

## Installing sBitx software on Raspberry OS (64-bit) with Cinnamon Desktop

- Installation is mostly automated by a bash script.
- Optionally install sdrplay driver software and any or all of the following SDR software: CubicSDR, SDR++, SDRangel and SDRconnect (only works with sdrplay hardware). They are built from source. The latest sdrplay driver, v3.1x, is installed from the sdrplay.com site by running the sdr-files/sdrplay\_scripts\_v2/1installAPI.sh script. Sdrplay.com (UK) develops a small usb hardware sdr receiver which is fairly inexpensive but works very well with any of the above SDR software. They also have in development (currently release 2) their own multi-platform software, SDRconnect. You can also download SDRuno for Windows. I haven't tried SDRuno as I don't use Windows but it should be very good.

The Raspberry OS 64-bit with cinnamon desktop works on a Raspberry Pi 4B 4GB and a 9-inch HDMI monitor. A second HDMI monitor can also be used. The total storage used on the storage device is about 7GB or 12GB with the optional SDR software. I recommend using a USB flash drive which is much faster than a SD card. I used a 128GB USB 3.1 Lexar flash drive for storage.

This setup has not been tested with any other hardware then the Pi 4B 4-Gigabyte single board computer (SBC), 9 inch (800 x 480 resolution) HDMI touchscreen display (buydisplay.com). There is a setting in the *boot/config.txt* file that forces output to be 800 x 480 resolution on HDMI-0 for the 9-inch display. Comment it out if it interferes with with your monitor. It shouldn't affect the 7-inch Raspberry DSI display since it's not connected through HDMI. Although connected, the capacitive touch screen feature is not being used at this time. I may try it in the future but a wireless wheel mouse and keyboard will be all that's needed besides a fast Internet connection.

The reason I came up with this setup is because I wanted to use my Pi 4 running sBitx with my sdrplay RSPdx sdr using SDRconnect, SDR++, SDRangel or CubicSDR which only run on 64-bit OSes. The sBitx software as shipped, unfortunately for me, came with Bullseye 32-bit Raspberry OS by default.

### What you'll need.

Raspberry Pi 4B 4GB SBC, 7-inch official Raspberry Pi display, or as in my case, I used a 9-inch HDMI display which has the same 800 x 480 resolution as the Pi display.

I used a Lexar JumpDrive S47128GB USB 3.1 Flash Drive (LJDS47-128ABBKNA) for storage. It's small, works with USB 3, and much faster than SD. There are also 32GB, and 64GB versions. Priced from about \$9 - \$25 plus shipping on Amazon.



After the OS is setup you'll need to copy of your sBitx/data files from your SD card to the pi/sbitx directory. You can transfer it as a zip file, scp it to the Pi with Putty or another Linux system or put the SD card in a card reader and plug it into the Pi 4 and copy/paste them. I haven't used Windows at home for over 20 years, so if some of this does not apply, I probably can't help you.

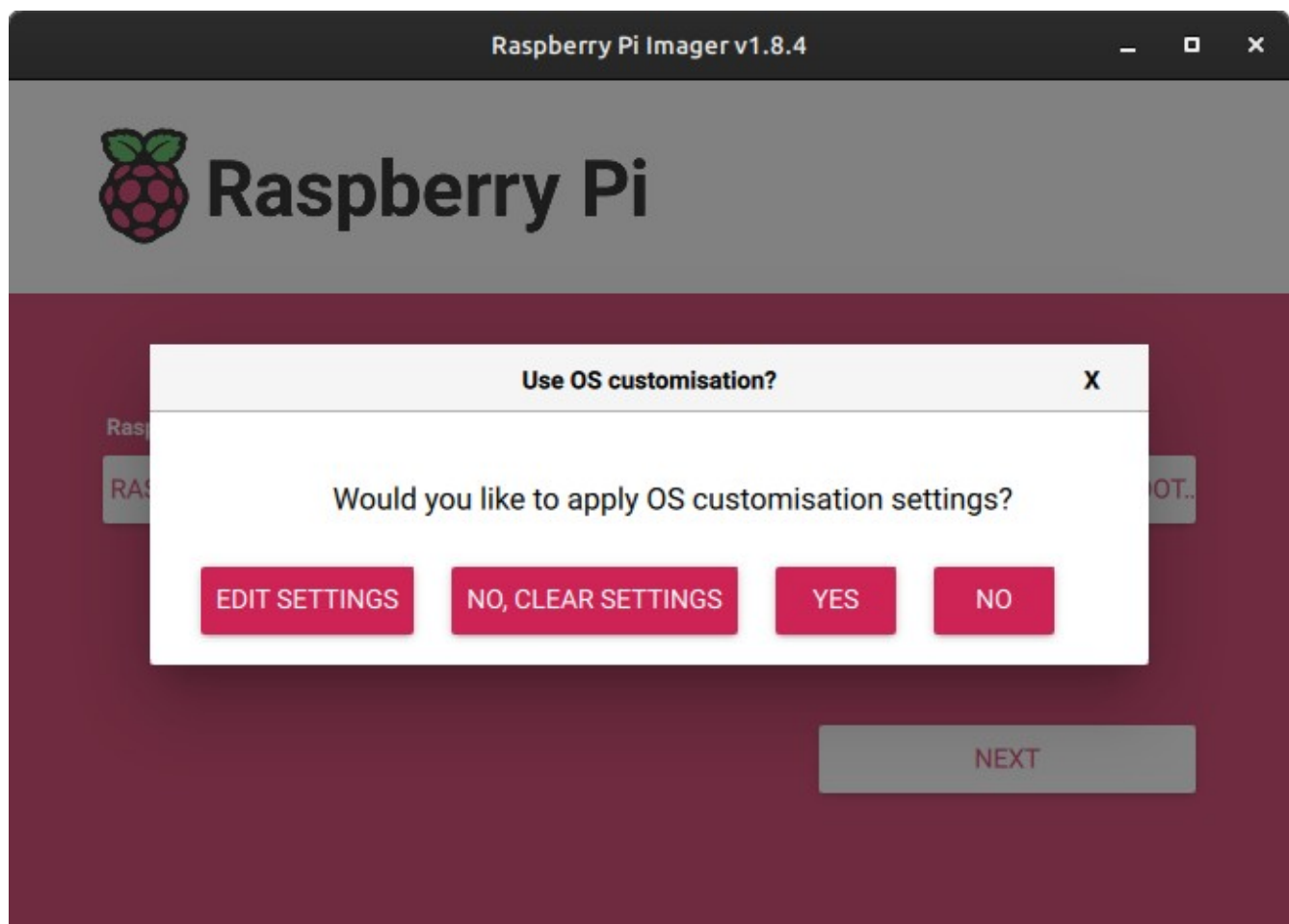
## Installation Steps

Get the Raspberry Pi OS Imager from <https://www.raspberrypi.com/software/> to write the os to your storage. Use it to download the OS image, preconfigure the WiFi network SSID/password , your timezone, keyboard layout, pi user/password, and hostname.

Run it and then select your device, select the lite 64-bit OS (under Raspberry Pi OS (other)) and your storage device (which hopefully you've plugged into our computer).



Click on 'Next' and edit the OS customization settings. The settings will be retained when saved.



Click on 'EDIT SETTINGS'. There are three section tabs to fill out. The user name needs to be 'pi' the password can be whatever you want but I used the traditional password of 'raspberrry'. You'll see a warning on the console login about changing the password if you use 'raspberrry'. I don't know if this warning is generic on first run. You can always change the pi user password after login with the command, 'passwd'.

OS Customisation

GENERAL

SERVICES

OPTIONS

☒

Set hostname: 

raspberrypi

.local

☒

Set username and password

Username: 

pi

Password:

☒

Configure wireless LAN

SSID: 

linksys

Password:

☐ Show password

☐ Hidden SSID

Wireless LAN country: 

US

☒

Set locale settings

Time zone: 

America/Chicago

Keyboard layout: 

us

SAVE

Fill out the fields and then click on ‘SERVICES’.

OS Customisation

GENERAL

SERVICES

OPTIONS

☒ Enable SSH

☒ Use password authentication

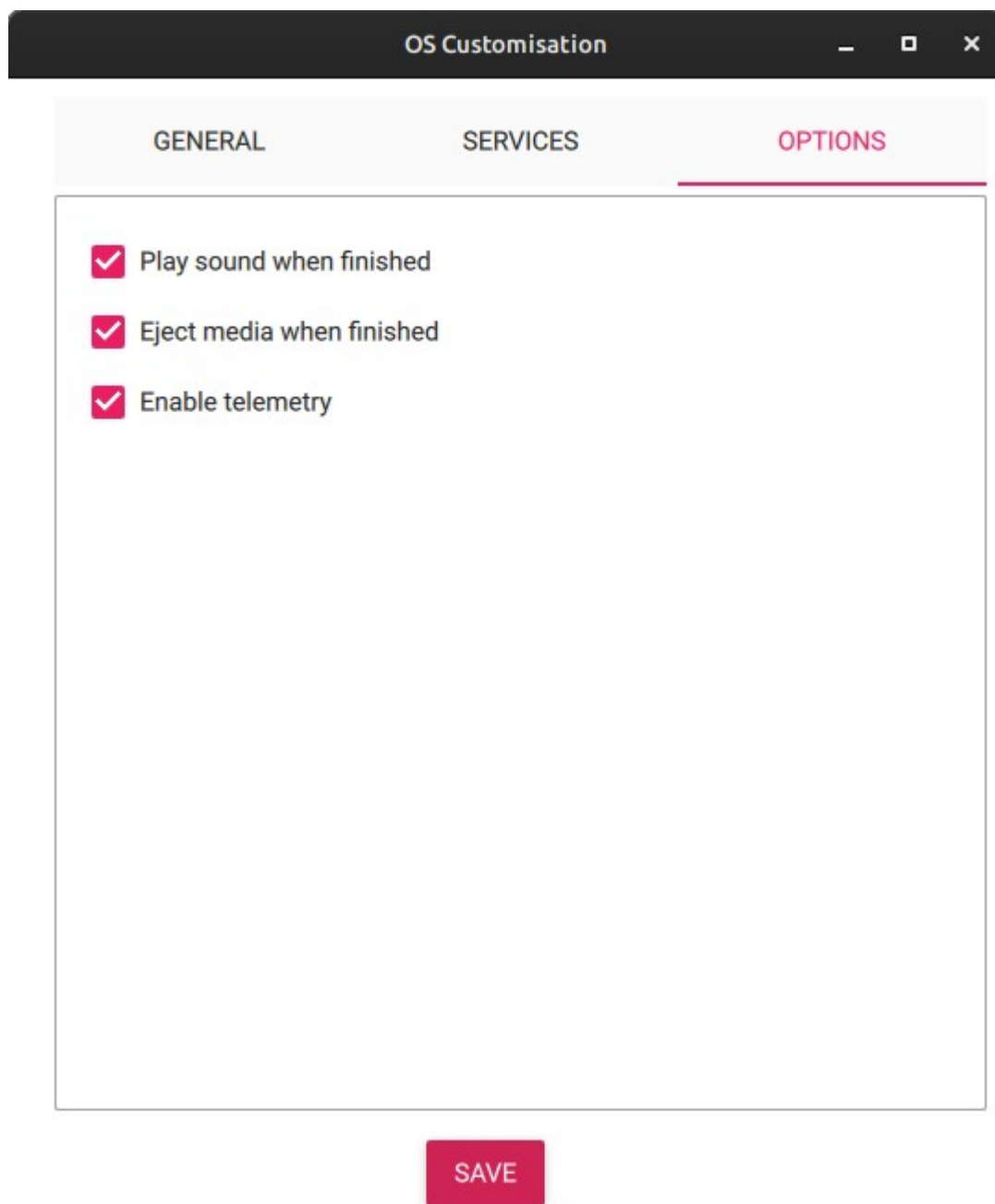
☐ Allow public-key authentication only

Set authorized\_keys for 'pi':  
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQGC2TJK  
UWA9EzVhKGjOOGCEM0yCeQqACg5jnWB6FSUj2b/IJ49  
S5tEpwJdjCXNRkT/FJUDFOu9yxU6u6aTPYpt1rfv75d2Pj  
GYOdC+IQORFLwPnRWpWj5VbyQeWXQ55tDUflwLP9GQ  
P6ZCiqzBus0bQNPQ6YHHhhunoB35FGn6Sxs/4VMdS/  
UZifY8hb/aYlt6ghZ6komKnAVj0WEzXNhQW6SvsoNRh1  
Y2Duahdy7Wo4jFHpmfKgN+nGf20gMcOYAKVAH7PGc7  
NJXoV5GzeuRkrFzUY4STy8hiJVTWv5A7DI3n6PtmUPtN  
nE427O58YIqC4pO+ebnqGsgYPqDkS0TFTtoU3qY1EL2n  
LgwBSIFNBuf6CKZmzrihnGjVw47+gEQikystnyGyOCZM  
6ZByCJhBkhID2Tn2wjHyT5BIXBTINw0nRsiqXTYRzD6Yh  
oh58QJSIFx1FpEkAh4i2+f+vLtEmwCtpF/SO/DLARXG3u  
0AvlBoX8WXLN8VTX6EXWDkdaw/4c= jponko@jponko-t  
c

RUN SSH-KEYGEN

SAVE

Enable SSH and set 'Use password authentication'. Click on 'OPTIONS'.



The image shows a window titled "OS Customisation" with standard window controls (minimize, maximize, close) in the top right corner. Below the title bar are three tabs: "GENERAL", "SERVICES", and "OPTIONS". The "OPTIONS" tab is selected and highlighted with a red underline. The main content area of the "OPTIONS" tab contains three settings, each with a red checkmark icon to its left:

- ☒ Play sound when finished
- ☒ Eject media when finished
- ☒ Enable telemetry

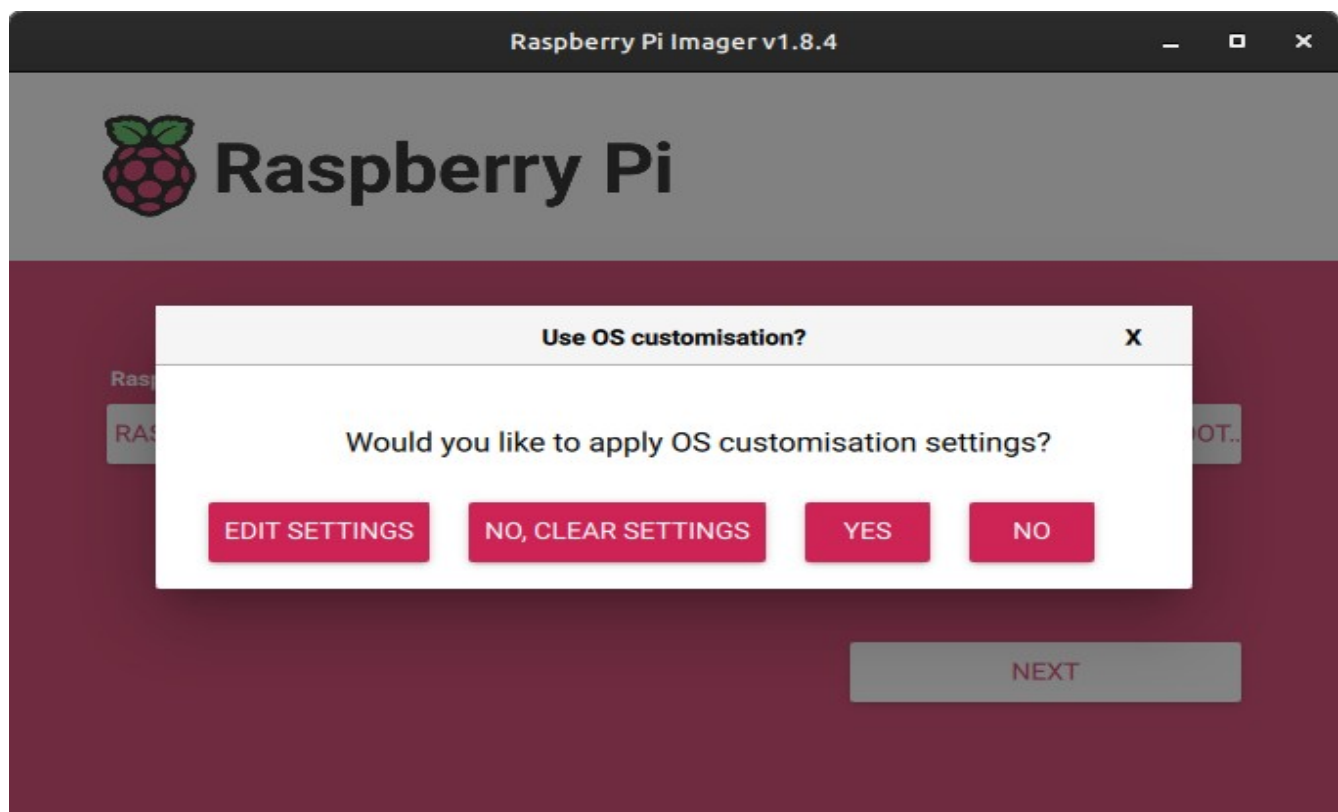
At the bottom center of the window is a red button with the text "SAVE" in white capital letters.

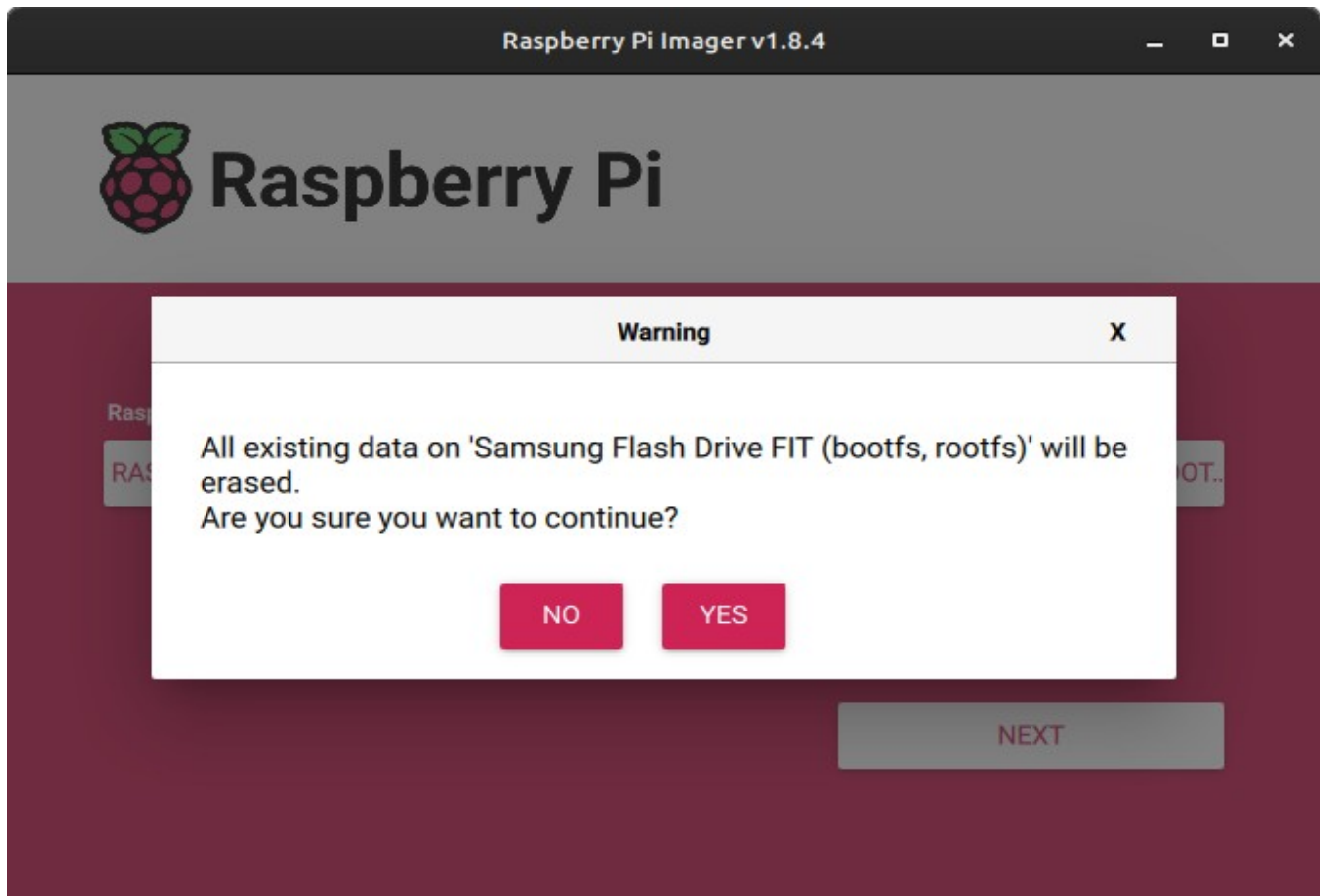
**Select all three and then click on 'SAVE'. You'll be back at the main menu and just click on 'NEXT'**

The telemetry option just sends info about which images are being written with imager and can be viewed at <https://rpi-imager-stats.raspberrypi.com/> . If your scared, unmark it.



Click on 'NEXT'. This time click on 'YES' to use the custom settings.

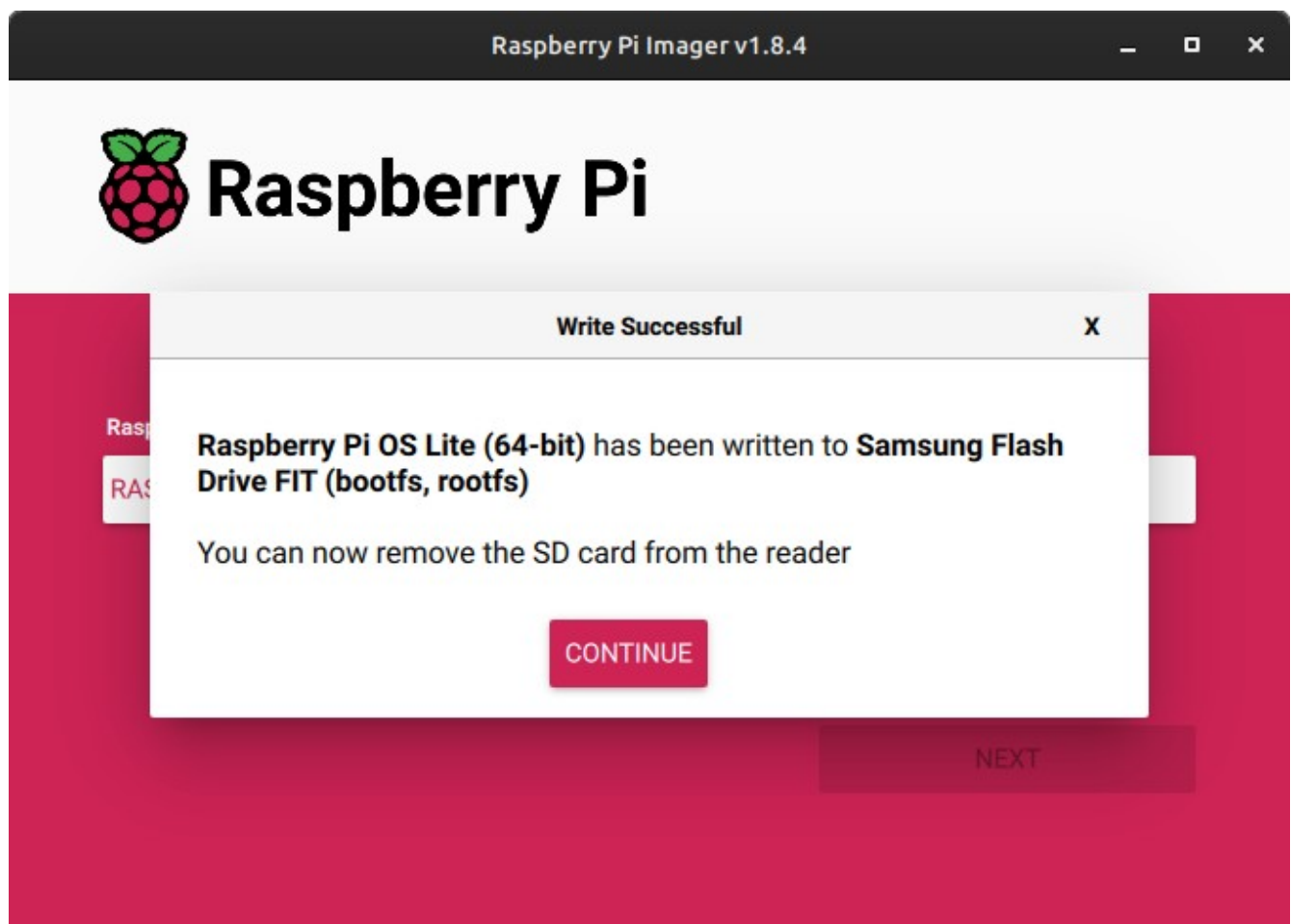




Click on “YES” and you will be prompted for your SUDO password to write the image. Yes all the data on the device will be erased. After you click on ‘YES’ to continue, it’s pointless to click on ‘CANCEL WRITE’ :(







**Done! Remove the storage media, place it in the Raspberry Pi and power on.**

**The Pi will boot to a screen where it will generate and store the system SSH keys and reboot. The Pi will then boot to the console screen a second time where it looks like it's ready for the pi user to login. It's not. The OS will reboot again after it expands the file system to the maximum.**

Login as pi with whatever password you used in imager. You can ssh into the Pi to do the following commands with cut and paste the text between the quotes on the console if you wish:

- 1.) 'sudo apt install git '
- 2.) 'git clone https://github.com/jponko/cinnamon-desktop' and when completed
- 3.) 'cd cinnamon-desktop'
- 4.) 'chmod +x install.sh'
- 5.) './install.sh'

And it will take about 45 minutes to install everything and will reboot afterwards. The desktop with my desktop preferences – background, dark theme, cpu monitor and disk space desklets and cpu temperature and shutdown applets on the panel (aka taskbar). Feel free to customize to your liking. Most everything can be changed under the Menu > Preferences > System Settings. WSJTX and fldigi are under the 'Hamradio' category. You can add them to the desktop or panel by right clicking on the

icon in the menu. The menu by the way, is the left icon on the panel which looks like a snow topped mountain range in a circle. If you hover over a icon a popup baloon with its name will appear.

For those who wish to install CubicSDR, SDR++ or SDRangel, there's a sdr.zip file which contains scripts to build and install these three. SDRplay's SDRconnect is in beta and can be gotten from [sdrplay.com](http://sdrplay.com). Unlike the other three SDR programs, SDRconnect only works with sdrplays hardware.

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