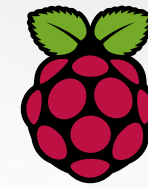


Executar JMRI en una Raspberry Pi Model 3 B+

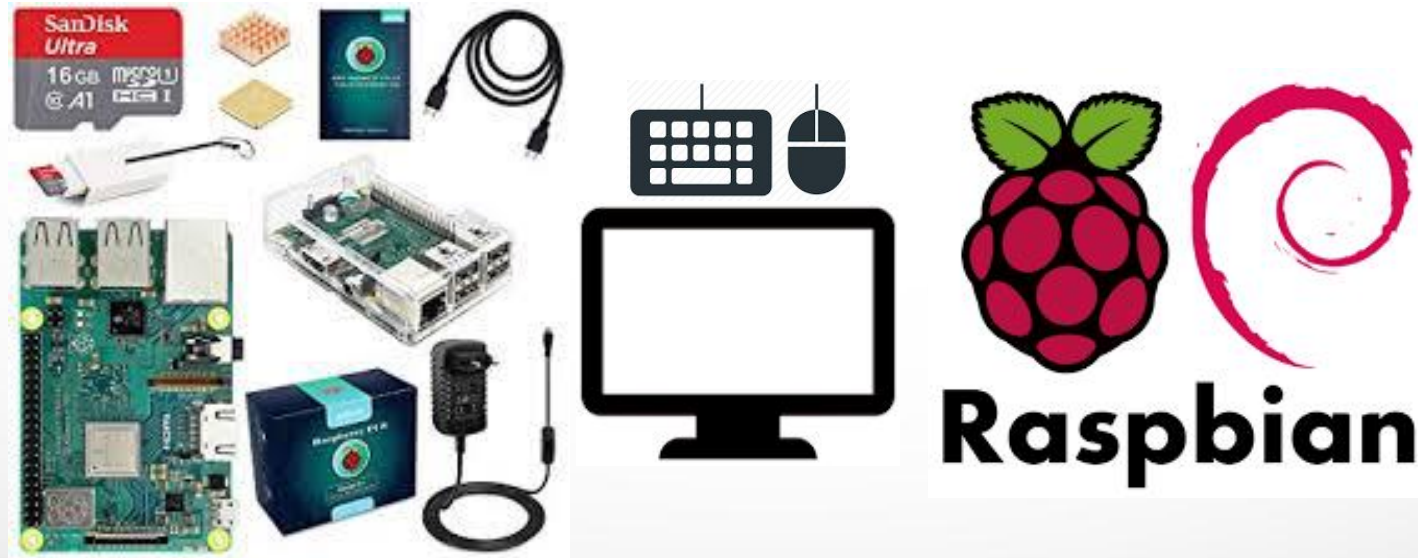


Executar JMRI-PanelPro en una
Raspberry Pi model 3 B+
amb sistema operatiu
Linux Raspbian.

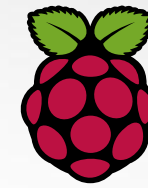
Qué es una Raspberry Pi?.



- La Raspberry Pi és un mini-ordinador d'arquitectura ARM de baix cost (uns 34€ aproximadament), desenvolupat al Regne Unit per la Fundació Raspberry Pi. L'objectiu principal és estimular l'ensenyança de les ciències de la computació als joves, però s'ha popularitzat com a plataforma per a dissenys i per a usos informàtics generals.
- La fundació dóna suport a diferents distribucions de Linux adaptades a l'arquitectura ARM entre les que destaca Raspbian, derivada de Debian.



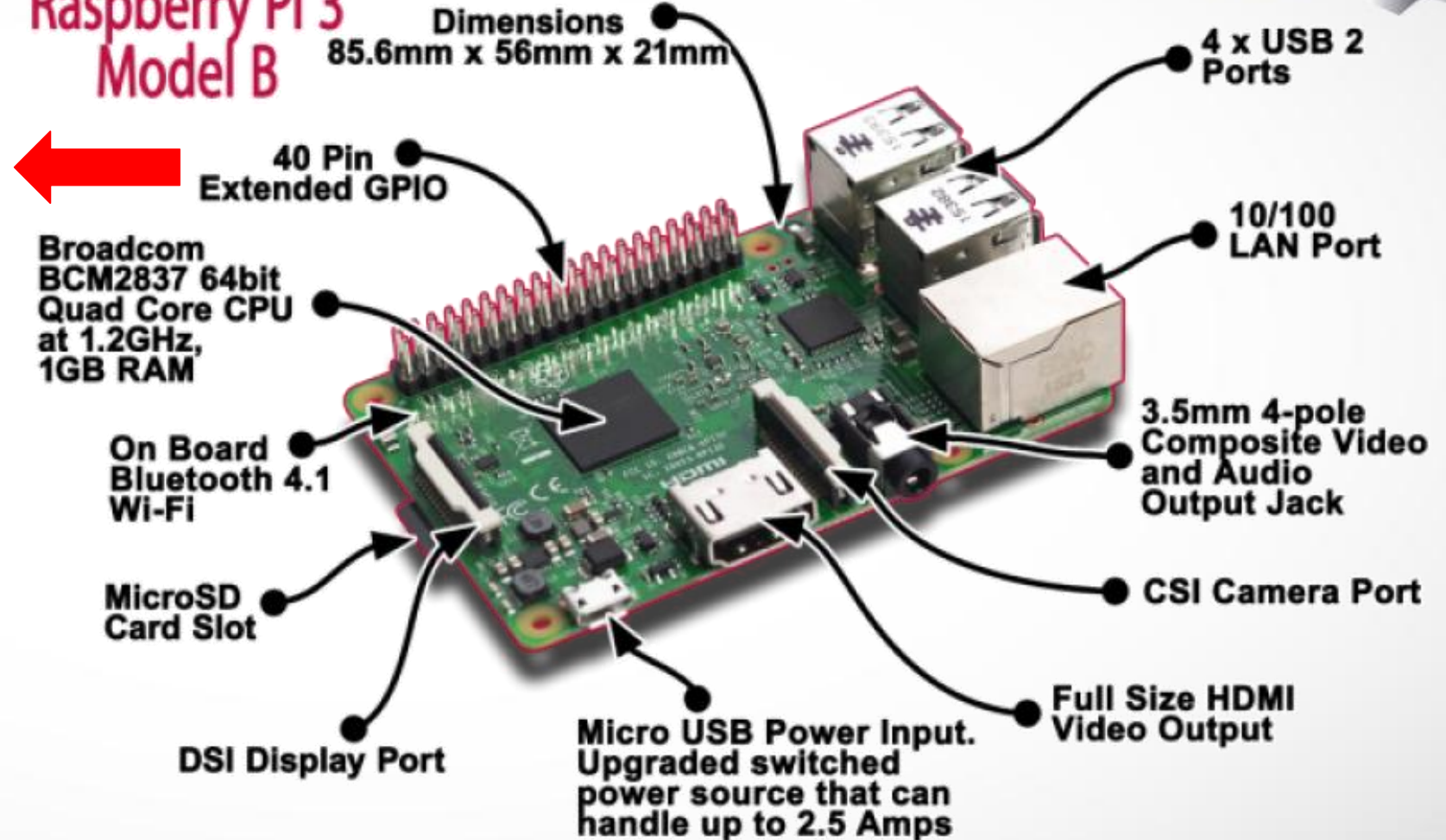
Parts de la Raspberry Pi:



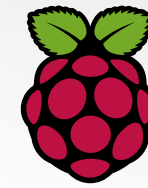
Raspberry Pi 3 Model B (J8 Header)				
GPIO#	NAME		NAME	GPIO#
	3.3 VDC Power	1		2
8	GPIO 8 SDA1 (I2C)	3		4
9	GPIO 9 SCL1 (I2C)	5		6
7	GPIO 7 GPCLK0	7		8
	Ground	9		10
0	GPIO 0	11		12
2	GPIO 2	13		14
3	GPIO 3	15		16
	3.3 VDC Power	17		18
12	GPIO 12 MOSI (SPI)	19		20
13	GPIO 13 MISO (SPI)	21		22
14	GPIO 14 SCLK (SPI)	23		24
	Ground	25		26
30	SDA0 (I2C ID EEPROM)	27		28
21	GPIO 21 GPCLK1	29		30
22	GPIO 22 GPCLK2	31		32
23	GPIO 23 PWM1	33		34
24	GPIO 24 PCM_FS/PWM1	35		36
25	GPIO 25	37		38
	Ground	39		40

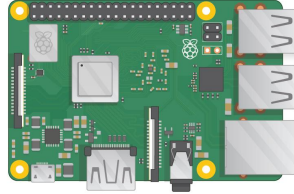





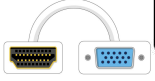




Raspberry Pi 3 Model B

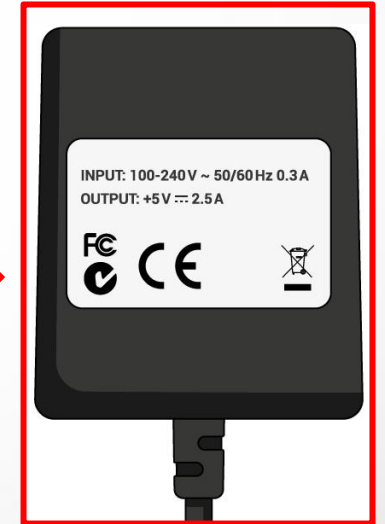
Dimensions
85.6mm x 56mm x 21mm



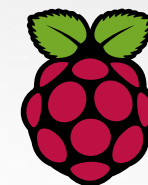
Material necessari:







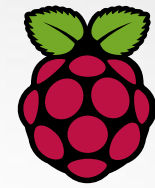
- Raspberry Pi Model 3 B+. 
- Targeta Micro-SD (mínim 16-32GB).   : Class 10
: UHS Speed Class3
- Teclat i ratolí USB.   
- Monitor HDMI (conversor VGA o DVI).  
- Cable Ethernet i connexió a internet. 
- Alimentador 5 volts 2,5 Amp. 
- PC amb Windows, Linux o macOS, i un lector de targetes Micro-SD. 



Inversió aproximada:



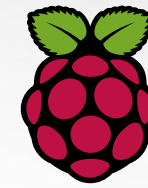
Producto	Descripción	Disponibilidad	Precio unitario	Cant.	Total
	Raspberry Pi 3 Modelo B+ 1 GB SKU : 2842229	En stock	33,85 € -13% 38,90 €	1 - +	33,85 €
	Caja Modular para Raspberry Pi 3 B+ SKU : 19coff-bk+ Color : Negro	En stock. Enviado en 24h / 48h	7,50 €	1 - +	7,50 €
	Unidad de fuente de alimentación Micro USB 5,1V 2,5A SKU : SC0136 Color : Negro	En stock	7,95 €	1 - +	7,95 €
	Carte Micro SD No Name 16 Go Classe 10 SKU : XINSD16No	En stock	7,50 €	1 - +	7,50 €
Total productos (impuestos inc.)					56,80 €
Total gastos de envío (impuestos inc.)					4,96 €
TOTAL					61,76 €



Pasos per instal·lar Raspbian:

1. Descarregar Raspbian i Etcher (eina per gravar imatges en format *img* de Sistemes Operatius).
2. Descomprimir arxiu ZIP Raspbian descarregat.
3. Preparar targeta Micro-SD amb Etcher i arxiu descomprimit.
4. Connectar cables a la Raspberry.
5. Arrancar Raspberry.
6. Customitzar Raspbian.
7. Connectivitat amb Raspbian.

Descarregar Rasbian i Etcher:



Raspbian:

- Descàrrega de Raspberry Pi amb el JMRI preinstal·lat.
https://drive.google.com/file/d/1Yu_au-CNrGnOoHKoD2OwTj0FH4nPh1LN/view?usp=sharing

JMRI RaspberryPi as Access Point



Many model railroaders would benefit from using smartphones as Throttles, but most are not computer experts, and may be intimidated by the setup required. To lower this bar, I've preconfigured everything needed to get started, and provide the software free of charge.

First, start with the tiny [RaspberryPi](#) computer (\$35). Download my free, preconfigured image to your SD card. Then simply turn on main power, and the RPI will start up and load JMRI, scanning for your layout hardware connection. It will also start up a dedicated wireless network from the RPI. Within 30 seconds, you can connect your phone(s) or pad(s) to the RPI's Wifi and start running trains! The RPI needs no screen, keyboard or mouse, so it can stay nicely out of the way under the layout, or in your electronics box [\[photo\]](#).

Below are the details of how to get your own JMRI RaspberryPi access point for [EngineDriver](#) and [WiThrottle](#) devices:

Hardware

Item	Purchase
RaspberryPi 3 Model B+	Newark
5V 2.5A Power Supply w/ MicroUSB Cable	NewEgg
8Gb MicroSD memory card	NewEgg
RPI Case with Lid (**optional)	Newark

Software Image

I have built an image file which contains all software and config needed to autostart JMRI PanelPro on the RPI, as an access point, with WiThrottle Server, Web Server and LoconetOverTCP (or JMRI Simple) server included. Also included is remote access to the RPI via ssh (command line) and to the RPI "desktop" via VNCServer (at port :5900) Download the [zipped image file \[here\]](#) (1.4Gb, updated April 21, 2019), or the previous version [\[here\]](#) (1.3Gb, updated January 3, 2019). NOTE: Ignore the "too large" warnings and click "Download".

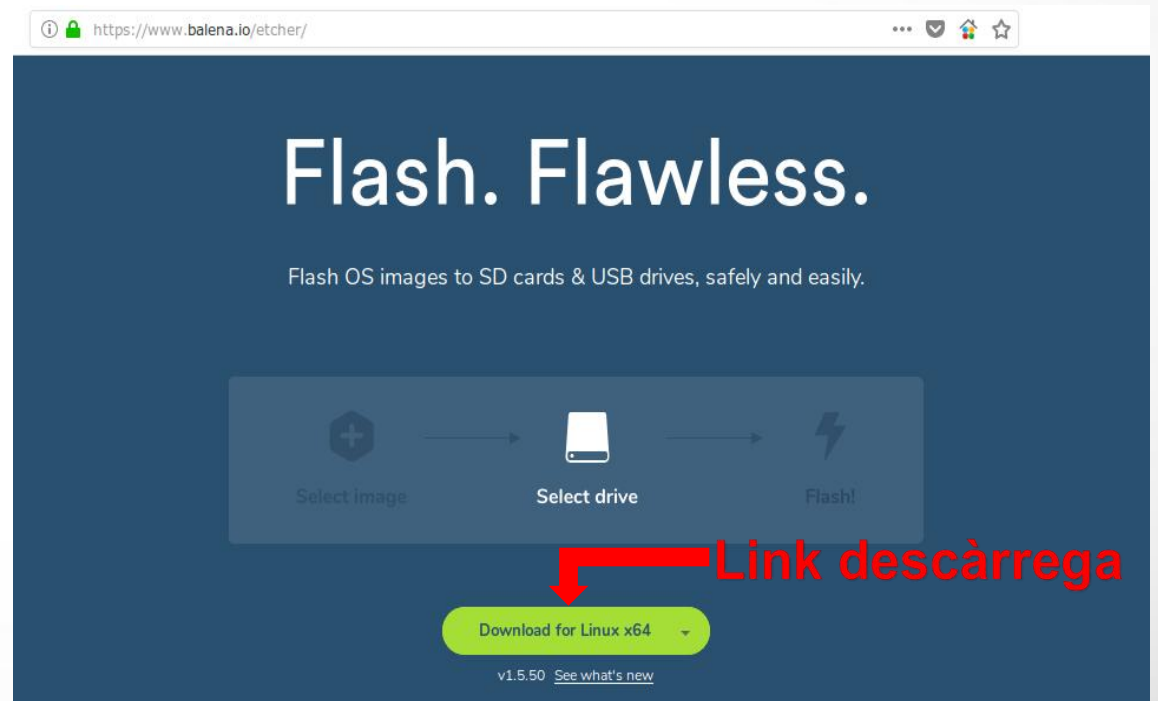
The image features:

- Autoidentification of attached hardware (Locobuffer-USB, PR3, SPROG, LENZ USB, NCE Serial, NCE USB, DCC++, EasyDCC Serial, MERG USB, MRC Prodigy)
- Autostart of PanelPro with WiThrottle and Web Server.
- Creates network access point for device connection, or can be plugged into existing network

Link descàrrega

Etcher:

- Pàgina oficial de Etcher.
<https://www.balena.io/etcher/>
Versions: Windows (portable) - Linux - macOS



Flash. Flawless.

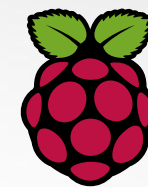
Flash OS images to SD cards & USB drives, safely and easily.

Select image → Select drive → Flash!

Link descàrrega

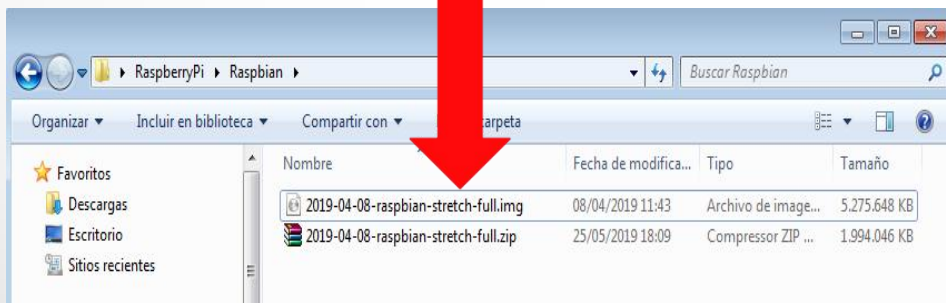
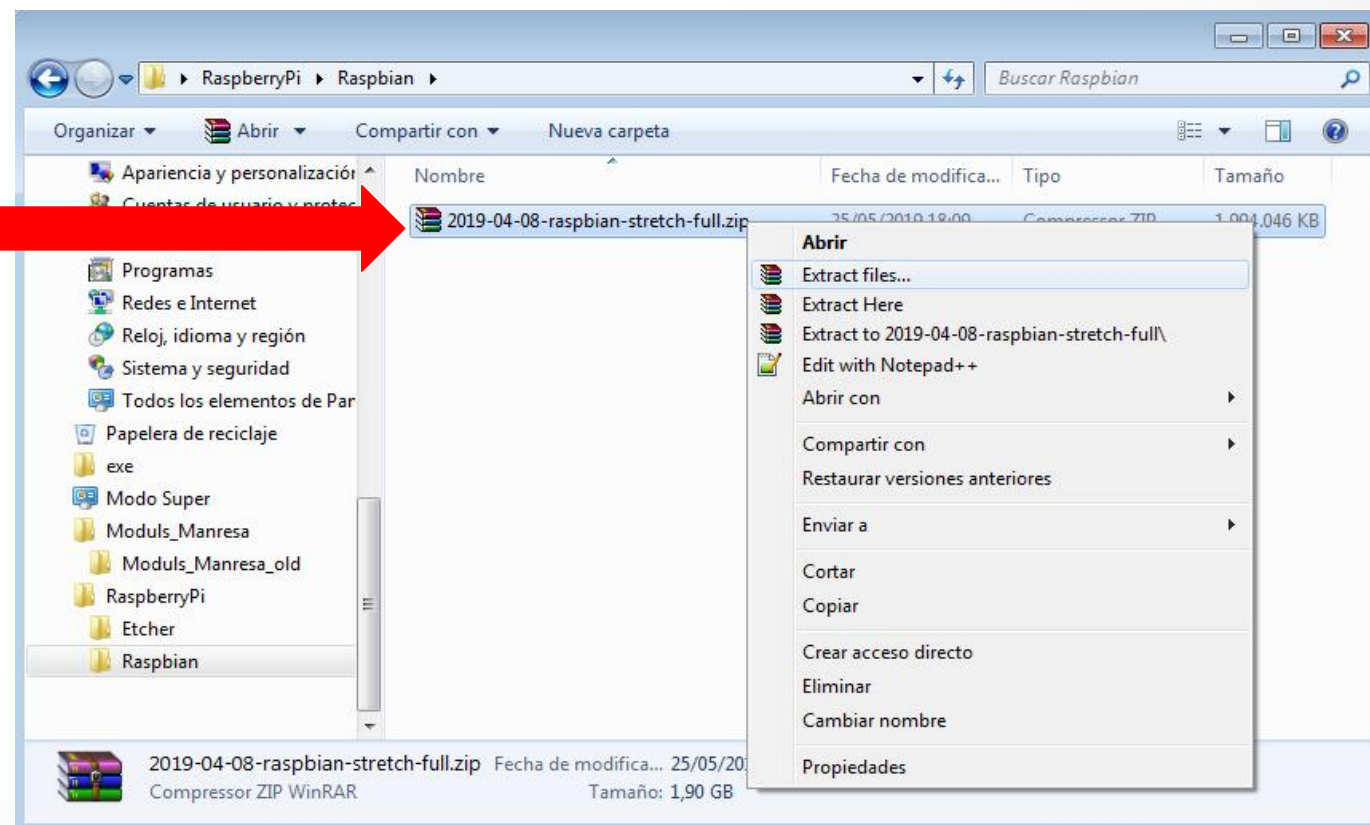
Download for Linux x64 v1.5.50 [See what's new](#)

Descomprimir arxiu zip de Raspbian:



1. Seleccionem l'arxiu descarregat de Raspbian i amb el botó secundari del ratolí, cal descomprimir l'arxiu zip, ho podem fer amb el *WinZip* el *Winrar*, el *7zip* (Linux) o el *Unarchiver* (Macintosh), obtindrem un nou arxiu amb extensió *img*.

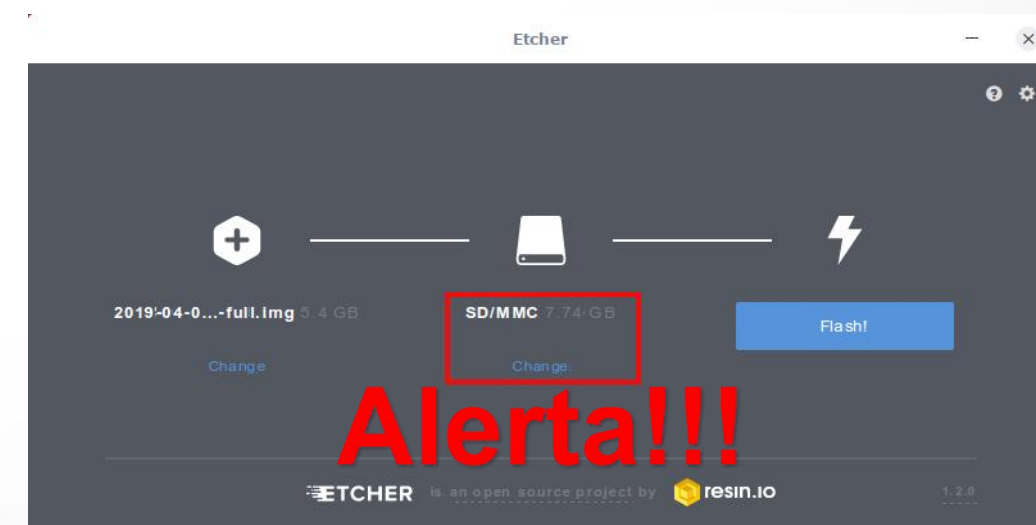
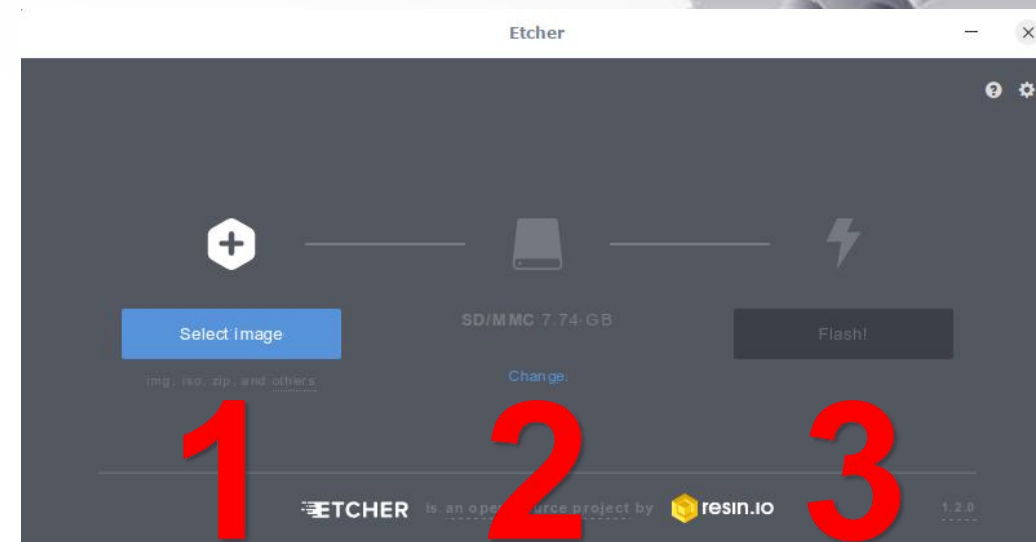
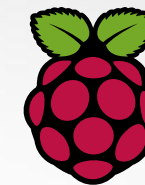
2. L'arxiu *img* conté el sistema operatiu Raspbian, es el que haurem d'utilitzar amb l'eina Etcher.



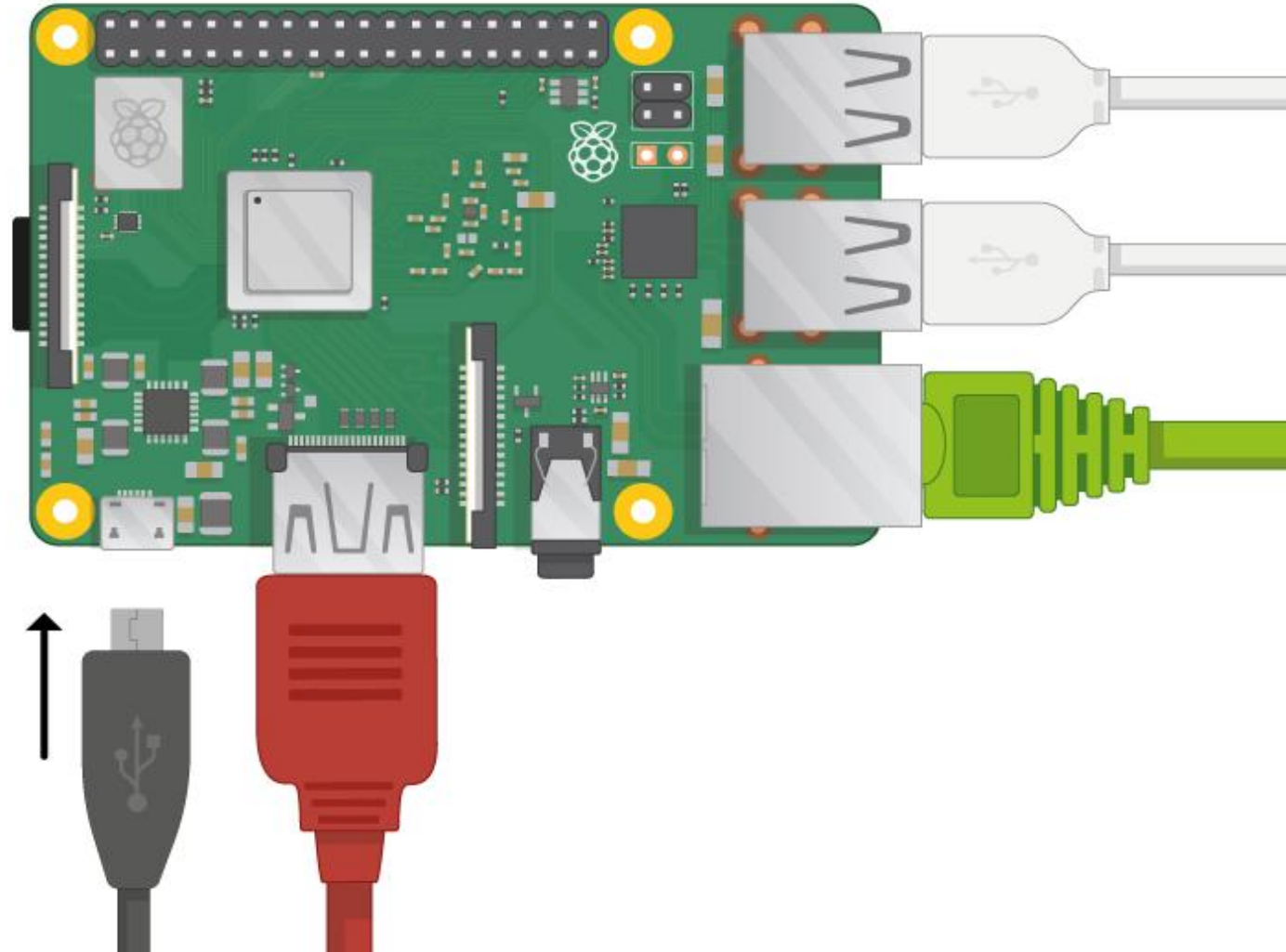
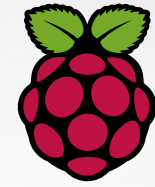
Preparar targeta Micro-SD:

Incerim la targeta Micro-SD en el lector del PC:

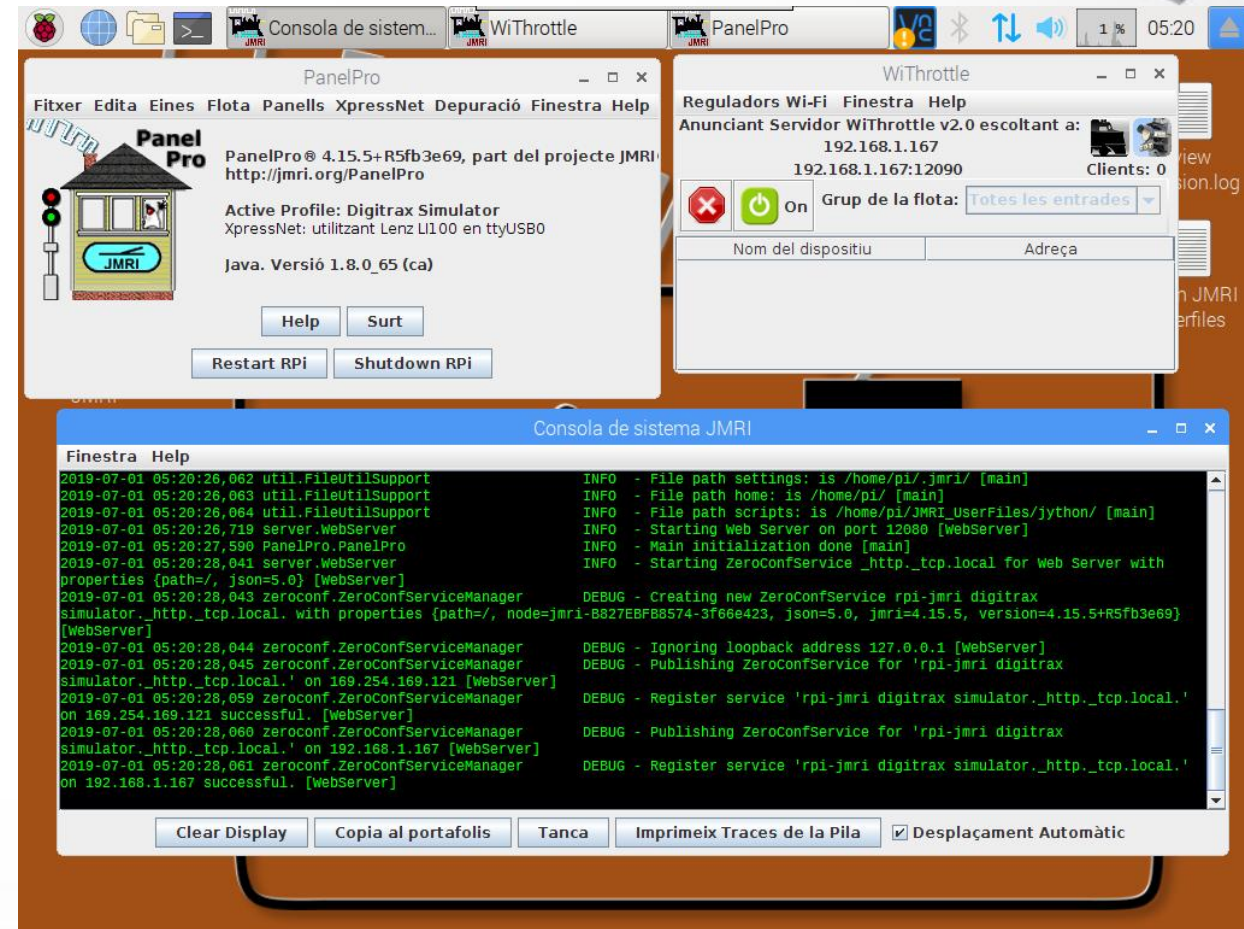
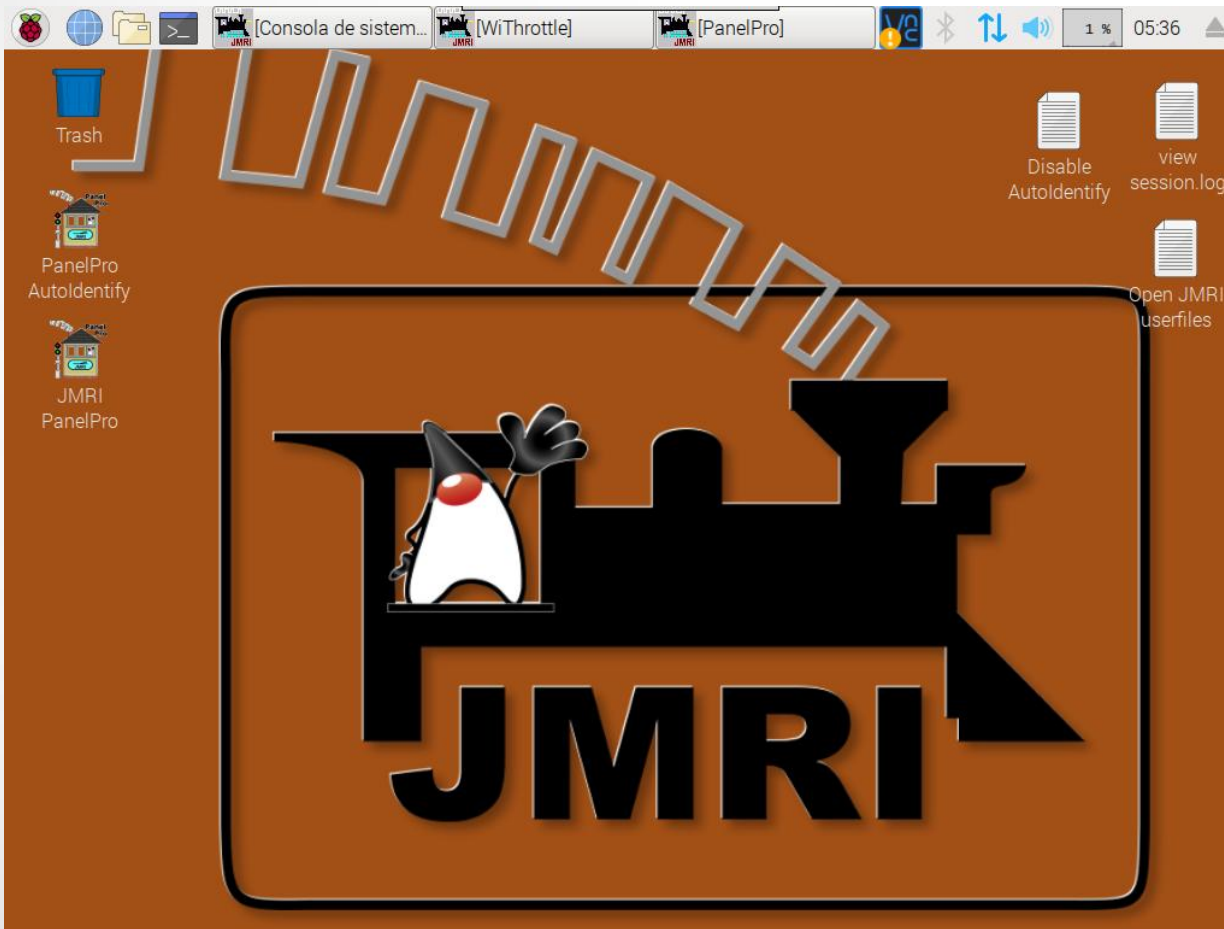
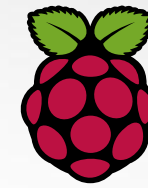
1. A l'eina Etcher fem clic en “**Select image**” per seleccionar l'arxiu *img* de Raspbian que acabem de descomprimir.
2. Ens assegurem de seleccionar la targeta Micro-SD correcte.
3. Fem clic en “**Flash**” per iniciar el procés i esperarem a que finalitzi (+/- 15 minuts).



Connectar cables a la Raspberry:

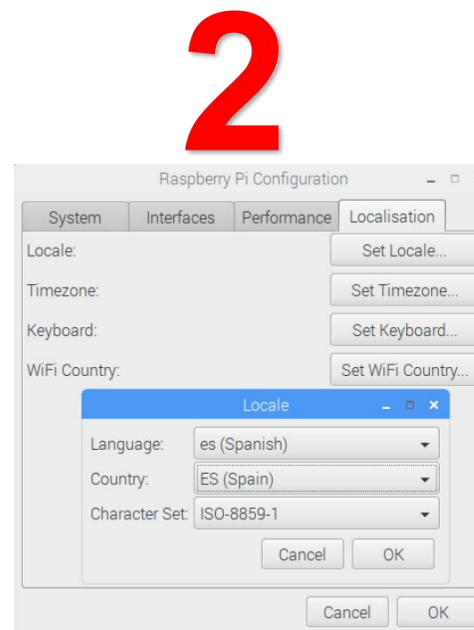
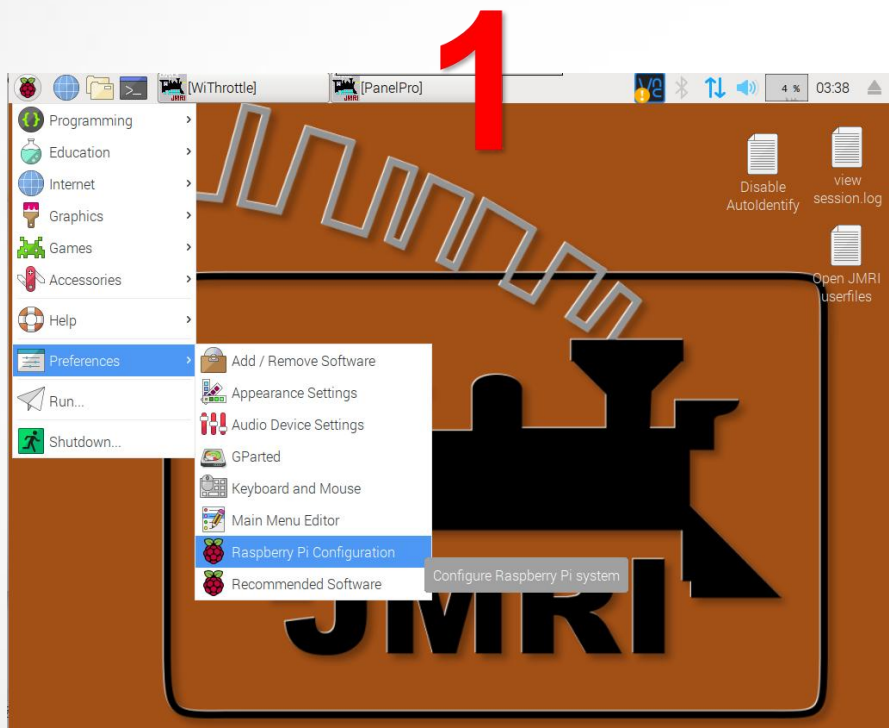
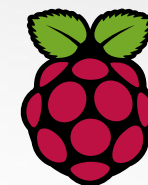


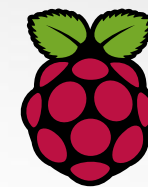
Arrancar Raspberry:



Customitzar Raspbian:

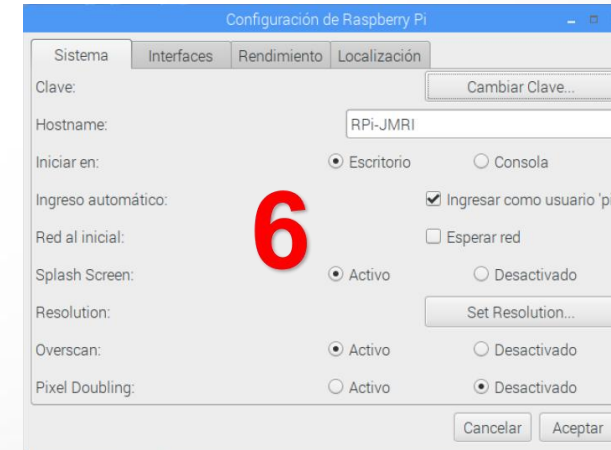
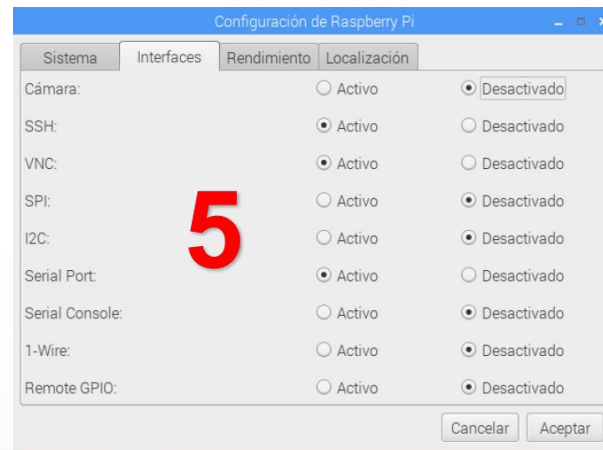
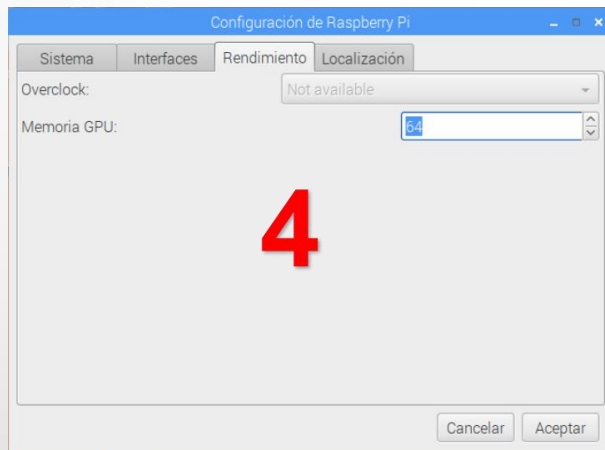
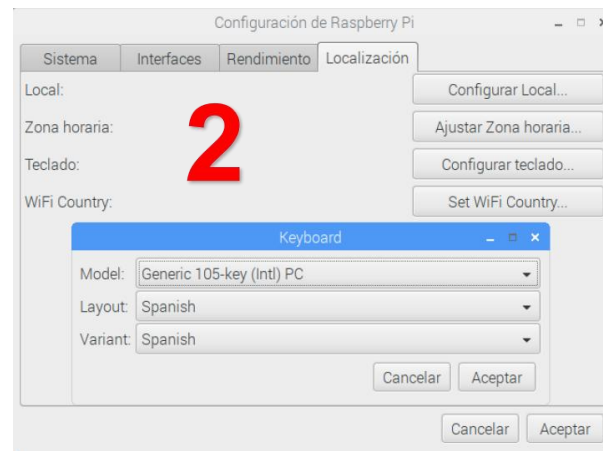
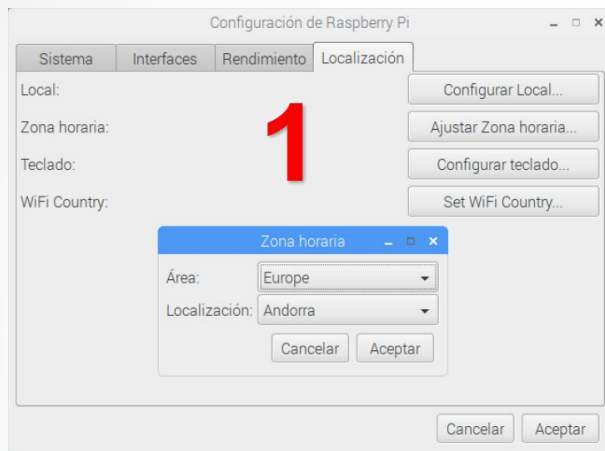
- Canviar idioma i reiniciar el sistema:



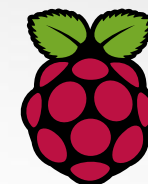


Customitzar Raspbian:

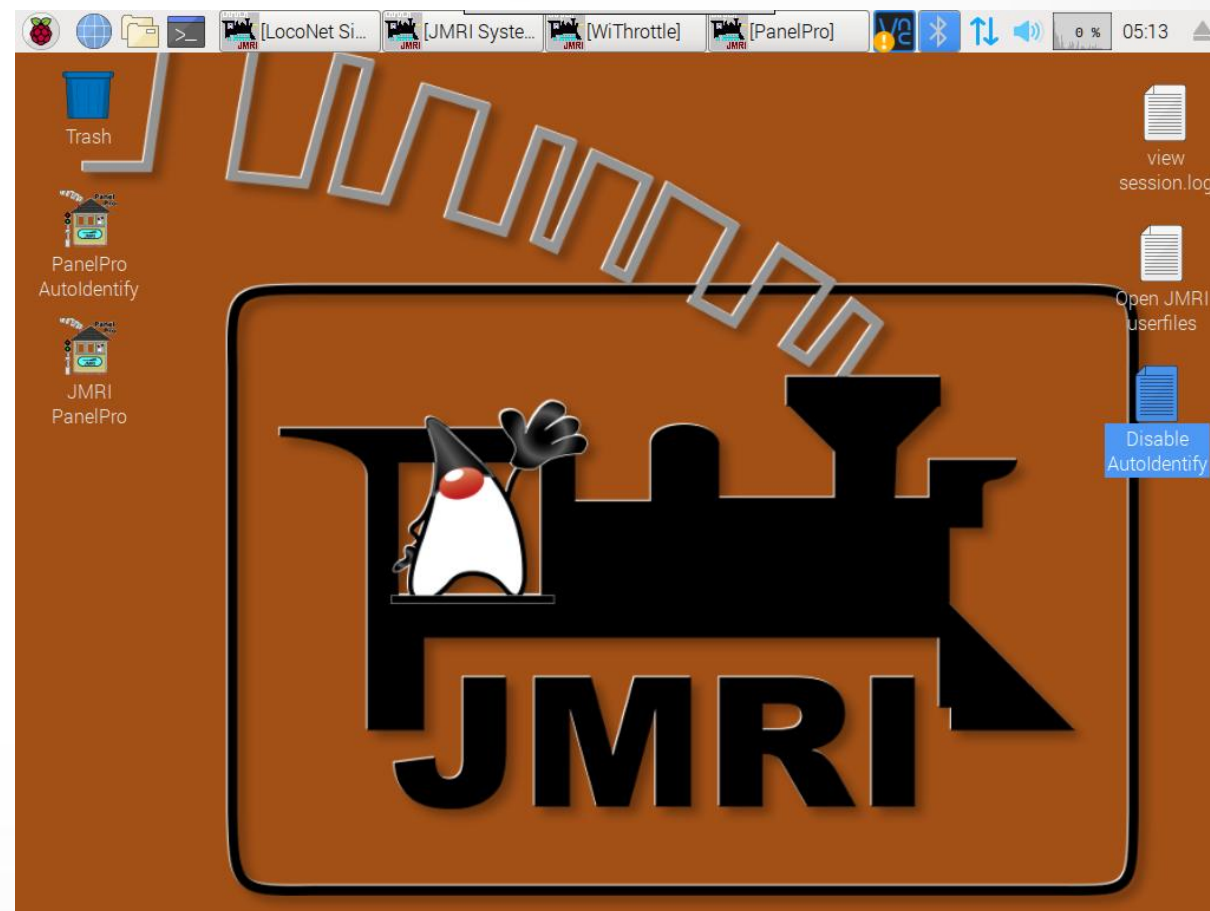
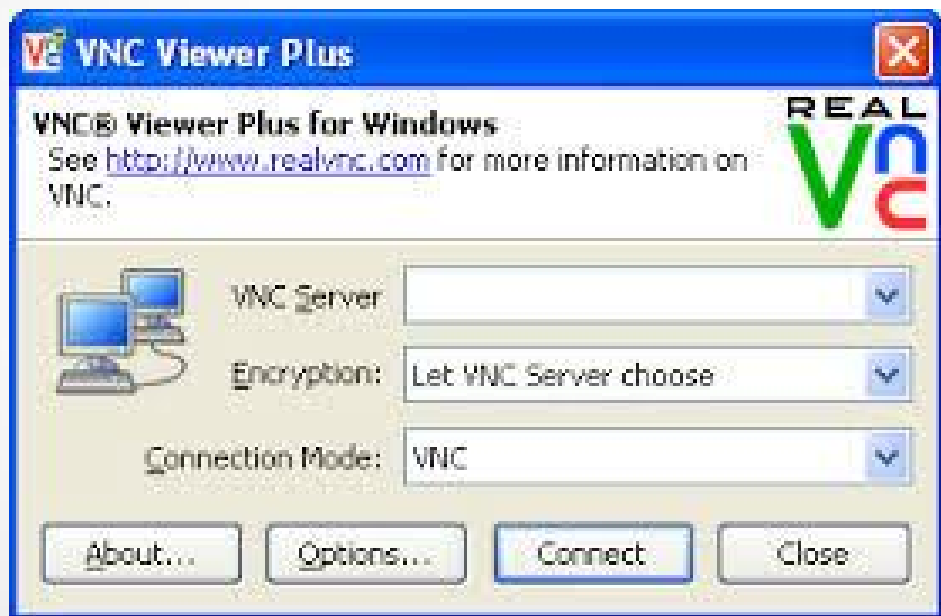
- Canviar fus horari, teclat, regió del Wifi i altres configuracions:

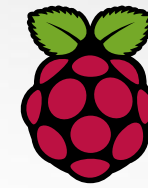


Connectivitat amb Raspbian:



Servidor VNC (contrasenya “rpl-jmri”):





Connectivitat amb Raspbian:

Servidor ssh (usuari “pi”, contrasenya “rpl-jmri”):

