

Raspberry pi

- ¿Qué es una Raspberry pi?

- Es un Pc de placa única o Single Board Computer (SBC) de tamaño reducido.
- El hardware es libre pero con algunas restricciones.
- Está orientada para el mundo de la enseñanza.

- Características del modelo Raspberry pi 3 B+

- Procesador: Broadcom BCM2837B0, Cortex-A53 (ARMv8) SoC de 64 bits a 1,4 GHz
- Memoria: 1GB LPDDR2 SDRAM
- Conectividad inalámbrica: 2.4GHz and 5GHz IEEE 802.11.b/g/n/ac wireless LAN, Bluetooth 4.2, BLE
- Conectividad por cable: Gigabit Ethernet sobre USB 2.0 (rendimiento máximo 300 Mbps)
- USB: 4 puertos USB 2.0
- Encabezado GPIO de 40 pines
- Video: Una salida HDMI
- Sonido: una salida estéreo de cuatro polos
- Ranura para tarjeta micro-SD para usarse como disco duro
- Entrada de energía: 5V / 2.5A DC a través del conector micro USB

Para qué se puede usar

- Ordenador de sobremesa
- Domótica
- Robótica
- Programación
- Servidor web, FTP, etc.
- Consola retro
- Tablet
- Centro multimedia



1. Instalación del sistema operativo Raspbian

1.1. Bajar imagen del sistema operativo Raspbian de:

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

7-Zip

balenaEtcher - Home


Raspberry Pi Downloads - Softwa

+

← → ↻ 🏠

raspberrypi.org/downloads/

🔍 ☆ 🌐 🛑





ProductsBlogDownloadsCommunityHelpForumsEducationProjects

🔍

Downloads

Raspbian is our official operating system for **all** models of the Raspberry Pi. Download it here, or use **NOOBS**, our easy installer for Raspbian and more.


NOOBS


Raspbian

Recovery

If your **Raspberry Pi 4** will not boot, it is possible that the SPI EEPROM has become corrupted.

To check, remove the SD card, disconnect the device from power, then reconnect it. If the green LED does not flash, you will need to reprogram the EEPROM:

1. **Download the bootloader**
2. Extract it to an empty FAT-formatted SD card and insert it into your Raspberry Pi 4
3. Connect the power and wait for the green LED to flash quickly




Notes:

- The updated bootloader improves compatibility with HATs by changing the behaviour of HALT to keep the 3V3 pin powered

Activar Windows

Ve a Configuración para activar Windows.

🪟 🔍 🔄 🖨️ 🛒



🔊 🔊 🔊

20:01

26/09/2019

1.2. Seleccionar imagen que
se quiera a instalar

7-Zip

balenaEtcher - Home

Download Raspbian for Raspbian


raspberrypi.org/downloads/raspbian/

Raspbian

Raspbian is the Foundation's official supported operating system. You can install it with [NOOBS](#) or download the image below and follow our [installation guide](#).

Raspbian comes pre-installed with plenty of software for education, programming and general use. It has Python, Scratch, Sonic Pi, Java and more.

The Raspbian with Desktop image contained in the ZIP archive is over 4GB in size, which means that these archives use features which are not supported by older unzip tools on some platforms. If you find that the download appears to be corrupt or the file is not unzipping correctly, please try using [7Zip](#) (Windows) or [The Unarchiver](#) (Macintosh). Both are free of charge and have been tested to unzip the image correctly.



Raspbian Buster with desktop and recommended software

Image with desktop and recommended software based on Debian Buster

Version: July 2019

Release date: 2019-07-10

Kernel version: 4.19


Size: 1945 MB

[Release notes](#)

[Download Torrent](#)

[Download ZIP](#)

SHA-256: 2bd0613ec8739b6fa4274ea186ec859046f79e6aee4b8c6af0acb6d



Raspbian Buster with desktop

Image with desktop based on Debian Buster

Version: July 2019

Release date: 2019-07-10

Kernel version: 4.19


Size: 1149 MB

[Release notes](#)

[Download Torrent](#)

[Download ZIP](#)

SHA-256: 6a1a5f20329e580d5161a0255b3d4163db6f56c3997e1c3b36bdd510bd768e



Raspbian Buster Lite

Minimal image based on Debian Buster

Version: July 2019

Release date: 2019-07-10

Kernel version: 4.19

Size: 426 MB

[Release notes](#)

[Download Torrent](#)

[Download ZIP](#)

Activar Windows

Ve a Configuración para activar Windows.

https://downloads.raspberrypi.org/raspbian_full_latest

Windows Taskbar

20:06 26/09/2019

1.3. Bajar compresor 7-zip de:

<https://www.7-zip.org/>

7-Zip

7-zip.org

7ZIP

Home

7z Format

LZMA SDK

Download

FAQ

Support

Links

English

[Chinese Simpl.](#)

[Chinese Trad.](#)

[Esperanto](#)

[French](#)

[German](#)

[Indonesian](#)

[Japanese](#)

[Portuguese Brazil](#)

[Spanish](#)

[Thai](#)

[Vietnamese](#)

7-Zip

7-Zip is a file archiver with a high compression ratio.

Download 7-Zip 19.00 (2019-02-21) for Windows:

Link	Type	Windows	Size
Download	.exe	32-bit x86	1 MB
Download	.exe	64-bit x64	1 MB

Download 7-Zip 19.02 alpha (2019-09-05) for Windows:

Link	Type	Windows	Size
Download	.exe	32-bit x86	1 MB
Download	.exe	64-bit x64	1 MB

License

The main features of 7-Zip

- High compression ratio in [7z format](#) with **LZMA** and **LZMA2** compression
- Supported formats:
 - Packing / unpacking: 7z, XZ, BZIP2, GZIP, TAR, ZIP and WIM
 - Unpacking only: AR, ARJ, CAB, CHM, CPIO, CramFS, DMG, EXT, FAT, GPT, HFS, IHEX, ISO, LZH, LZMA, MBR, MSI, NSIS, NTFS, QCOW2, RAR, RPM, SquashFS, UDF, EFI, VDI, VHD, VMDK, WIM, XAR and Z.
- For ZIP and GZIP formats, **7-Zip** provides a compression ratio that is 2-10 % better than the ratio provided by PKZip and WinZip
- Strong AES-256 encryption in 7z and ZIP formats
- Self-extracting capability for 7z format
- Integration with Windows Shell
- Powerful File Manager
- Powerful command line version
- Plugin for FAR Manager
- Localizations for 87 languages

7-Zip works in Windows 10 / 8 / 7 / Vista / XP / 2016 / 2012 / 2008 / 2003 / 2000 / NT.

[p7zip](#) - the port of the command line version of 7-Zip to Linux/Posix.

On [7-Zip's SourceForge Page](#) you can find a forum, bug reports, and feature request systems.

Compression ratio

We compared **7-Zip** with WinRAR 5.20.

FILE SETS: Mozilla Firefox 34.0.5 for Windows and Google Earth 6.2.2.6613 for Windows.

	Mozilla Firefox	Google Earth
Archiver	65 files 85 280 391 bytes	483 files 110 700 519 bytes

7-Zip 19.02

2019-09-05

[7-Zip 19.02 alpha](#)

7-Zip 19.00

2019-02-21

[7-Zip 19.00](#)

2019-02-01

[Windows 10 BUG : Large Pages](#)

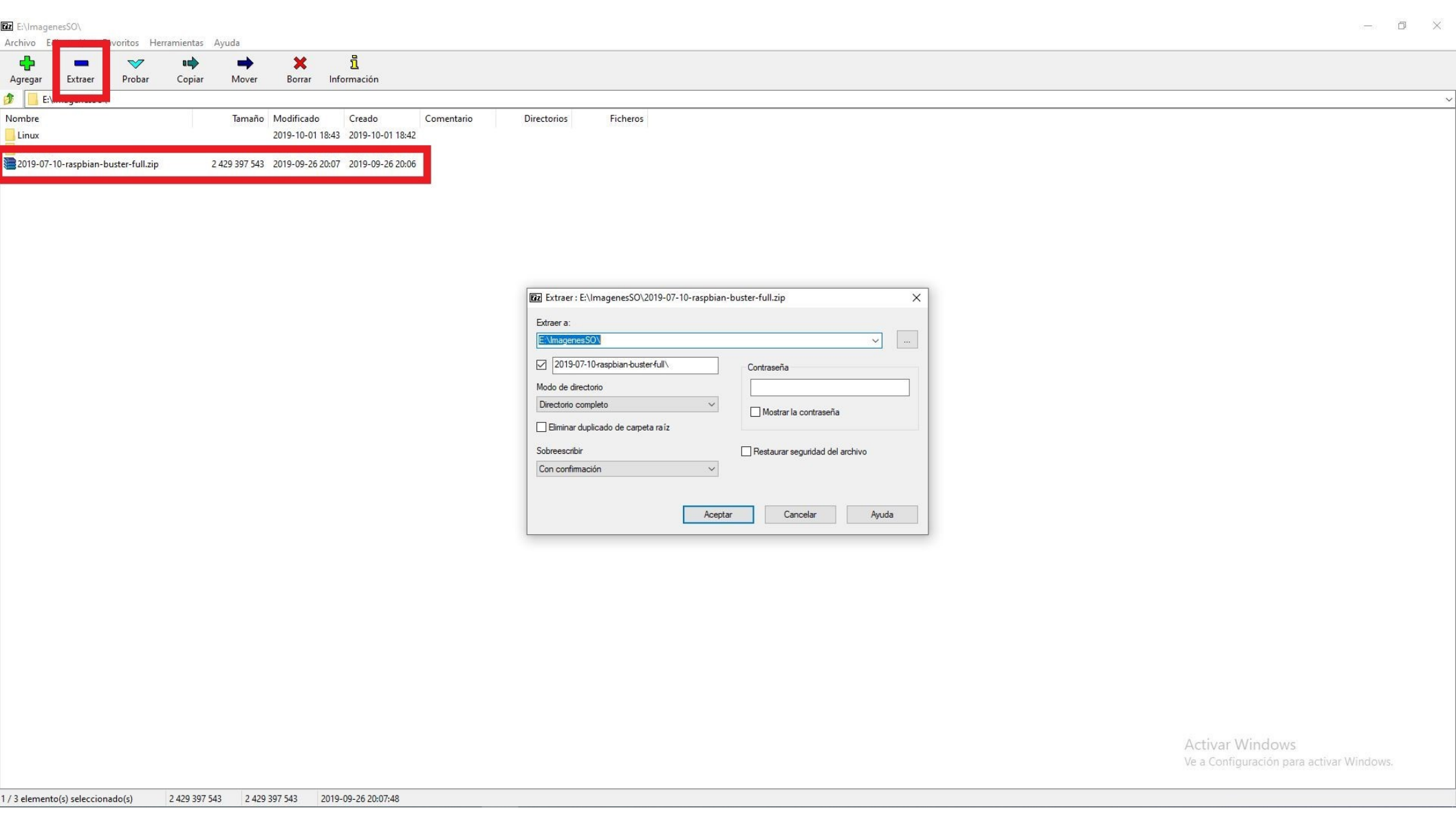
7-Zip ChangeLog

[History of 7-zip changes](#)

Activar Windows

Ve a Configuración para activar Windows.

1.4. Descomprimir imagen con
7-zip o equivalente



Nombre	Tamaño	Modificado	Creado	Comentario	Directorios	Ficheros
Linux		2019-10-01 18:43	2019-10-01 18:42			
2019-07-10-raspbian-buster-full.zip	2 429 397 543	2019-09-26 20:07	2019-09-26 20:06			

Extraer : E:\ImágenesSO\2019-07-10-raspbian-buster-full.zip

Extraer a:
E:\ImágenesSO\

☒ 2019-07-10-raspbian-buster-full\
Modo de directorio
Directorio completo

☐ Eliminar duplicado de carpeta raíz

Sobreescribir
Con confirmación

Contraseña

☐ Mostrar la contraseña

☐ Restaurar seguridad del archivo

Aceptar Cancelar Ayuda

1.5. Bajar SD Memory Card Formatter para Windows e instalarlo de:

https://www.sdcard.org/downloads/formatter/eula_windows/index.html

7-Zip

balenaEtcher - Home

Download Raspbian for Raspber...

SD Memory Card Formatter for V...

sdcard.org/downloads/formatter/eula_windows/index.html


🔍

🌟

M+

🔴

⋮



ENGLISH | 日本語 | 繁体中文 | 繁體字

Member Login

Join the SD Association

Contact Us

Sitemap

🔍

About SD Association

Consumers

Developers

Downloads

News & Events

Members Site

Licensees Sites

SD Memory Card Formatter for Windows Download

Downloads

SD Association Whitepapers

Simplified Specifications

SD Memory Card Formatter

SD Memory Card Formatter for Windows Download

SD Memory Card Formatter for Mac Download

FAQ

SD Association Brochure Download

SD Memory Card Formatter END USER LICENSE AGREEMENT

NOTICE:

BY DOWNLOADING, INSTALLING OR USING THE PRODUCT, THE ENTITY OR INDIVIDUAL ENTERING INTO THIS AGREEMENT AGREES TO BE BOUND BY THE FOLLOWING TERMS. IF YOU DO NOT AGREE WITH ANY OF THESE TERMS, DO NOT DOWNLOAD, INSTALL, OR USE THE PRODUCT; PROMPTLY RETURN (IF APPLICABLE) THE PRODUCT TO THE SDA OR YOUR SDA DISTRIBUTOR. IF YOU REJECT THIS AGREEMENT, YOU WILL NOT ACQUIRE ANY LICENSE TO USE THE PRODUCT.

This Agreement ("Agreement") is between the entity or individual entering into this Agreement ("You") and the SD Card Association, a California Mutual Benefit Corporation ("SDA"). "You" includes you and your employees and Affiliates. "Affiliate" is defined as an entity which controls, is controlled by, or shares common control with a party where such control may exist through ownership of securities or by contract. In addition to the restrictions imposed under this Agreement, any other usage restrictions contained in the Product installation instructions or release notes shall apply to Your use of the Product.

1. PRODUCT.

"SDA Software" means the object code version of the SD Memory Card Formatter tool program(s) provided, via delivery or electronic transmission to You. SDA Software includes computer files, enhancements, maintenance modifications, upgrades, updates, bug fixes, and error corrections made available to you by the SDA or its authorized distributor.

"Documentation" means all written or graphical material provided by SDA or its authorized distributor in any medium, including any technical requirements or specifications, relating to the functionality or operation of the SDA Software.

"Product" means the SDA Software and Documentation.

2 LICENSE

Subject to the terms of this Agreement, SDA grants You a non-exclusive, non-transferable, terminable (as set forth in Section 5 below), perpetual license for each

Activar Windows

Ve a Configuración para activar Windows.

Windows taskbar icons: File Explorer, Microsoft Store, Settings, Task View, etc.

System tray: Network, Volume, 20:24, 26/09/2019

1.6. Seleccionar la unidad donde
se encuentra la tarjeta
micro-SD para formatearla
y pulsar format

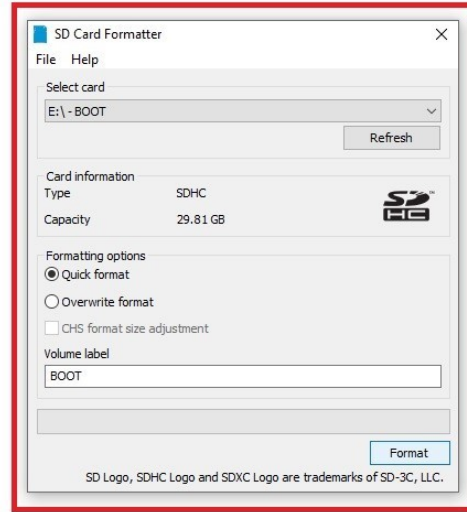
by the arbitrator(s), upon request of a party. The costs of the arbitration shall be borne equally pending the arbitrator's award. The award rendered shall be final and binding upon the parties and shall not be subject to appeal to any courts, and may be enforced in any court of competent jurisdiction. Nothing in this Agreement shall be deemed as preventing either party from seeking injunctive or other equitable relief from any court having jurisdiction over the parties and the subject matter of the dispute as necessary to protect either party's confidential information, ownership, or any other proprietary rights.

13. MISCELLANEOUS TERMS. The parties hereto are independent contractors. You shall abide by all local, state, federal, and international laws, rules, regulations, and orders applying to Your use of the Products. This Agreement will be governed and construed in accordance with the laws of the State of California without regard to any conflict of laws principles that would require the application of the laws of another jurisdiction. The United Nations on Contracts for the International Sale of Goods and any laws based on the Uniform Computer Information Transactions Act shall not apply to this Agreement. This Agreement constitutes the entire agreement between You and SDA and supersedes any prior or contemporaneous negotiations or agreements, whether oral, written, or displayed electronically, concerning the Product and related subject matter. No modification or waiver of any provision hereof will be effective unless made in a writing signed by both SDA and You. You may not assign or transfer this Agreement or a License to a third party without SDA's prior written consent. Should any provision of this Agreement be invalid or unenforceable, the remainder of the provisions will remain in effect. The parties have agreed that this Agreement and the documents related thereto be drawn up in the English language. Les parties exigent que la présente convention ainsi que les documents qui s'y rattachent soient rédigés en anglais.

YOU ACKNOWLEDGE AND AGREE THAT YOU HAVE READ THIS AGREEMENT AND INTEND TO BE BOUND AS IF YOU HAD SIGNED THIS AGREEMENT IN WRITING. IF YOU ARE ACTING ON BEHALF OF AN ENTITY, YOU WARRANT THAT YOU HAVE THE AUTHORITY TO ENTER INTO THIS AGREEMENT ON BEHALF OF SUCH ENTITY AND BIND SUCH ENTITY TO THE TERMS OF THIS AGREEMENT.

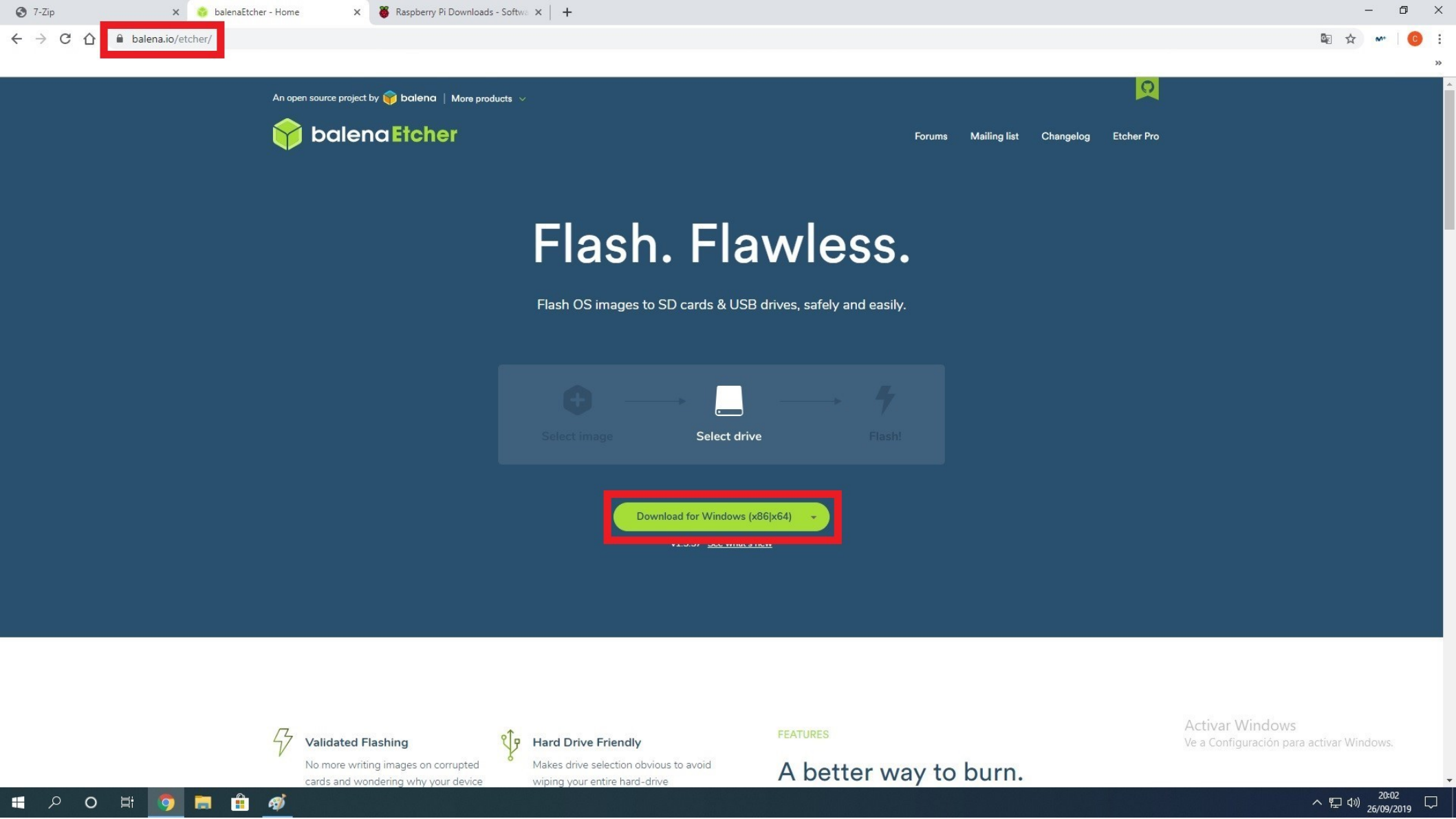
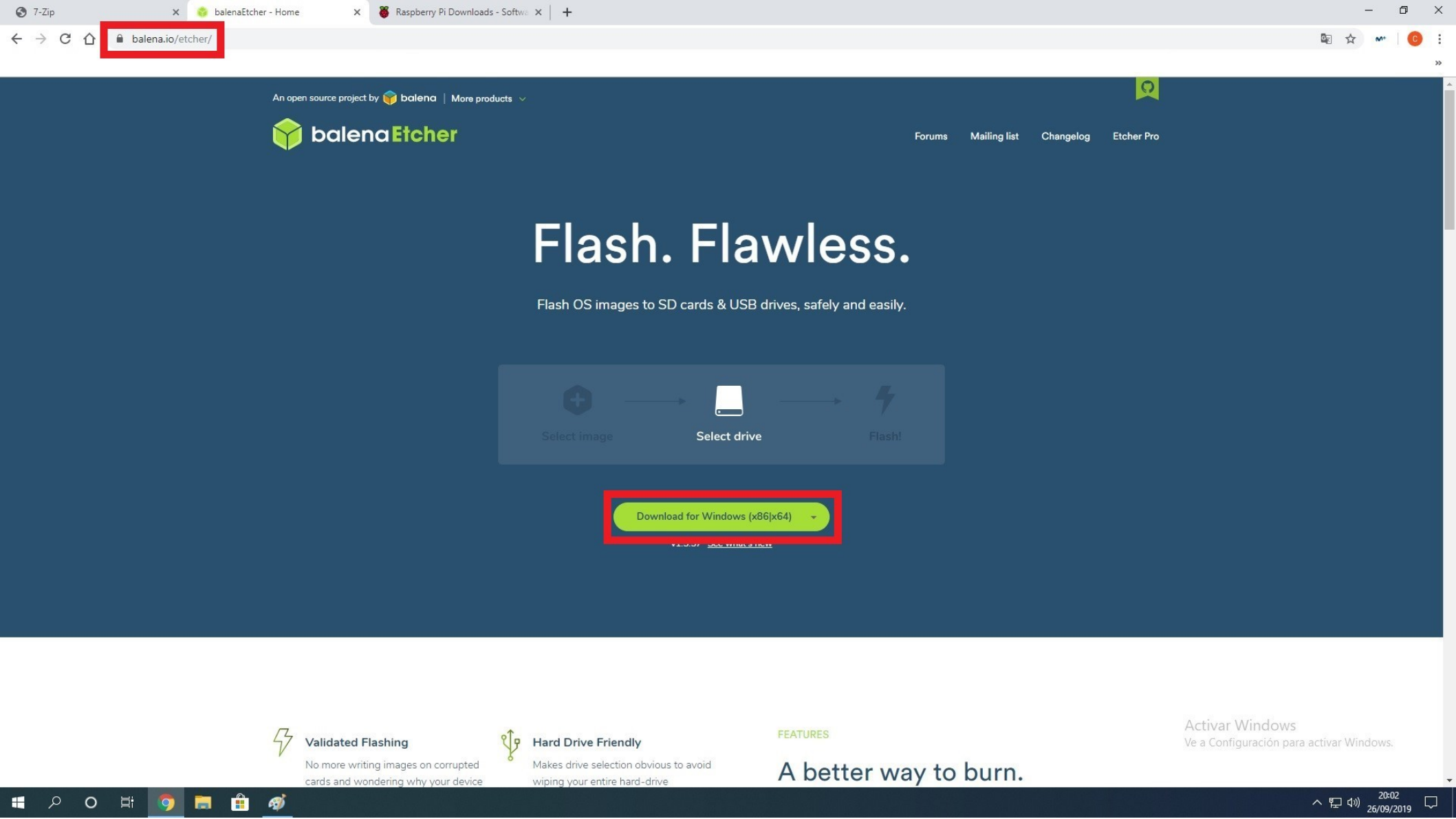
Decline

Accept

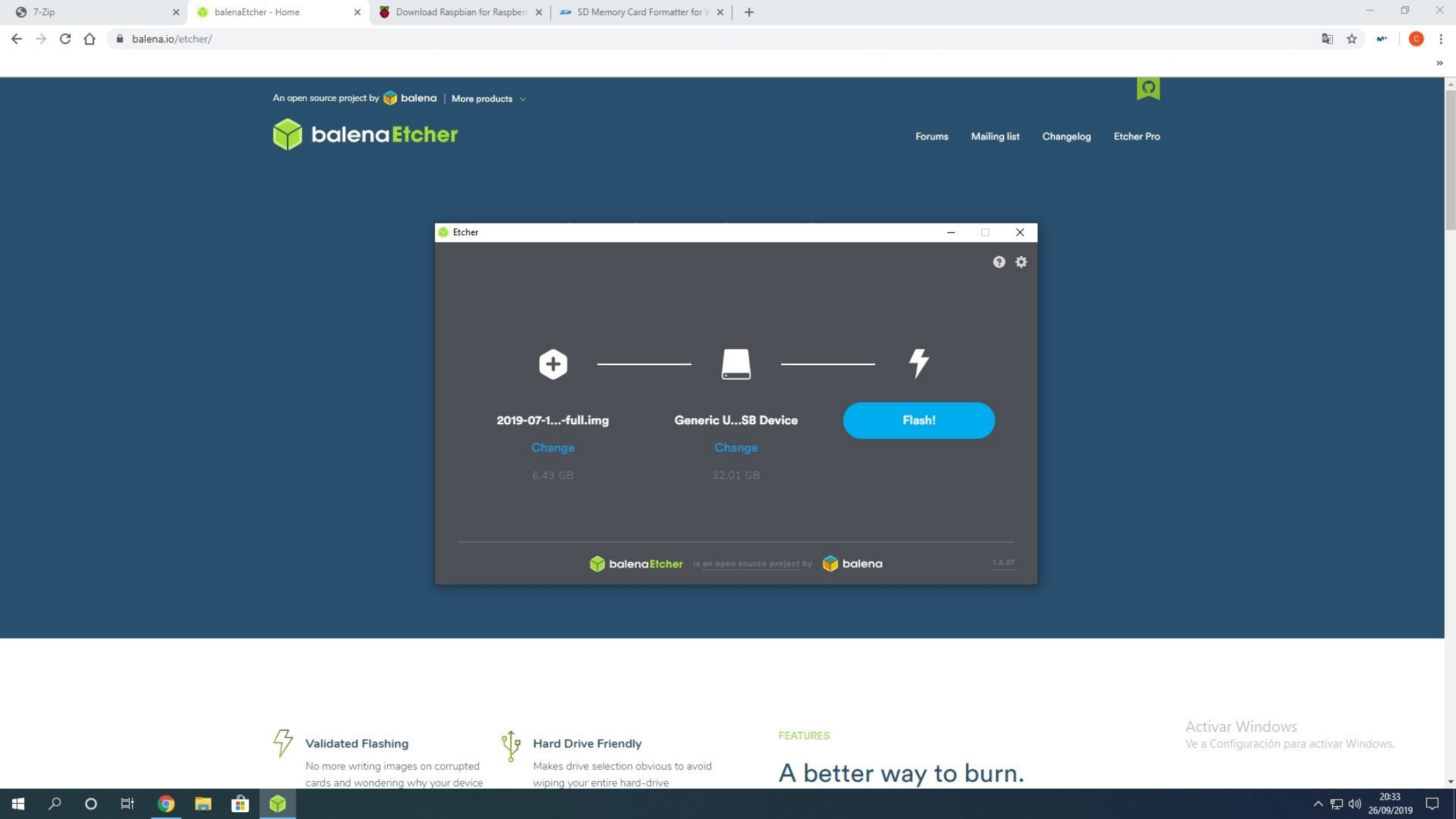


1.7. Bajar e instalar BalenaEtcher para pasar la imágen a la tarjeta micro-SD de:

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



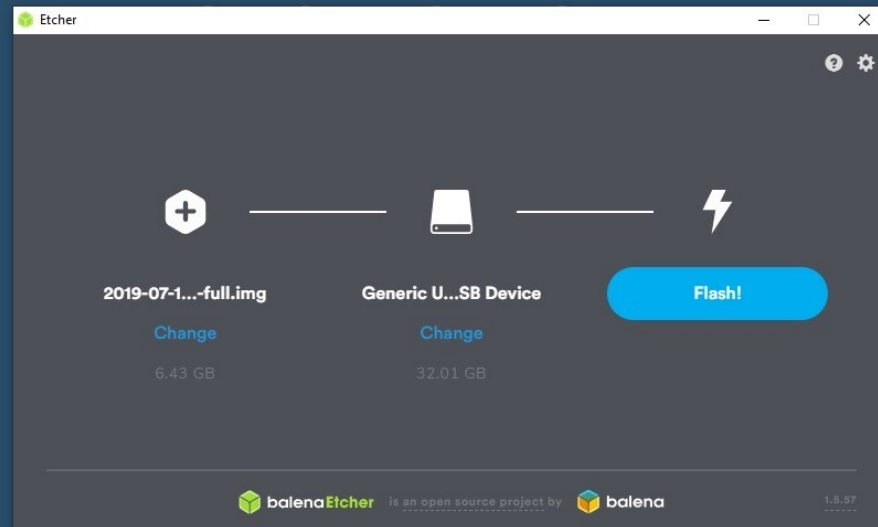
1.8. Seleccionar imagen (derecha)
Seleccionar micro-SD (medio)
Pulsar botón de Flash!



An open source project by  balena | [More products](#)



[Forums](#) [Mailing list](#) [Changelog](#) [Etcher Pro](#)



Validated Flashing

No more writing images on corrupted cards and wondering why your device



Hard Drive Friendly

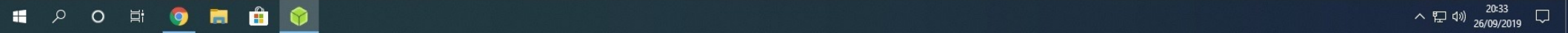
Makes drive selection obvious to avoid wiping your entire hard-drive

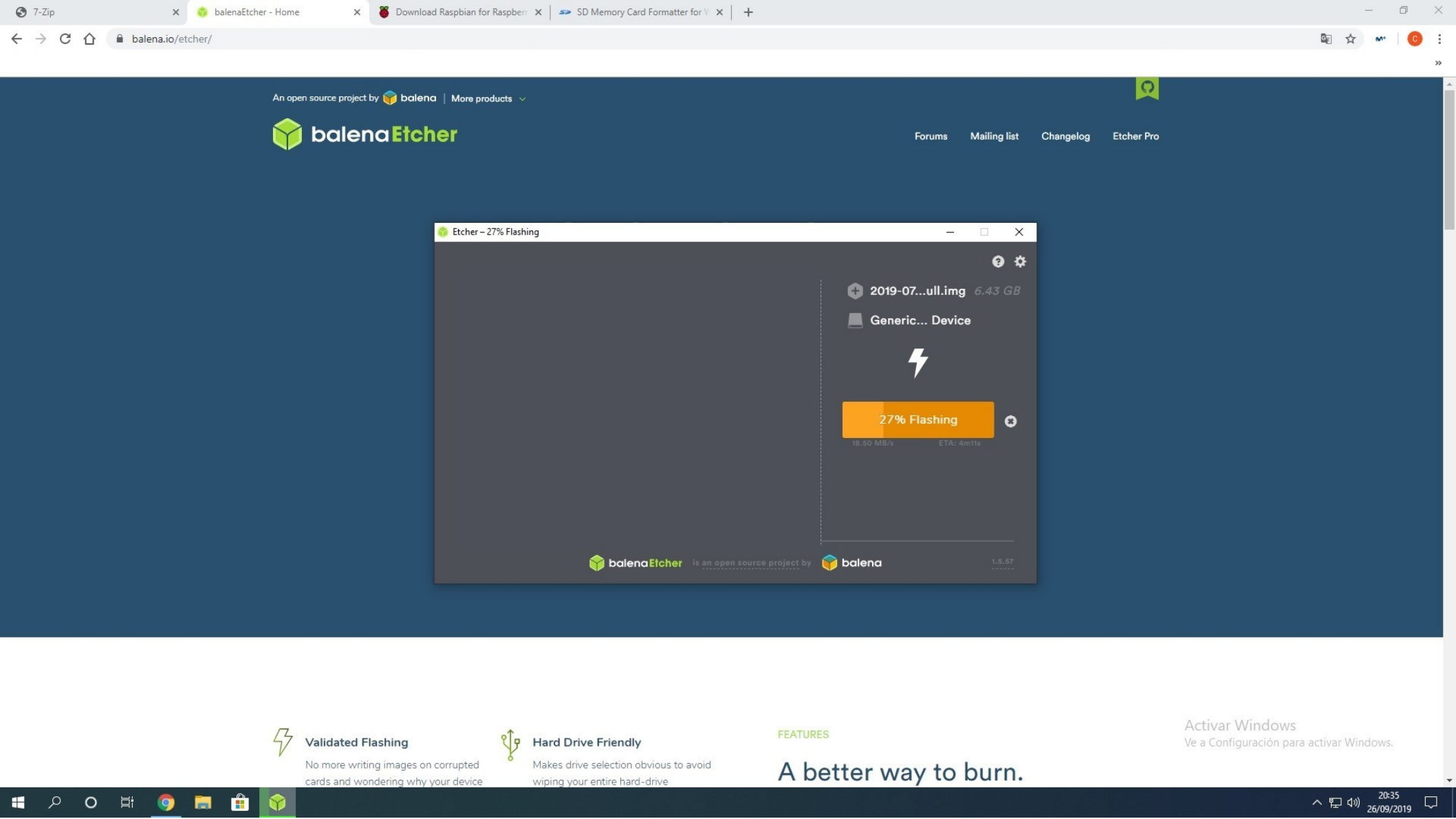
FEATURES

A better way to burn.

Activar Windows

Ve a Configuración para activar Windows.





An open source project by  balena | [More products](#) ▾



[Forums](#) [Mailing list](#) [Changelog](#) [Etcher Pro](#)

Etcher - 27% Flashing

2019-07...ull.img 6.43 GB

Generic... Device



27% Flashing

18.50 MB/s ETA: 4m11s

 balenaEtcher is an open source project by  balena

1.5.57

 **Validated Flashing**
No more writing images on corrupted cards and wondering why your device

 **Hard Drive Friendly**
Makes drive selection obvious to avoid wiping your entire hard-drive

FEATURES
A better way to burn.

Activar Windows
Ve a Configuración para activar Windows.

An open source project by  balena | More products ▾



[Forums](#) [Mailing list](#) [Changelog](#) [Etcher Pro](#)



Validated Flashing

No more writing images on corrupted cards and wondering why your device



Hard Drive Friendly

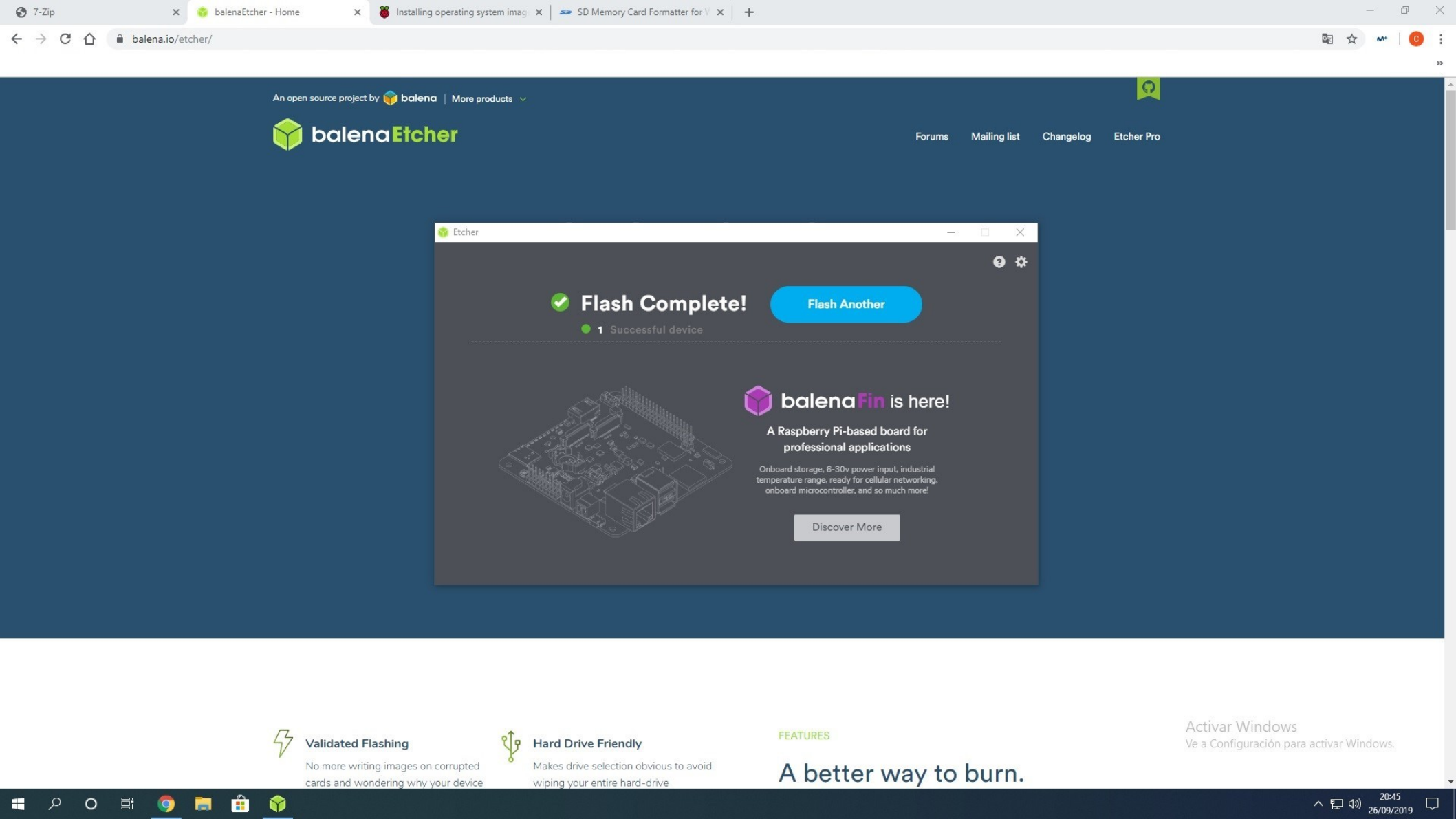
Makes drive selection obvious to avoid wiping your entire hard-drive

FEATURES

A better way to burn.

Activar Windows


Ve a Configuración para activar Windows.



An open source project by  balena | [More products](#) ▾



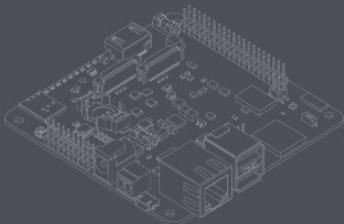
[Forums](#) [Mailing list](#) [Changelog](#) [Etcher Pro](#)




✓ **Flash Complete!**

● 1 Successful device

[Flash Another](#)



 **balenaFin** is here!

A Raspberry Pi-based board for professional applications

Onboard storage, 6-30v power input, industrial temperature range, ready for cellular networking, onboard microcontroller, and so much more!

[Discover More](#)



Validated Flashing

No more writing images on corrupted cards and wondering why your device



Hard Drive Friendly

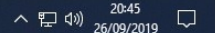
Makes drive selection obvious to avoid wiping your entire hard-drive

FEATURES

A better way to burn.

Activar Windows

Ve a Configuración para activar Windows.



2. Insertar tarjeta micro-SD en Raspberry pi, enchufarla y seguir las opciones de configuración





Wastebasket

Welcome to Raspberry Pi

Set Country

Enter the details of your location. This is used to set the language, time zone, keyboard and other international settings.

Country: Spain

Language: European Spanish

Timezone: Madrid

☐ Use English language ☐ Use US keyboard

Press 'Next' when you have made your selection.

Back Next



Welcome to Raspberry Pi

Change Password

The default 'pi' user account currently has the password 'raspberrypi'. It is strongly recommended that you change this to a different password that only you know.

Enter new password:

Confirm new password:

☒ Hide characters

Press 'Next' to activate your new password.



Welcome to Raspberry Pi

Set Up Screen

The desktop should fill the entire screen.
Tick the box below if your screen has a black border at the edges.

☒ This screen shows a black border around the desktop

Press 'Next' to save your setting.

The change will take effect when the Pi is restarted.

BackNext













Wastebasket

Welcome to Raspberry Pi

Select WiFi Network

Select your WiFi network from the list.

MOVISTAR_92DC	 
MOVISTAR_PLUS_92DC	 
Repetidor	 
vodafoneE0A8	 
vodafoneE0A8_5G	 

Press 'Next' to connect, or 'Skip' to continue without connecting.



Welcome to Raspberry Pi

Update Software

The operating system and applications will now be checked and updated if necessary. This may involve a large download.

Press 'Next' to check and update software, or 'Skip' to continue without checking.

Back

Skip

Next




Wastebasket

Welcome to Raspberry Pi

Setup Complete

Your Raspberry Pi is now set up and ready to go.

Press 'Restart' to restart your Pi now so the new settings will take effect, or press 'Later' to close the wizard and restart the Pi yourself.



Back

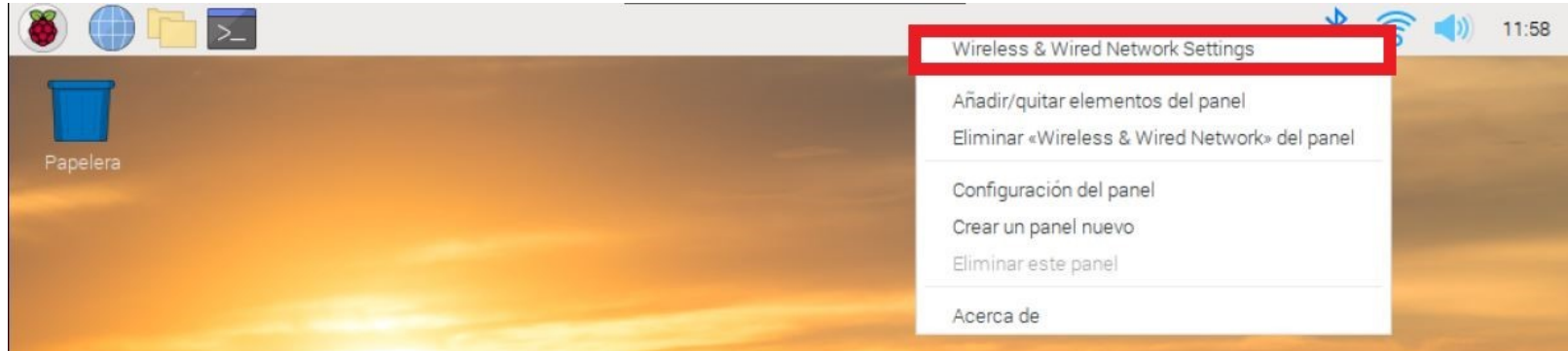
Later

Restart

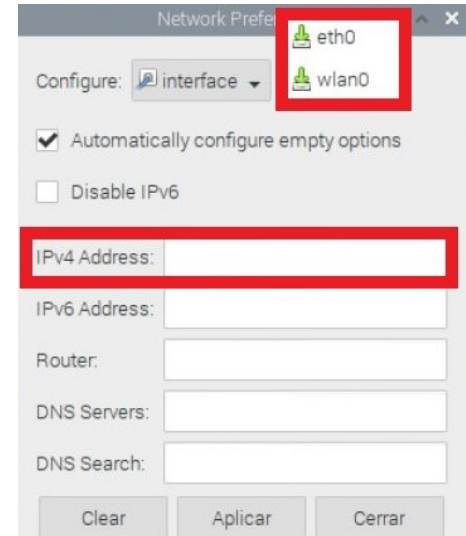
3. Configurar un VNC server en Raspberry pi para controlarla de forma remota desde un otro ordenador en red local

3.1. Configuración de IP estática

3.1.1. Botón derecho en



3.1.2. Seleccionar eth0 o wlan0 y escribir en IPv4 la IP



3.2. Instalar VNC server por terminal

3.2.1. Actualizar Raspberry pi

#abrir terminal pulsando Control+Alt+T

sudo apt-get update

sudo apt-get upgrade

3.2.2. Instalar VNC server

sudo apt-get install tightvncserver

3.2.3. Ejecutar VNC server

vncserver :1

#pedirá una contraseña y confirmarla la primera vez para el acceso remoto

#pedirá contraseña para visualizar sesión(no es necesaria para uso personal)

3.2.4. Hacer que VNC server se ejecute en el arranque

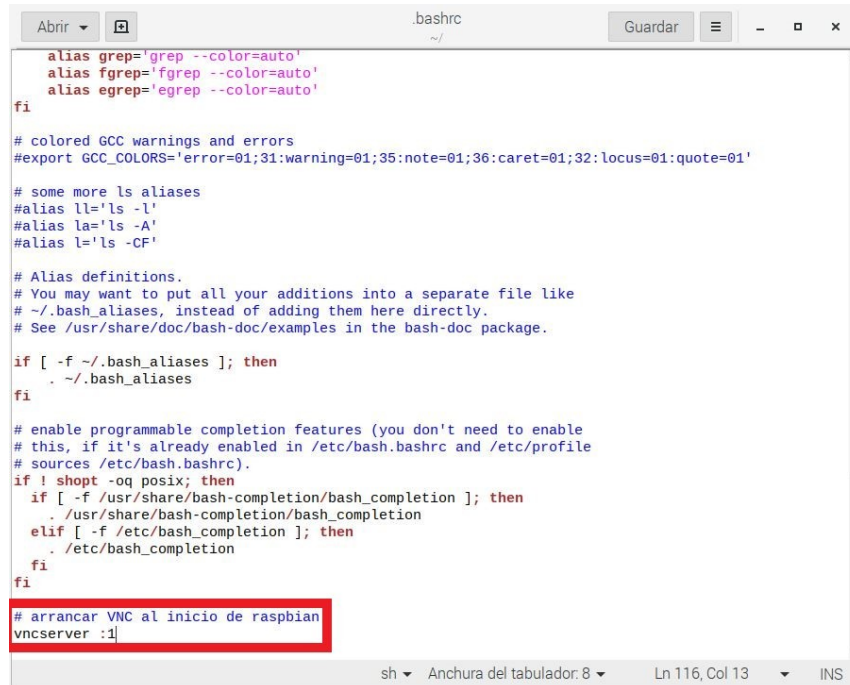
`sudo apt-get install gedit` #instala editor de archivos de texto

`cd /home/pi` #movernos a esa ruta para editar fichero

#pi es el usuario por defecto. Cambia "pi" en caso de tener otro

`gedit .bashrc` #abrir archivo de arranque y que VNC se ejecute en el arranque

#bajar al final e introducir la línea marcada



```
Abrir  Guardar  -  x
~/.bashrc
alias grep='grep --color=auto'
alias fgrep='fgrep --color=auto'
alias egrep='egrep --color=auto'
fi

# colored GCC warnings and errors
#export GCC_COLORS='error=01;31:warning=01;35:note=01;36:caret=01;32:locus=01:quote=01'

# some more ls aliases
#alias ll='ls -l'
#alias la='ls -A'
#alias l='ls -CF'

# Alias definitions.
# You may want to put all your additions into a separate file like
# ~/.bash_aliases, instead of adding them here directly.
# See /usr/share/doc/bash-doc/examples in the bash-doc package.

if [ -f ~/.bash_aliases ]; then
    . ~/.bash_aliases
fi

# enable programmable completion features (you don't need to enable
# this, if it's already enabled in /etc/bash.bashrc and /etc/profile
# sources /etc/bash.bashrc).
if ! shopt -oq posix; then
    if [ -f /usr/share/bash-completion/bash_completion ]; then
        . /usr/share/bash-completion/bash_completion
    elif [ -f /etc/bash_completion ]; then
        . /etc/bash_completion
    fi
fi

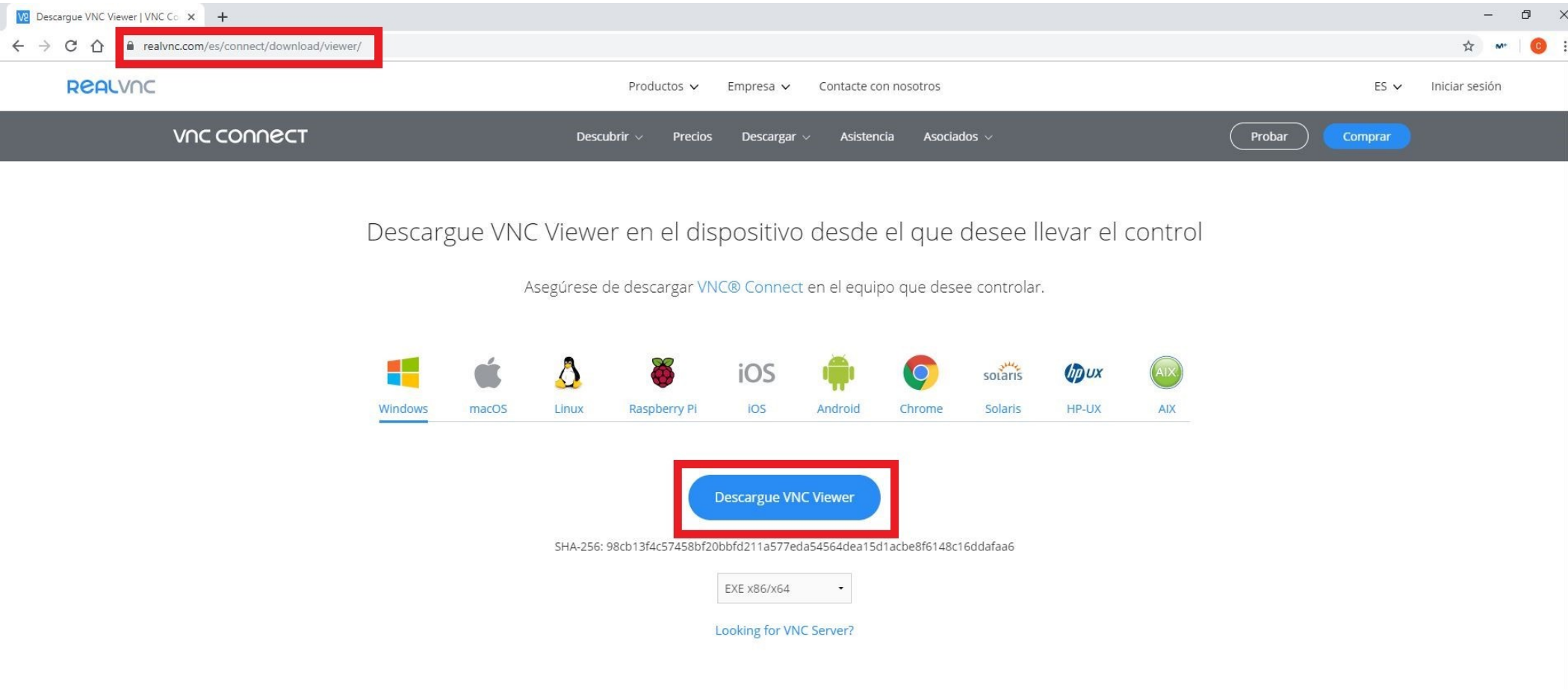
# arrancar VNC al inicio de raspbian
vncserver :1

sh  Anchura del tabulador: 8  Ln 116, Col 13  INS
```

4. Instalar VNC viewer en windows
para controlar Raspberry pi

4.1. Descargar VNC viewer de:

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



The screenshot shows the RealVNC website's download page for VNC Viewer. The browser's address bar is highlighted with a red box, showing the URL [realvnc.com/es/connect/download/viewer/](https://www.realvnc.com/es/connect/download/viewer/). The website header includes the RealVNC logo, navigation links for Products, Company, and Contact, and a language selector set to 'ES'. A secondary navigation bar features links for Discover, Prices, Download, Assistance, and Partners, along with 'Probar' and 'Comprar' buttons. The main content area has the heading 'Descargue VNC Viewer en el dispositivo desde el que desee llevar el control' and a subheading 'Asegúrese de descargar VNC® Connect en el equipo que desee controlar.' Below this is a row of icons for various operating systems: Windows, macOS, Linux, Raspberry Pi, iOS, Android, Chrome, Solaris, HP-UX, and AIX. A large blue button labeled 'Descargue VNC Viewer' is highlighted with a red box. Below the button is the SHA-256 hash: 98cb13f4c57458bf20bbfd211a577eda54564dea15d1acbe8f6148c16ddafaa6. A dropdown menu shows 'EXE x86/x64' as the selected option. At the bottom, there is a link 'Looking for VNC Server?'.

Descargue VNC Viewer en el dispositivo desde el que desee llevar el control

Asegúrese de descargar VNC® Connect en el equipo que desee controlar.

Windows macOS Linux Raspberry Pi iOS Android Chrome Solaris HP-UX AIX

Descargue VNC Viewer

SHA-256: 98cb13f4c57458bf20bbfd211a577eda54564dea15d1acbe8f6148c16ddafaa6

EXE x86/x64

[Looking for VNC Server?](#)

4.2. Conectar con Raspberry pi

Introducir IP de Raspberry

Ejemplo: 192.168.1.80:1 #no olvidar poner :1 al final

Poner contraseña de VNCserver

