

Install Linux Mint on a Macbook Pro

A set of tips for installation and post install

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Table of contents

1	Introduction	1
1.1	Install Mint on a macbook pro	2
2	Setup configuration	3
3	Additional Software setup	4
4	Appendix 1. Script to set up links from local Home to Dropbox	5
5	Appendix 2. Copy files to new Mint machine	6
6	Practice	7

1 Introduction

The specific goal of this “DIY” project is to refurbish a seven year old macbook pro laptop with a modern linux operating system. The OS we’ll focus on for this post is Linux Mint 21.3. Why Mint? Well, as its been, “since the beginning” of the linux era (circa 1993) the main challenge to installing a linux distribution on almost any PC or mac is wrestling with the



hardware drivers: notably video, audio, trackpad and power management drivers. The Mint distro provides a solution the drivers needed for our target macbook pro, making the install much, much more straightforward. There are many other considerations that can go into choosing a linux distribution, but for our purposes, this is the main one.

To get started acquire a copy of the Mint distribution. The simplest way to do this is to download the latest Linux Mint ISO image file using an already setup workstation, and “burn” it onto a USB drive. For example use a “mac” laptop with `macos` installed. Confirm internet connectivity is available (Wifi or ethernet), and the machine has at least one external port.

1.1 Install Mint on a macbook pro

The target machine is a 2016 13-inch MacBook Pro with four Thunderbolt 3 Ports.

To start the process download an `iso` file from the Mint website. The current “Virginia” version of Mint `iso` file is 3.07 GB in size. The “Cinnamon” edition is recommended.

Specifically, download the torrent file for Linux Mint 21.3 Cinnamon edition.

Install the mac app Transmission <https://transmissionbt.com/download> and add the torrent file.

Also download the associated `sha256sum.txt` file.

To check the integrity of your local ISO file, generate its SHA256 checksum and compare it to the content of the `sha256sum.txt` file:

```
> sha256sum -b linuxmint-21.3-cinnamon-64bit.iso
```

We can transfer the `iso` file to a USB flash drive using one of several methods. On `macos` we suggest using the app `balenaEtcher`. You can download `balenaEtcher` [here](#)

Insert the bootable USB flash drive into the target macbook and reboot. Hold the ALT key while the machine reboots and you’ll

be presented with a screen offering boot drive options. Select the icon for the USB drive. A `grub` menu will appear.¹

From the `Grub` menu choose `Start Linux Mint 21.2 Cinnamon 64-bit`. and the Mint install program will start.

A `linux mint` desktop will appear allowing you to “test drive” Mint or to continue the install by double clicking the icon labeled “install Linux Mint”.

A setup dialog will start. Select, in sequence

- Language (English for us),
- Network (suggest skip),
- codexes (suggest skip),
- options for a “fresh install” or “something else” (choose **fresh** to devote full hard drive to Mint).
- Location (Pacific region for us),
- name a user who will have administrator privileges, a hostname, and assign a password.

Once through these screens the install process will proceed. When complete connect the target machine to the Internet. If you have ethernet connectivity plug the cable directly into the target macbook and Mint should connect automatically to the internet. For wireless wifi access use a supported modem e.g. Panda Wireless modem. Panda is supported since Mint 21.3 has `Ralink RT5372` drivers installed. (see appendix for Broadcom install instructions)

The final hardware related step is to add a second monitor, if available, via `HDMI` or “`USB-C`”.

Thats it. The base system is ready to go. Reboot and login with the admin username and password you provided earlier.

2 Setup configuration

After logging in for the first time connect to the Web via WiFi router. Start with `Dropbox` install. Specifically, for efficiency, set the `sync` list to `dotfiles` only, of directories in `Preferences` this will install all the required files for the shell

¹ **GNU GRand Unified Boot-loader (GRUB)**. “When your Linux operating system starts up, GRUB is the first program that runs. It loads the kernel of the operating system, and then the kernel loads the rest of the operating system, including the shell, the desktop environment, and other operating system features.” codecademy.com

and vim configuration. The easiest way to install Dropbox is with the Mint Software Manager aka Flatpak.

Set Dropbox to start at login:

```
dropbox stop
dropbox autostart y
```

Next configure the displays, the keyboard, and the touchpad.

1. On a two monitor system open Display menu (press ``command`` key to open menu and search for "display"). Select the macbook as the primary monitor with 2560x1440 resolution. Set ``Monitor scale`` at 200\% to increase default font size in apps. Second monitor (e.g. Dell ?) should be set at ``3840x2160`` (200\%)

3. Set keyboard and trackpad preferences:

- * Open ``Mouse and Touchpad`` in settings. Turn on ``Reverse scroll``.
- * Open ``Keyboard`` > ``Layouts`` > ``Options`` > ``Caps Lock behavior`` and select ``Swap Esc`` and ``Caps-Lock``. This is an important setting for ``vim`` use.
- * Open ``Shortcuts`` > ``Windows``.
 - * Set ``Maximize window`` to ``Alt-f``
 - * Set ``Unmaximize window`` to ``Alt-g``
 - * Set ``Close window`` to ``Alt-q``

4. Update base pre-installed software with the following two commands issued in the terminal.

```
```sh
> sudo apt update
> sudo apt upgrade
```

### 3 Additional Software setup

1. Install basic utilities `fzf`, `ripgrep`, `ssh`, `git`, `wget`, `curl`, `zsh`, as well as major applications `vim`, `qutebrowser`, `firefox` and `zathura` with the following one command:

```
sudo apt install terminator tree ssh zsh curl git vim fzf ripgrep \
autojump zsh-syntax-highlight zsh-autosuggestions \
zathura qutebrowser firefox -y
```

Run bash shell script `~/Dropbox/dotfiles/set_up_links.sh` to set up symbolic links (e.g. `ln -s ~/Dropbox/prj ~/prj`). See Appendix 1 below for details.

Set up the shell (zsh) per the post [\[link to set up terminal post\]](#)

Install **zotero** using software manager and set up syncing (login: rgthomas)

Install texlive-science

```
> chsh -s $(which zsh)
```

add vimium extension to firefox

in Dropbox update sync to add prj, bin, sandbox set dropbox to autostart make zsh the default shell

```
> sudo apt install texlive-science
```

install R and R packages

```
sudo add-apt-repository --enable-source --yes "ppa:marutter/rrutter4.0"
sudo add-apt-repository ppa:c2d4u.team/c2d4u4.0+
sudo apt upgrade
sudo apt install r-base r-cran-tidyverse r-cran-pacman \
r-cran-kableExtra r-cran-styler \
r-cran-shiny r-cran-rmarkdown r-cran-tidyverse r-cran-knitr
```

## 4 Appendix 1. Script to set up links from local Home to Dropbox

`set_up_links.sh`

```
#!/bin/zsh
ff=(".zshrc" ".viminfo" ".vimrc" ".local" ".vim" \
 ".vimplugins" ".config" ".Rprofile")
for P in "${ff[@]}"
do
echo "create a link for Dropbox/dotfiles version of $P in Home"
ln -v -s "$HOME/Dropbox/dotfiles/$P" "$HOME/$P"
done

mv ~/.config ~/.config.tmp
cp -R ~/config.tmp/* ~/.config

dd=("sandbox" "bin" "docs" "prj" "work" "ssh")
for P in "${dd[@]}"
do
echo "create a link for Dropbox/dotfiles version of echo $P in Home"
ln -v -s "$HOME/Dropbox/$P" "$HOME/$P"
done
```

## 5 Appendix 2. Copy files to new Mint machine

Connect to new machine via ssh from mac laptop

First on the new machine (zz)

```
zz> sudo apt install ssh
zz> ifconfig
```

get IP for target, say 10.0.1.196

Either shell in to linux mint machine, or secure copy files over.

```
mac> ssh z@10.0.1.196
mac> scp .vimrc z@10.0.1.196:~
```

## 6 Practice

Install docker and run R code from Docker Hub.