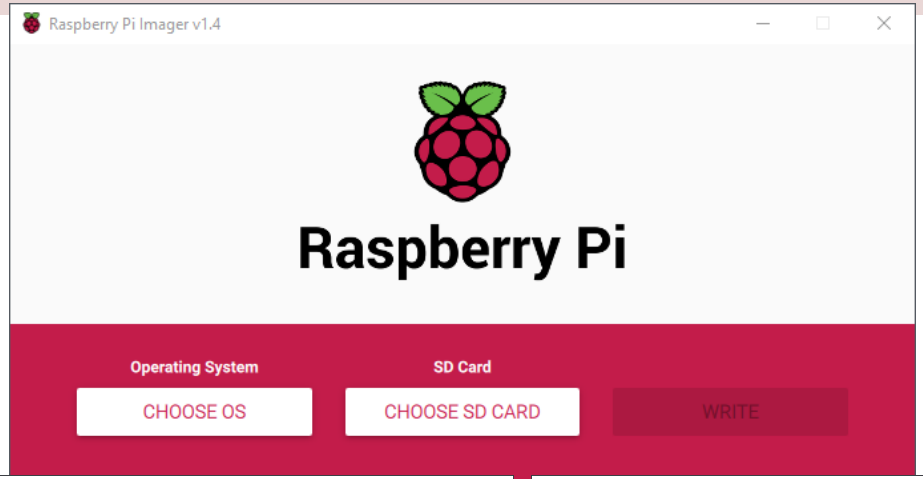
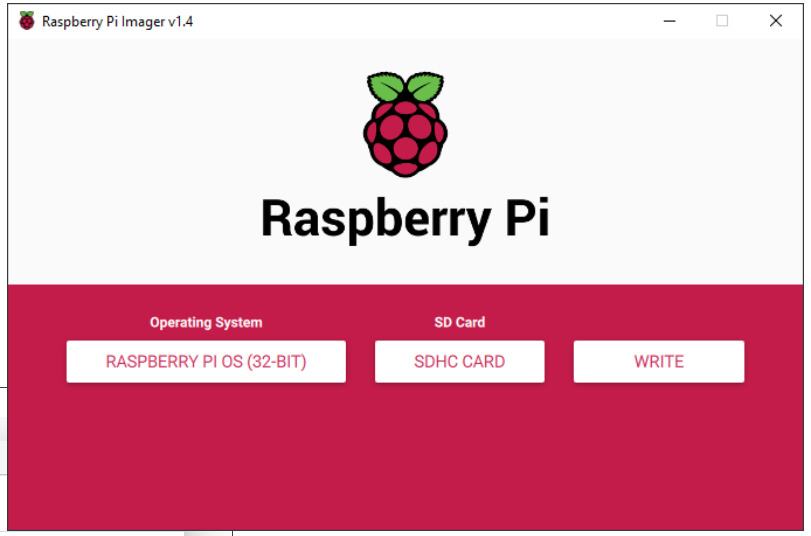
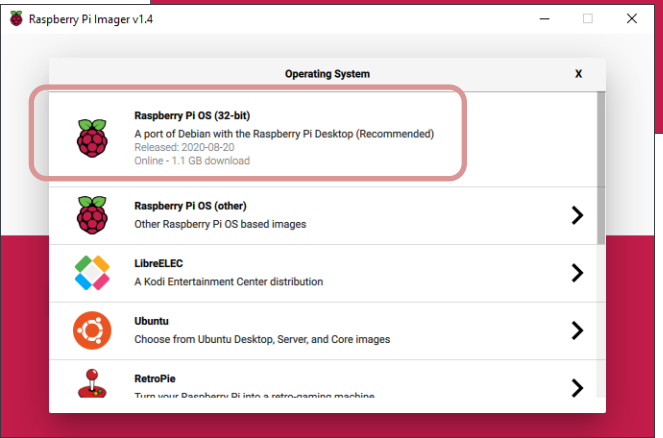
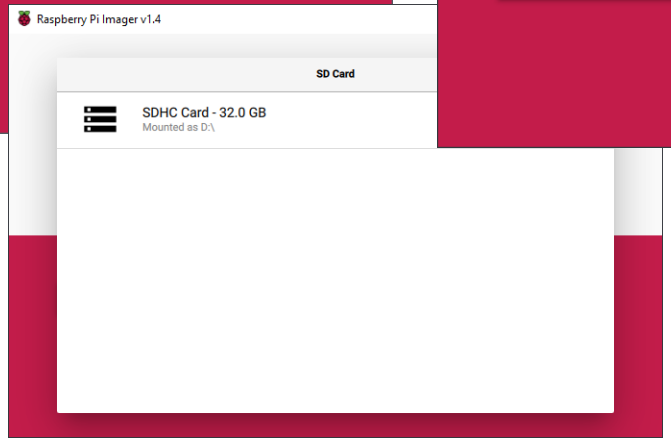
Raspberry Pi Imager









Advanced Options

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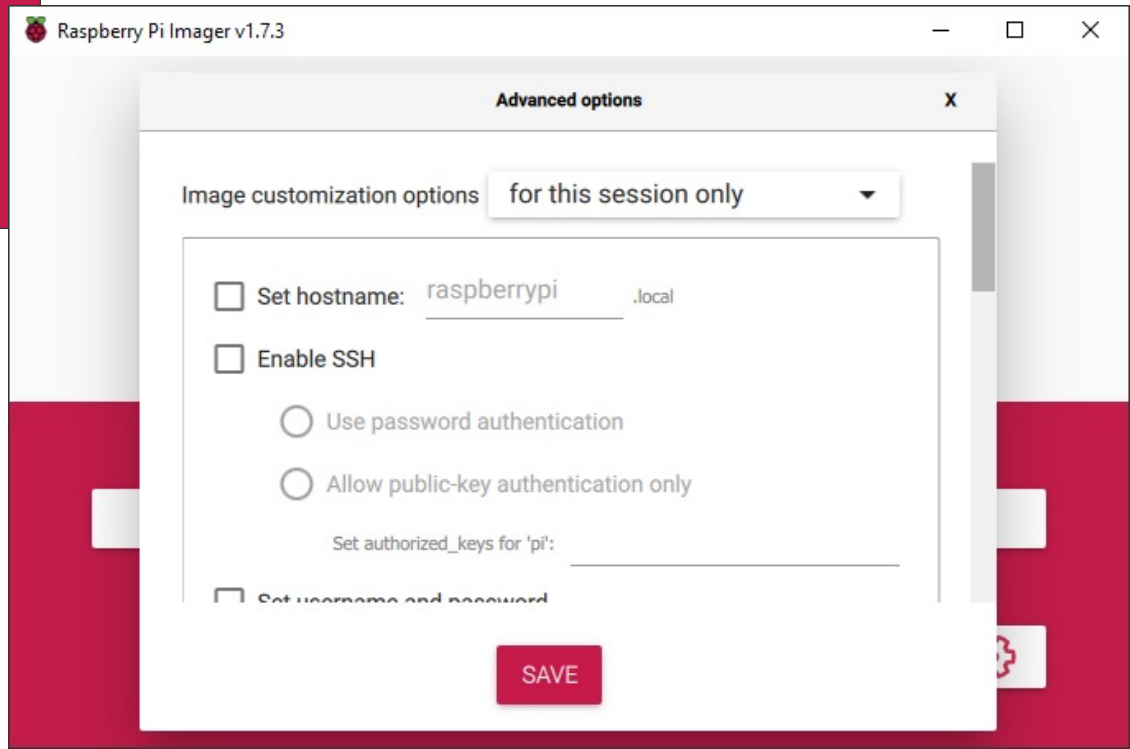
Raspberry Pi Imager v1.7.3
Raspberry Pi
Operating System
Storage
RASPBERRY PI OS (32-BIT)
SDHC CARD
WRITE


Raspberry Pi Imager v1.7.3
Advanced options
X
Image customization options
for this session only
Set hostname:
raspberrypi
.local
Enable SSH
Use password authentication
Allow public-key authentication only
Set authorized_keys for 'pi':
SAVE

PuTTy

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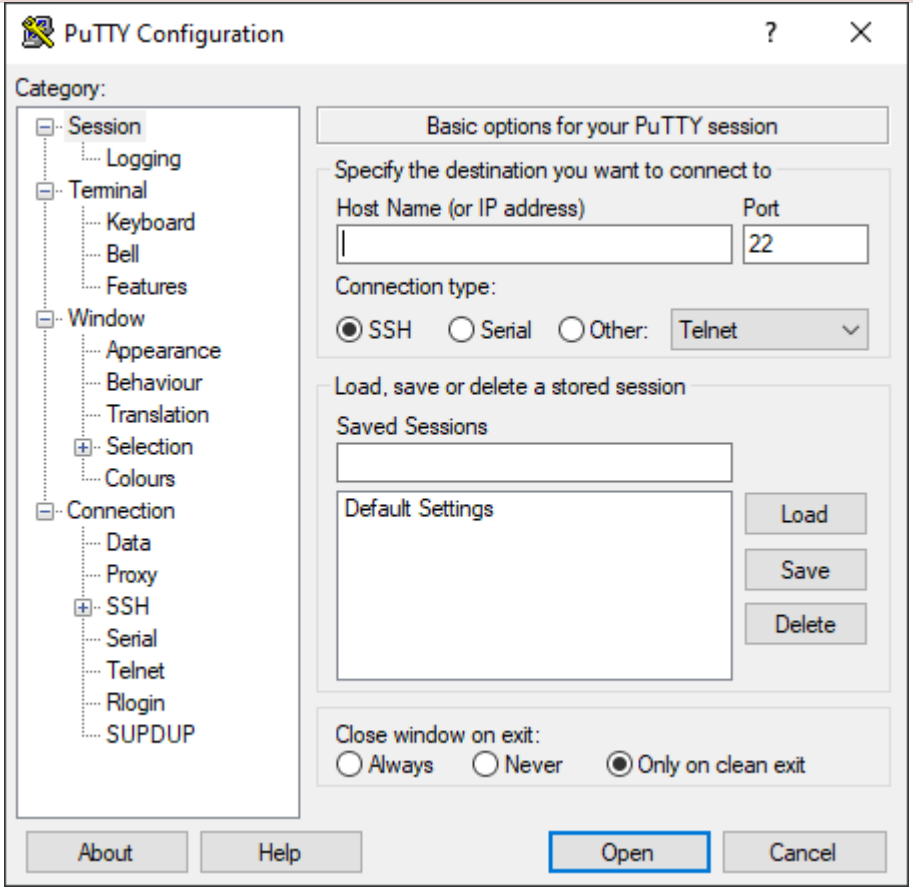
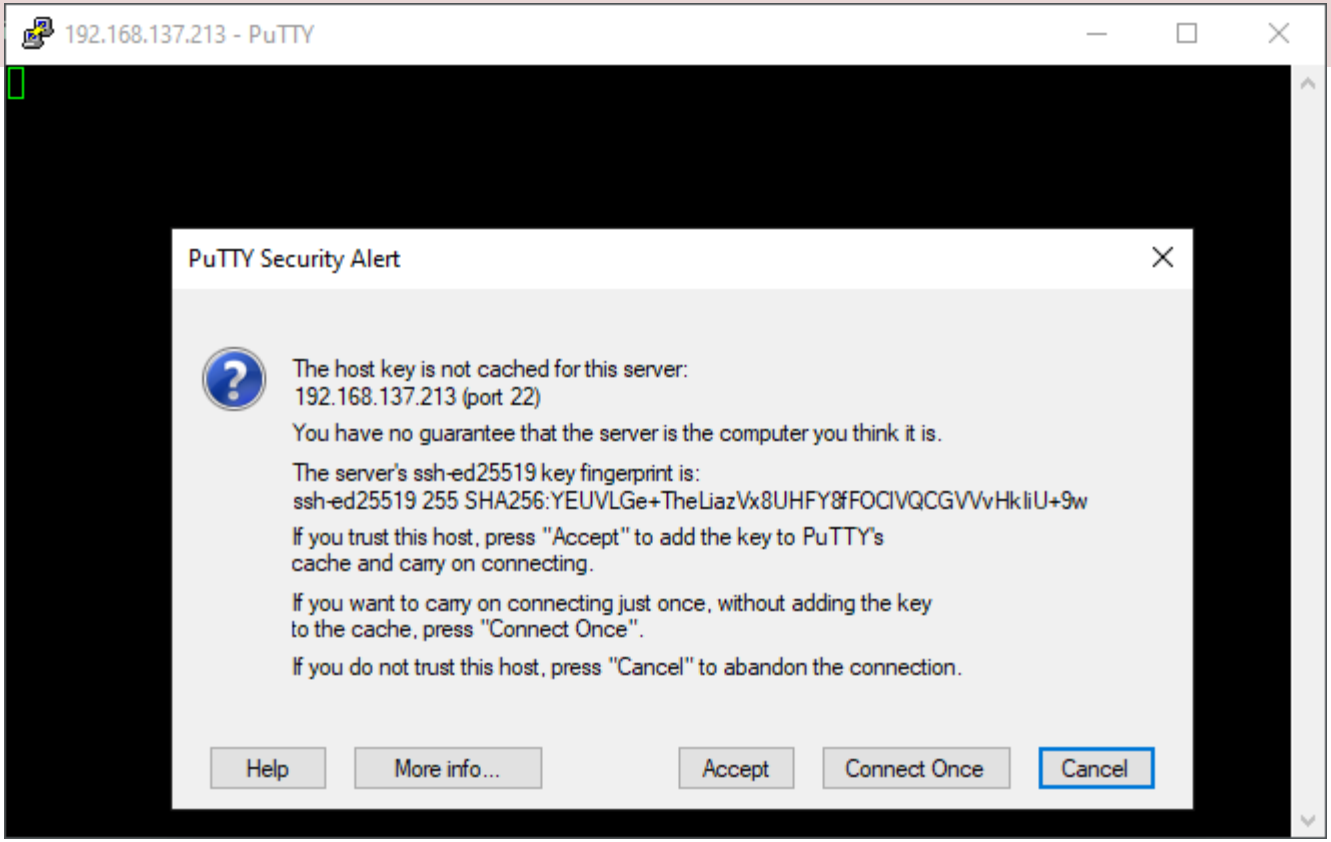
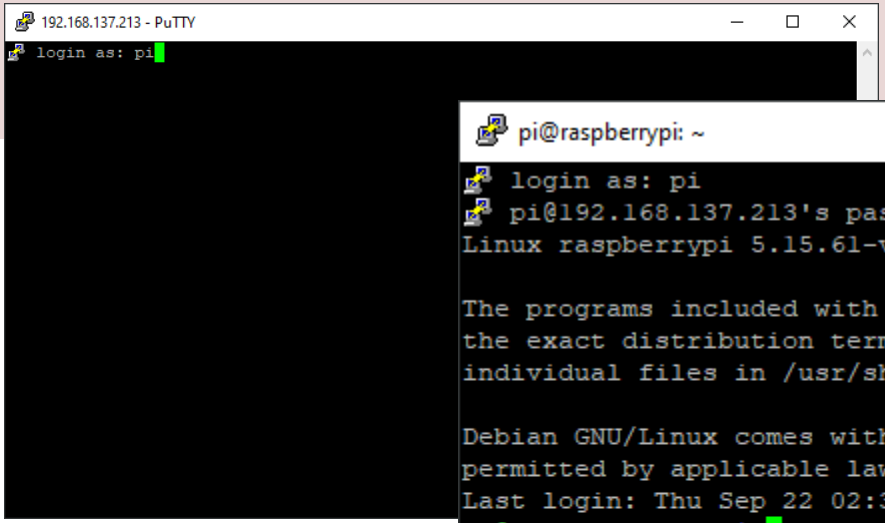
PuTTy

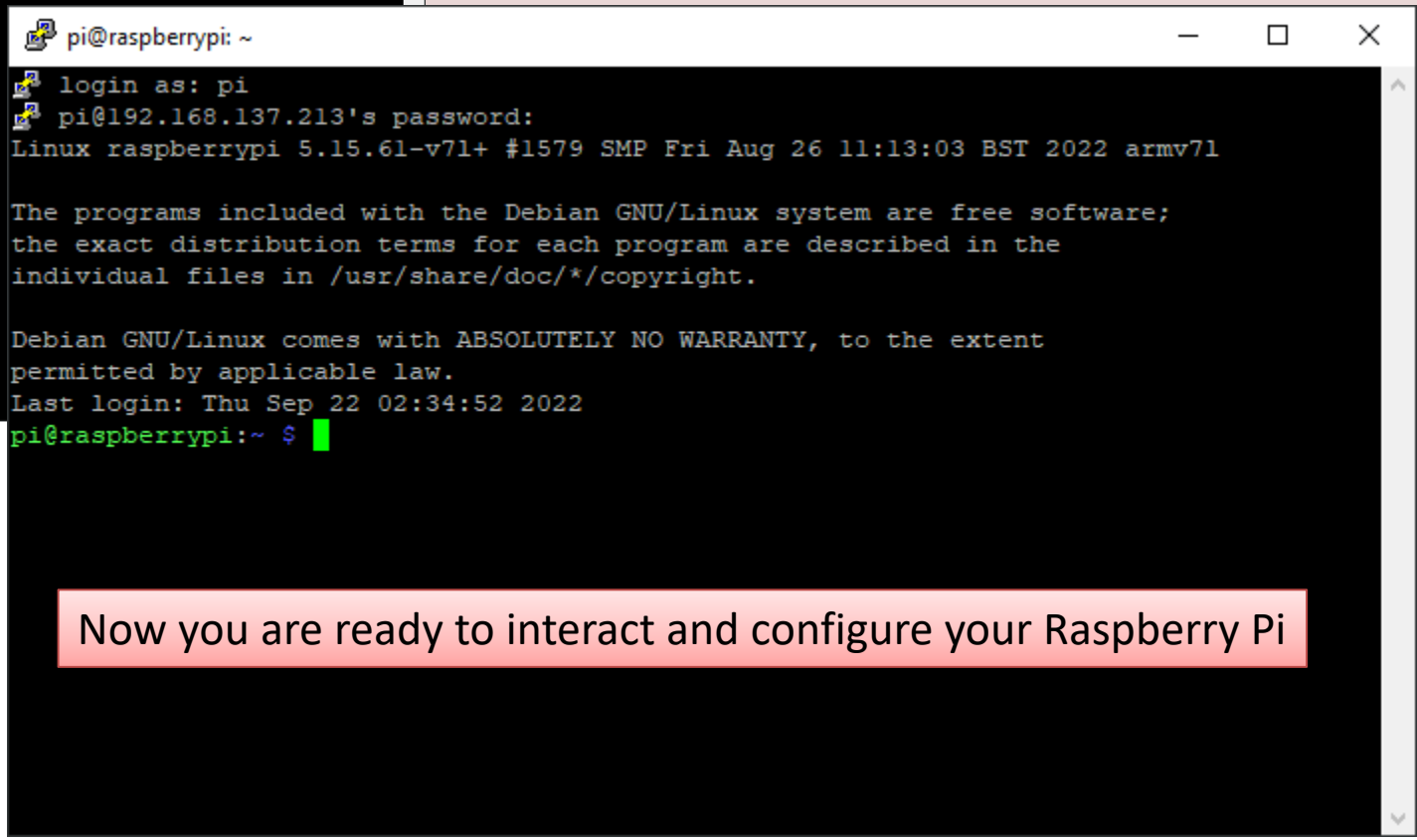
https://www.putty.org/





This appears only the first time. Click Accept





Now you are ready to interact and configure your Raspberry Pi

Type **exit** in order to close the PuTTy window

Update Raspberry Pi OS

- Run the following commands in the Terminal window/PuTTy:
- First run the following:

```
sudo apt update
```

- Then:

```
sudo apt full-upgrade
```

https://www.raspberrypi.org/documentation/raspbian/updating.md

VNC

Virtual Network Computing (VNC) is a Graphical Desktop-sharing System

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VNC

Enabling VNC Server:

- Open a terminal on your Raspberry Pi or use PuTTy
- Enter the command **sudo raspi-config**
- Use the arrow keys to select **Interfacing Options** and press Enter
- Use the arrow keys to select **VNC** and press Enter.
- You will be prompted to enable VNC Server.

RDC

Remote Desktop Connection

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XRDP

XRDP is a free and open-source implementation of Microsoft RDP (Remote Desktop Protocol) server

Install XRDP

- `sudo apt-get install xrdp`

Add User

In order to use RDC we need to create a new user on the Raspberry Pi

Create New User for RDC connection

- `sudo adduser <username>`

If user needs access to GPIO:

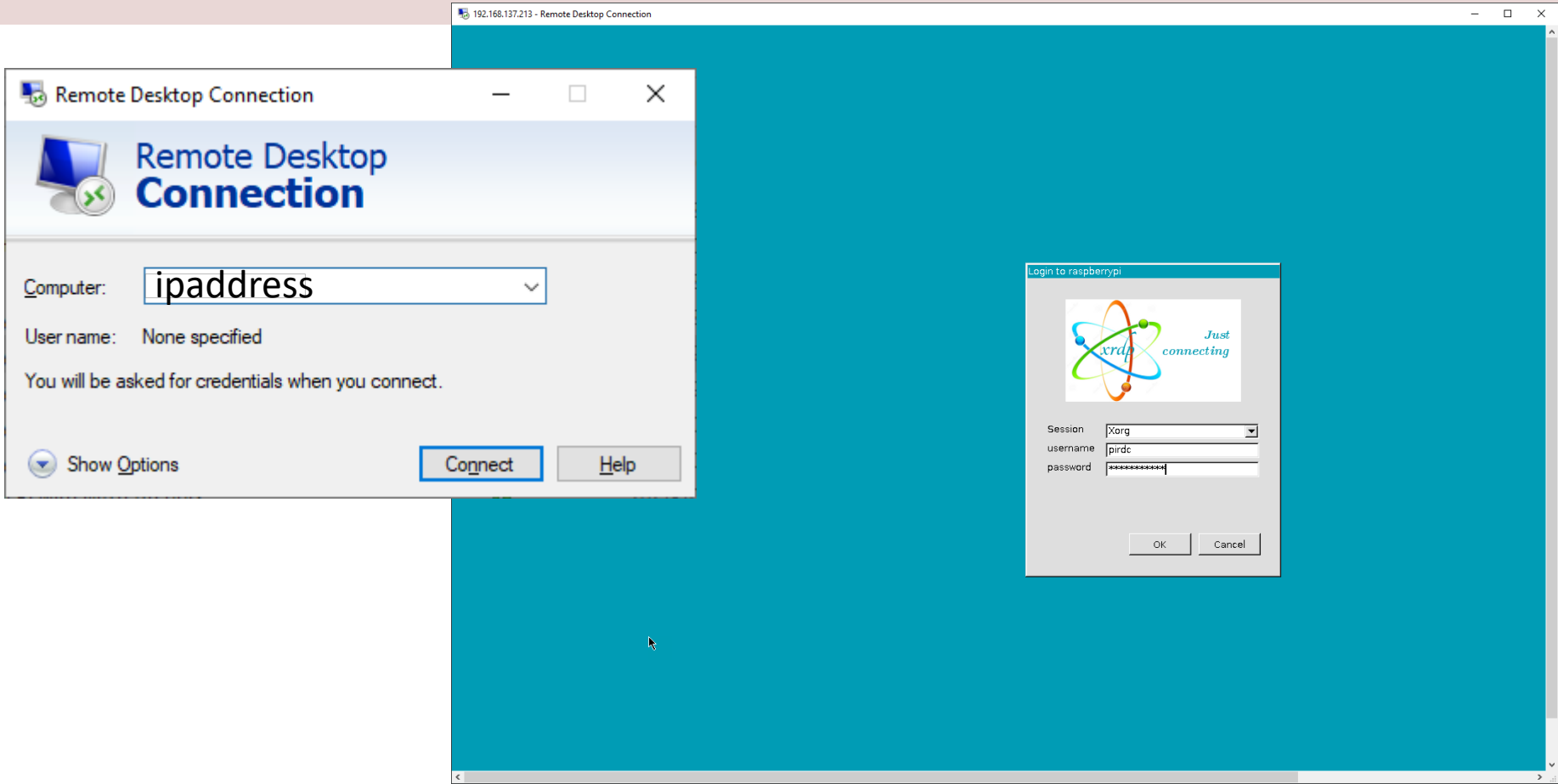
```
sudo adduser <username> gpio
```

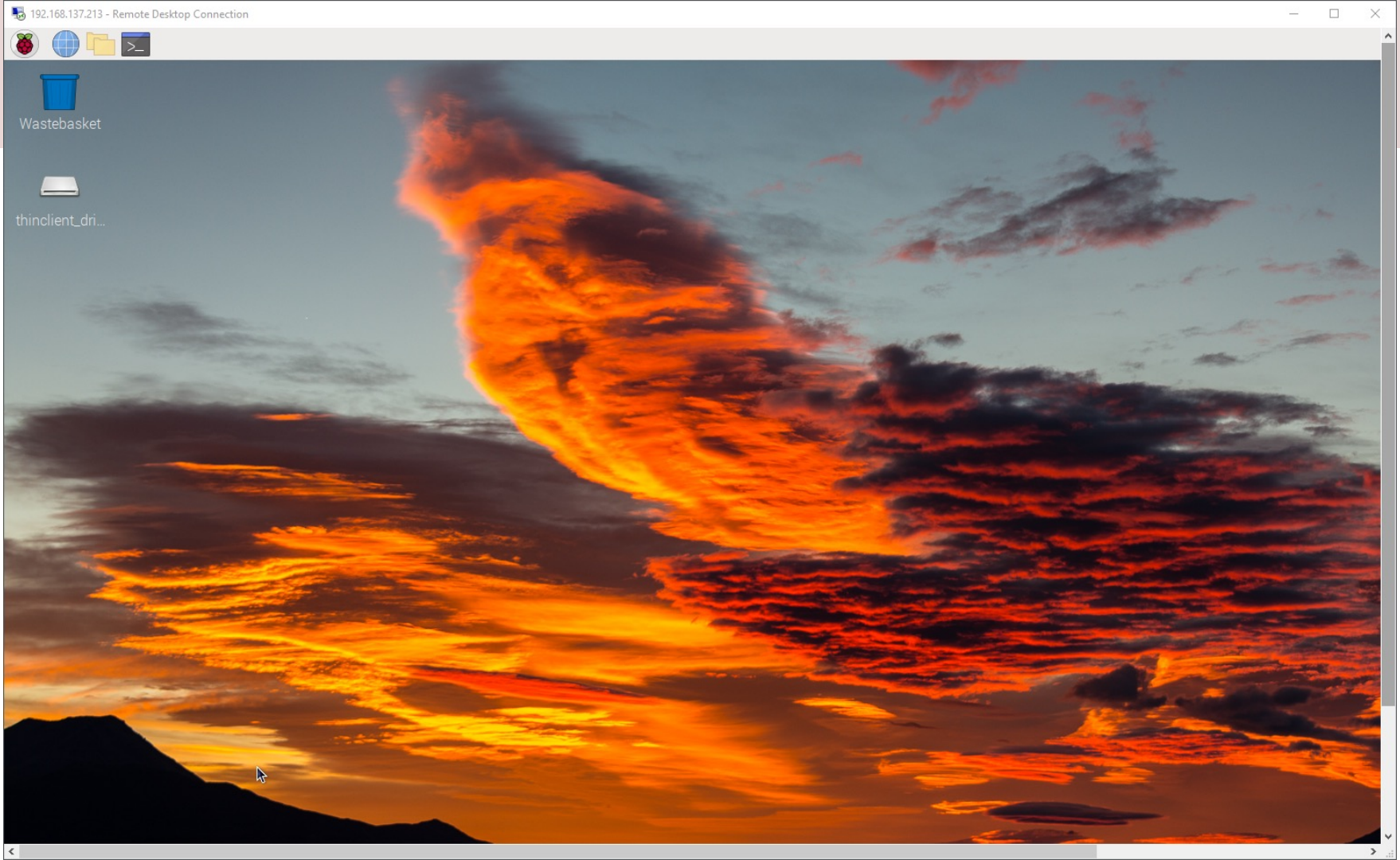
Adding new user with SUDO permission

```
sudo usermod <username> -a -G pi,adm,dialout,cdrom,sudo,audio,video,plugdev,games,users,input,netdev,spi,i2c,gpio
```

https://forums.raspberrypi.com/viewtopic.php?t=169079&sid=2dd732a5f43a8ded3bf1f837b36f8c91

Remote Desktop Connection (RDC)




192.168.137.213 - Remote Desktop Connection
Wastebasket
thinclient_dri...

VNC Viewer

VNC Viewer is an alternative to Remote Desktop Connection (RDC)

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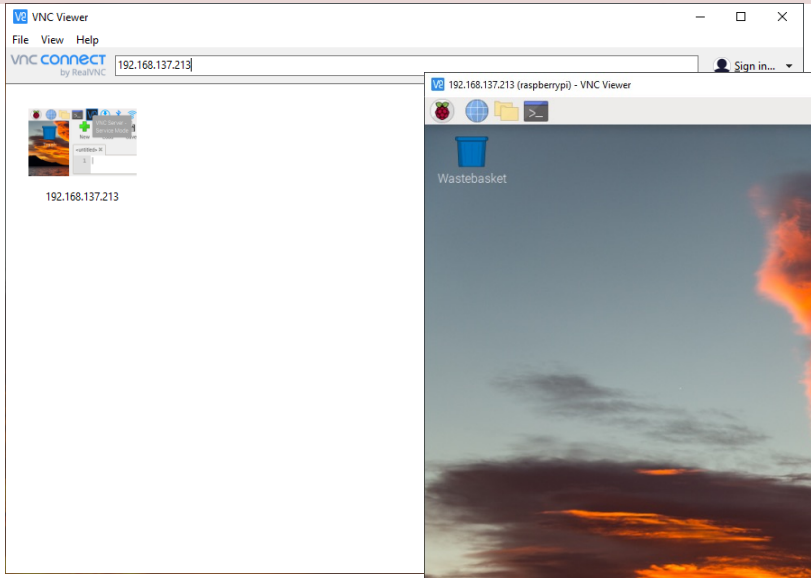
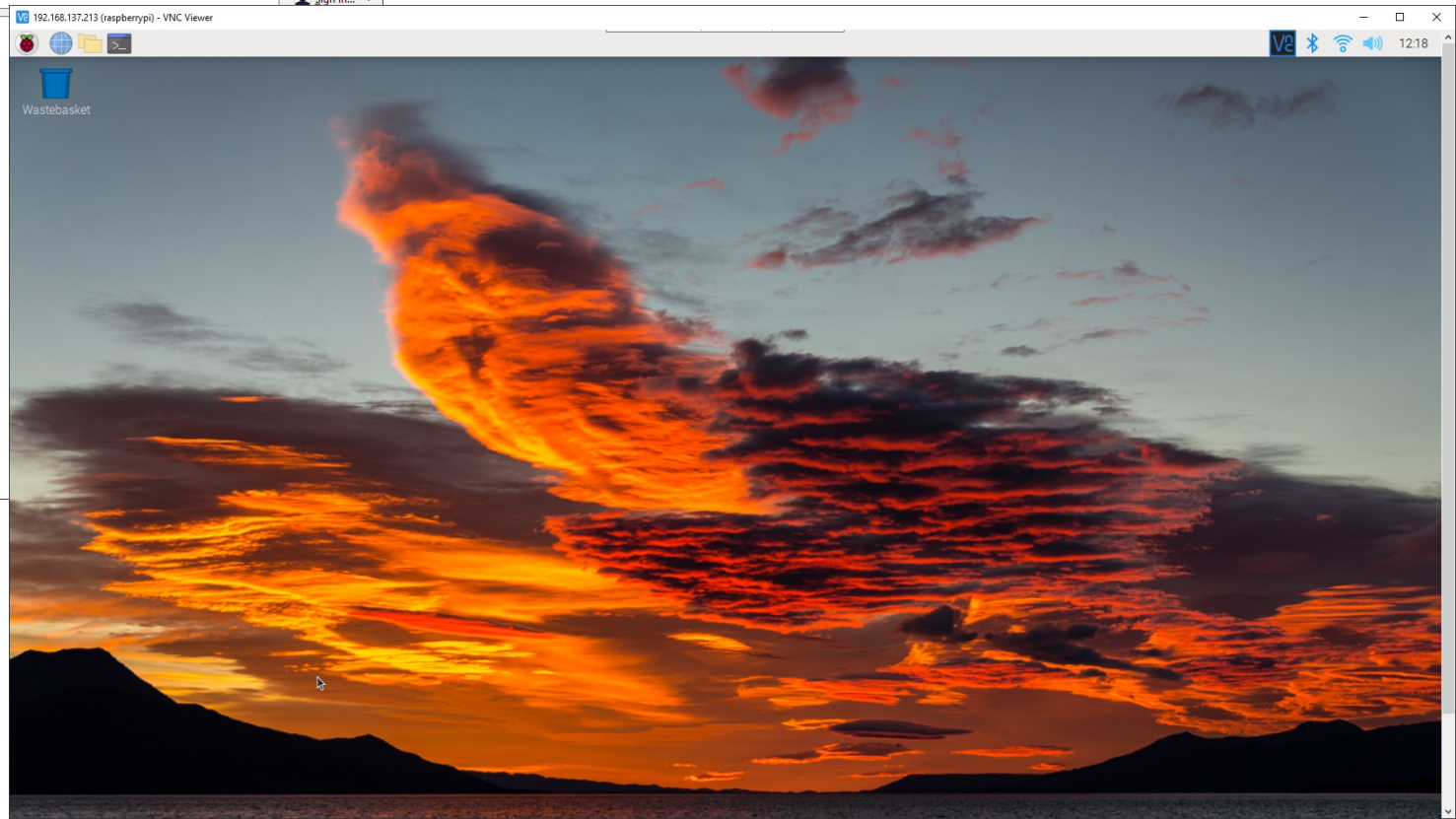
VNC and VNC Viewer

- VNC Viewer is an alternative to Remote Desktop Connection (RDC)
- RDC is included with Windows
- You need to download and install the VNC Viewer

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

VNC Viewer


VNC Viewer
File View Help
192.168.137.213
Sign in...
192.168.137.213


192.168.137.213 (raspberrypi) - VNC Viewer
Wastebasket
12:18

Summary

- We installed Raspberry Pi OS on the Raspberry Pi using the **Raspberry Pi Imager**
- If you have a Monitor (+ MicroHDMI to HDMI cable), Keyboard and a Mouse, you are ready to start using Raspberry Pi
- What if you don’t have a Monitor, Keyboard and Mouse and want to setup and use the Raspberry Pi remotely?
- We used the **Advanced options** in Raspberry Pi Imager to setup **SSH**, **WiFi**, etc.
- Then we used **PuTTy** to get remote Terminal access to the Raspberry Pi
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