

Give our old Desktop/Notebook Computers with low resources a second life with the

FREE OPEN SOURCE Linux Operating System

- Download Linux .iso file. Choose ONE of the following Ubuntu based Linux
 - Lubuntu (Light weight variant of the Ubuntu Linux)
 - Xubuntu (Medium weight variant of the Ubuntu Linux)
 - Kubuntu (Heavy weight variant of the Ubuntu Linux)... there are many others to choose from, we will just one choose from these 3 (They have the same Linux "engine", difference is in the pre-installed software, user-interface and default system settings)
- Make USB Bootable Installation Disk using Windows Operating System
- Make USB Bootable Installation Disk using Ubuntu based Linux Operating System
- Install Linux Operating System from USB Bootable Installation Disk
- Install Arduino IDE Software into the Linux Operating System

Hardware Requirement



NOTEBOOK/DESKTOP
COMPUTER



USB DRIVE



USB WIFI ADAPTOR
(Optional)

1. A Notebook/Desktop Computer with Internet Connection
2. An empty USB Drive (2GB or 4GB)
3. USB WIFI ADAPTOR (Optional)

We will need the internet to download Software. Old Desktop Computer usually does not have a wireless internet interface. Get an inexpensive USB WIFI Adaptor to enable the Desktop Computer to access to the WIFI

Note:

The user interface layout in these Linux Operating System is highly customizable, you may customize it to suit your own preference.

*Ubuntu LTS (Long Term Support) is released every 2 years and supported for 5 years.

Download Linux .iso file

<https://github.com/teaksoon/lmaewapm>

Lubuntu - Light Weight Ubuntu Linux

For computer with small memory size RAM (2Gb or less)

<https://lubuntu.net/lubuntu-18-04-bionic-beaver-released/>

Requires 2Gb or more USB Disk to make installation disk

Download the 64-bit version (works for most computers)

LTS = Long Term Support (no need for regular updates)

Xubuntu - Medium Weight Ubuntu Linux

For computer with medium memory size RAM (4Gb or less)

<https://xubuntu.org/download>

Requires 2Gb or more USB Disk to make installation disk

Download the 64-bit version (works for most computers)

LTS = Long Term Support (no need for regular updates)

Kubuntu - Heavy Weight Ubuntu Linux (with advanced modern user interface)

For computer with larger memory size RAM (4Gb or more)

<https://kubuntu.org/getkubuntu/>

Requires 4Gb or more USB Disk to make installation disk

Download the 64-bit version (works for most computers)

LTS = Long Term Support (no need for regular updates)

Choose your variant (Lubuntu, Xubuntu or Kubuntu) and download one of them, we will get a file with

“.iso” extension

We will use this file to make a bootable Linux installer disk on an USB Drive

Make USB Bootable Installation Disk using Windows Operating System

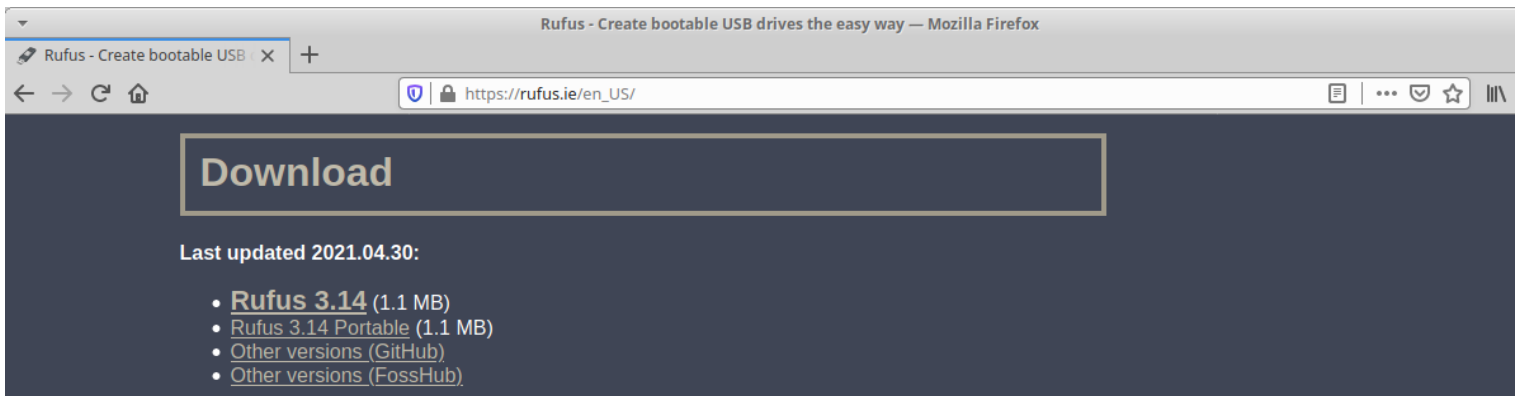
<https://github.com/teaksoon/lmaewapm>



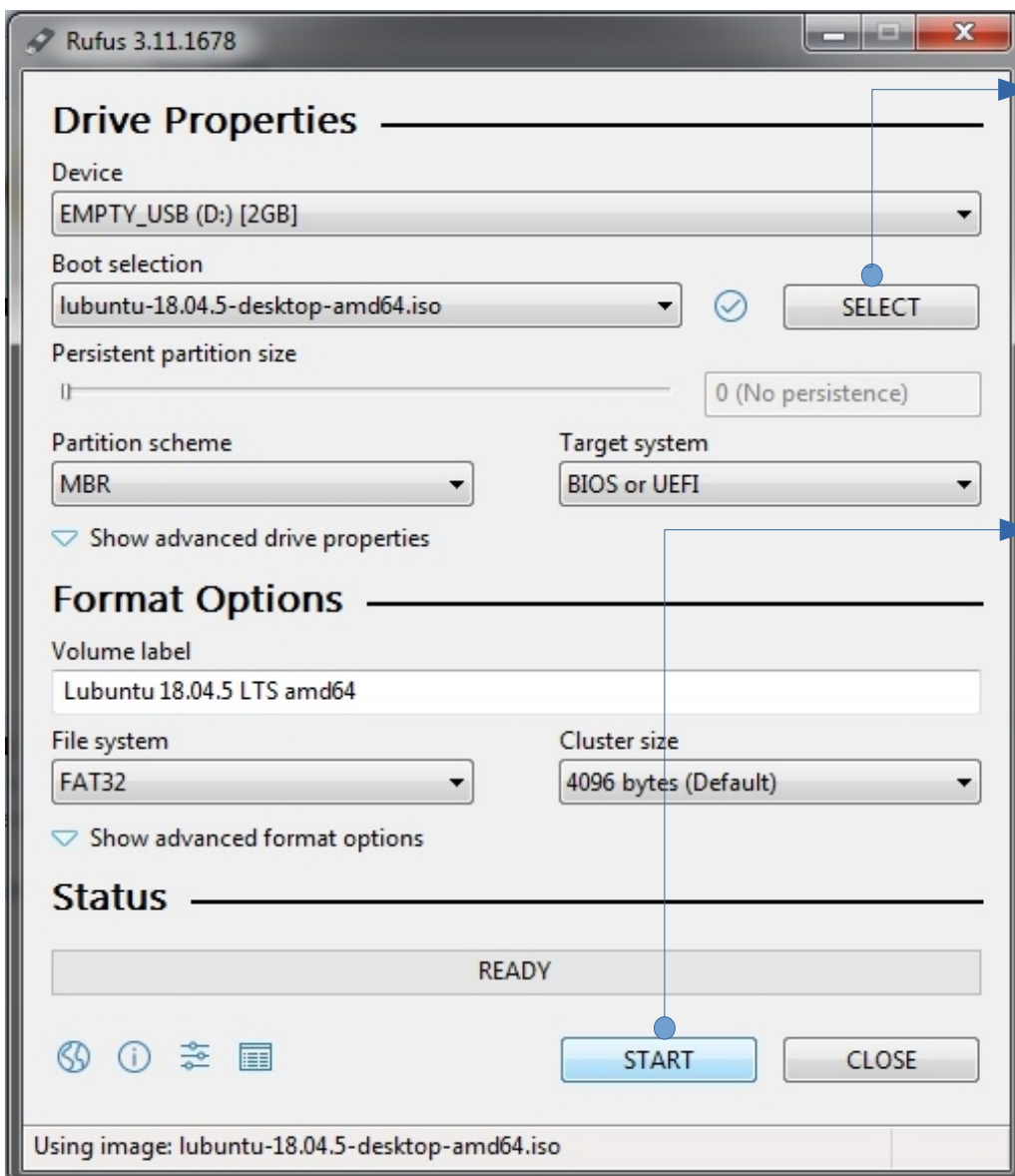
Any Computer running **Windows Operating System**

- Internet Connection
- 2Gb or more USB Drive (everything will be over-written)

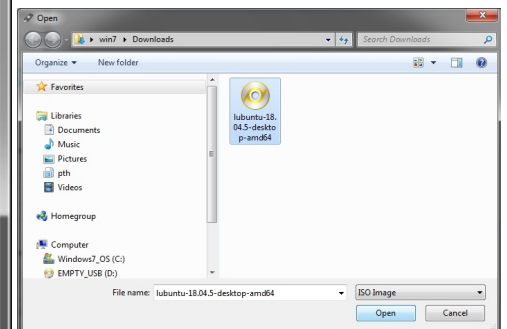
Software to make bootable disk from .iso file
(if does not exist, install rufus <https://www.rufus.ie>)



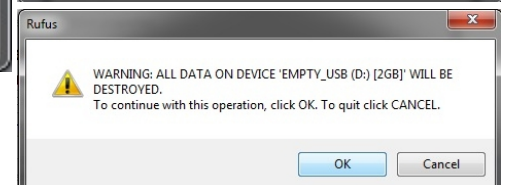
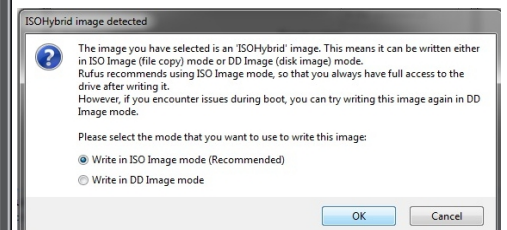
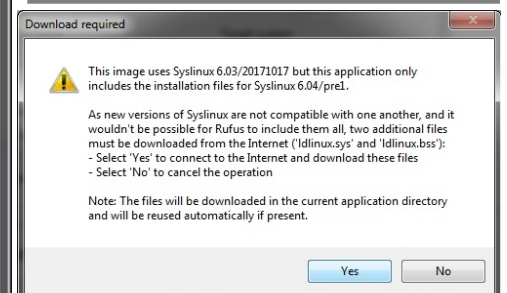
Download, install and run



Select linux .iso file



Select Default Options and Create Disk



Make USB Bootable Installation Disk using Ubuntu based Linux Operating System

<https://github.com/teaksoon/lmaewapm>



Any Computer running **Ubuntu based Linux Operating System**

- Internet Connection
- 2Gb or more USB Drive (everything will be over-written)

"Startup Disk Creator" (if does not exist, install it)

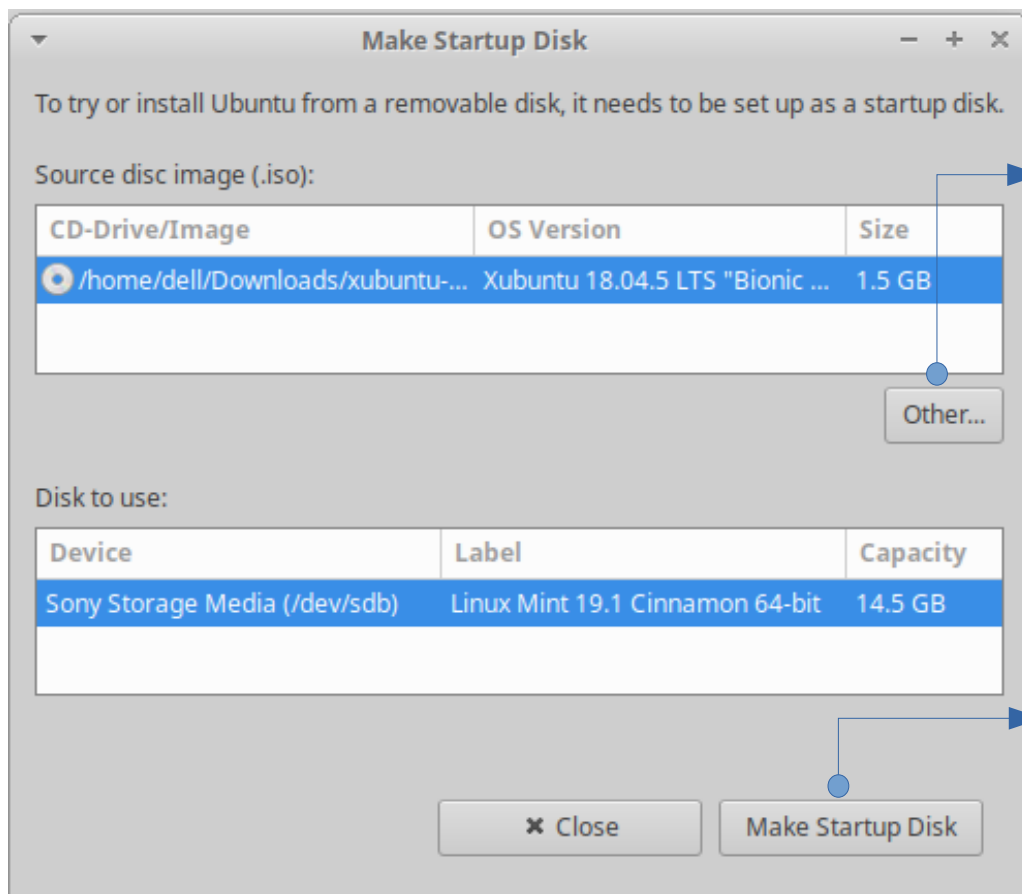
Depending on the Linux Operating system, you can either use Terminal Screen Command Line or Graphical Software Installer to Install the "Startup Disk Creator"

Note:
Graphical Software Installer can vary from one Linux to another. Terminal Sreen Command Line is available in all Linux Versions (we will just use the Terminal Screen Command Line)

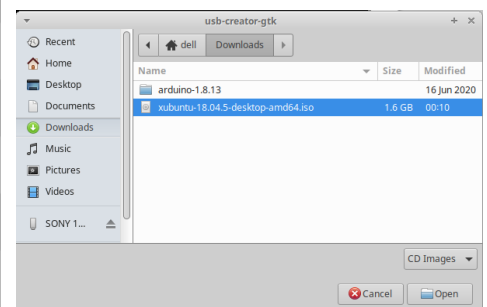
```
$sudo apt update
$sudo apt upgrade
$sudo apt install usb-creator-gtk
```

To run "Startup Disk Creator"

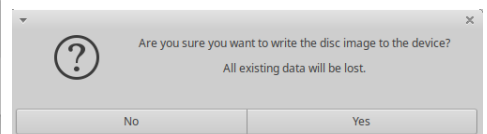
```
$usb-creator-gtk
```



Select linux .iso file



Create Disk



Note:
The "Startup Disk Creator" software can only work with Ubuntu based Linux, for other Linux variant, we have to use other software. We just stick with ubuntu based linux for this tutorial

Install Linux Operating System from USB Bootable Installation Disk

<https://github.com/teaksoon/lmaewapm>



Any Computer with or without any Operating System

- Free USB Port
- Internet Connection (wifi or wired)
- USB Drive with **USB Bootable Installation Disk (Linux)**



Insert the USB Bootable Installation Disk (Linux) into the Target Computer USB port (any port)

1. Enter the Desktop Computer to BIOS screen
 - Needs to press a specific key from the keyboard when switched-on (this key differs from one BIOS to another, sometimes it can be F2, F12, Del or something else, sometimes it is shown on the screen when booting up)
2. When in Desktop Computer BIOS screen, Set "First Boot Device" to "USB Drive". Insert our Linux USB Bootable Installation Disk and restart Computer

The Linux Installer connected to USB drive will run automatically

If you have an internet connection (wired or wifi), you will be asked to connect to the internet, please have your internet user id and password ready

Each version of Linux installation can be different. In general all of them should have the following setting to choose. We will use the easiest and most common settings.

1. Language

Choose - English

Click Continue

2. Install or Run from USB

Choose - Install

Click Continue

3. Keyboard Type

Choose - English (US)

Click Continue

4. Updates and Other Software

Select - Download updates...

Select - Install third-party software...

Click Continue

5. Installation type

Select - Erase disk and install...

(Leave other options unselected, those are for advanced installation)

Click Continue

6. Where are you?

Choose - Your location (time zone)

Click Continue

7. Who are you? (enter whatever you wish, use something simple. Example 'pc')

Your Name = pc

Your computer's Name = pc-home

Pick a user name = pc

Choose a password = pc123

Confirm password = pc123

Select - Log in automatically

Click Continue

8. Wait for installation to complete.

Install Arduino IDE Software into the Linux Operating System

<https://github.com/teaksoon/lmaewapm>




Arduino IDE 1.8.16

Go to Arduino IDE Software Download webpage

<https://www.arduino.cc/en/software>

Downloads



Arduino IDE 1.8.16

The open-source Arduino Software (IDE) makes it easy to write code and upload it to the board. This software can be used with any Arduino board.

Refer to the [Getting Started](#) page for Installation instructions.

SOURCE CODE

Active development of the Arduino software is [hosted by GitHub](#). See the instructions for [building the code](#). Latest release source code archives are available [here](#). The archives are PGP-signed so they can be verified using [this](#) gpg key.

DOWNLOAD OPTIONS

Windows Win 7 and newer
Windows ZIP file
Windows app Win 8.1 or 10 [Get](#)

Linux 64 bits
Linux ARM 32 bits
Linux ARM 64 bits

Mac OS X 10.10 or newer

[Release Notes](#) [Checksums \(sha512\)](#)

1. Download the Linux 64 bits version (this should work for most Linux installation)
We will get this file in our Download folder: arduino-1.8.16-linux64.tar.xz

2. Unpack this file into any folder, in my case I just unpack it into the same Download folder.
We will get a sub-folder named "arduino-1.8.16" inside there are alot of files.

3. Open up Linux Terminal Software

1. At first \$ prompt, key in "cd Downloads/arduino-1.8.16"
(this is the folder from your unpacking of downloaded file)

2. Next \$ prompt, key in "sudo ./install.sh"
(it will ask for Linux password, then it will do the setting up for your Arduino IDE Software)

3. Next \$ prompt, key in "sh ./arduino-linux-setup.sh \$USER"
(this will allow the Arduino IDE Software to access to the USB port of your Linux Computer)

4. DONE!!!

You can now use your Arduino IDE Software just like when you installed it on your Windows Operating System.

```
$cd Downloads/arduino-1.8.16
```

```
$sudo ./install.sh  
[sudo] password for xxx:  
...  
done!
```

```
$sh ./arduino-linux-setup.sh $USER
```