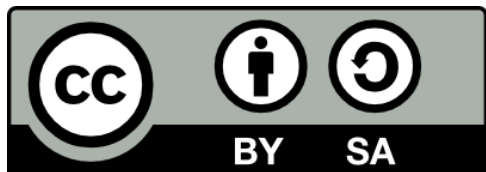


# Installing Arch Linux in 5 Minutes



(except two images  
under CC BY-NC-SA)

Chih-Hsuan Yen  
2020/08/01



\$ whoami



- Arch Linux Trusted User since 2018
  - I applied after delivering a talk about Arch Linux packaging on COSCUP 2018



- Also volunteers in the LXQt project



# Why Installing Arch Linux?

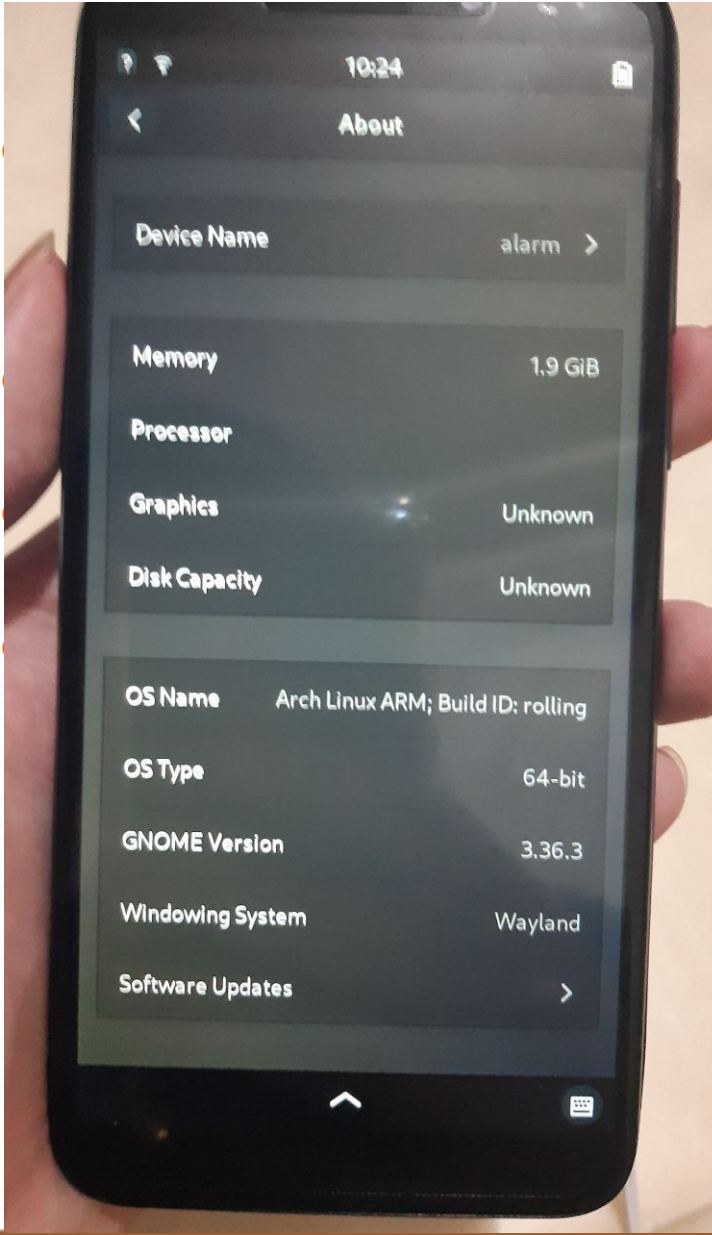
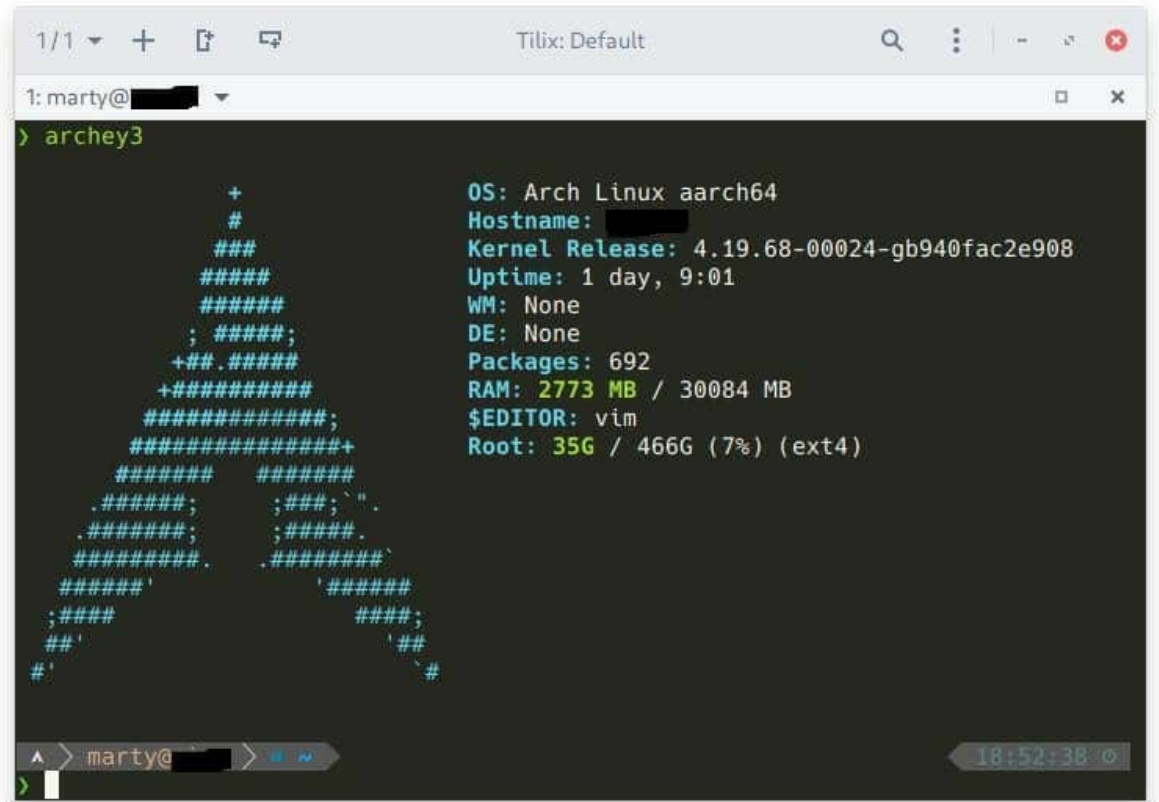


Photo credits:

- \* Rpi2B: Wikipedia, Public Domain
- \* PinePhone & Server: Martin Chang (@marty1885) CC-BY-NC-SA



# Official Installation Method



- Read the *fancy* manual

## Installation guide

---

This document is a guide for installing **Arch Linux** from the live system booted with the official installation image. For alternative means of installation, see **Category:Installation process**.

Before installing, it would be advised to view the **FAQ**. For conventions used in this document, see **Help:Reading**. In particular, code examples may contain placeholders (formatted in *italics*) that must be replaced manually.

For more detailed instructions, see the respective **ArchWiki** articles or the various programs' **man pages**, both linked from this guide. For interactive help, the **IRC channel** and the **forums** are also available.

Arch Linux should run on any **x86\_64**-compatible machine with a minimum of 530 MiB RAM. A basic installation should take less than 2 GiB of disk space. As the installation process needs to retrieve packages from a remote repository, this guide assumes a working internet connection is available.

### Contents [hide]

- 1 Pre-installation
  - 1.1 Verify signature
  - 1.2 Boot the live environment
  - 1.3 Set the keyboard layout
  - 1.4 Verify the boot mode
  - 1.5 Connect to the internet
  - 1.6 Update the system clock
  - 1.7 Partition the disks
    - 1.7.1 Example layouts
  - 1.8 Format the partitions
  - 1.9 Mount the file systems
- 2 Installation
  - 2.1 Select the mirrors
  - 2.2 Install essential packages
- 3 Configure the system
  - 3.1 Fstab

➔ Check out workshop in the afternoon: *Arch Linux installation workshop*

# A Wiki-style Warning



**Warning:** Approaches I will introduce later are NOT officially recommended installation method! Use the method from [Installation guide](#) if you are not sure.



# Installation Target: Machine Types



- Bare metal
- Containers – for those from another Linux distribution
- Virtual machines
  - Local virtual machines
  - Cloud virtual machines



# How to Choose?



- How it works
    - Characteristics
    - Intended/designed usage
  - Is it supported?
    - Ex: Arch Linux on WSL is supported by neither Microsoft nor Arch Linux team
  - Long-term vision
    - News/blog posts
    - Relationship with the community
- “Installing in 5 minutes,  
preparation for 10 days”*

# Containers - Docker



- Docker

- Officially supported by Arch Linux

<https://github.com/archlinux/archlinux-docker>


```
$ docker run -it archlinux:latest
```


archlinux / **archlinux-docker**

<> Code    🔗 Pull requests    🛡 Security    📊 Insights

🔑 master ▾    🔗 6 branches    🏷 14 tags

Go to file    **↓ Code ▾**

 **SantiagoTorres** Merge pull request #13 from eli-schwartz/noextract    ✓ b20da68 on Nov 26, 2019    🕒 38 commits

 .github/workflows    add Github Actions    10 months ago



# Containers - LXC + LXCD



- Out-of-box support for systemd, even in unprivileged containers

```
1518613 root      20    0 1171M 23360  2128 S  0.0  0.1  0:00.01 [lxc monitor] /var/lib/lxd/containers db
1518622 100000      20    0  166M  8404  6192 S  0.0  0.0  0:00.75   /sbin/init
1518799 100976      20    0  198M 21960 20556 S  0.0  0.1  0:08.54   /usr/bin/postgres -D /var/lib/postgre
1519564 100976      20    0  199M 11052  8904 S  0.0  0.1  0:00.00   postgres: http tt_rss 192.168.235.
1519067 100976      20    0  198M  5580  3932 S  0.0  0.0  0:00.07   postgres: logical_replication laun
1519066 100976      20    0 57644  3544  2016 S  0.0  0.0  0:15.62   postgres: stats collector
1519065 100976      20    0  198M  6412  4620 S  0.0  0.0  0:04.17   postgres: autovacuum launcher
1519064 100976      20    0  198M  7936  6516 S  0.0  0.0  0:06.70   postgres: walwriter
1519063 100976      20    0  198M  9328  7904 S  0.0  0.0  0:01.60   postgres: background writer
1519062 100976      20    0  198M 52140 50640 S  0.0  0.3  0:03.53   postgres: checkpointer
1518785 100000      20    0  2456  1728  1612 S  0.0  0.0  0:00.00   /sbin/agetty -o -p -- \u --noclear --
1518781 100081      20    0  6656  3052  2640 S  0.0  0.0  0:00.00   /usr/bin/dbus-daemon --system --addre
1518682 100981      20    0 18008  4512  3512 S  0.0  0.0  0:00.70   /usr/lib/systemd/systemd-networkd
1518677 100000      20    0 37768  8648  7572 S  0.0  0.0  0:00.36   /usr/lib/systemd/systemd-journald
```

- Maintained by *Canonical* **CANONICAL**
  - May not follow Arch Linux – pre-installs vi and nano
  - Various minor issues (nftables, rsync, ...)

```
$ lxc launch images:archlinux test-container
$ lxc exec test-container bash
```



# Local Virtual Machines - Vagrant



- Officially supported by Arch Linux  
<https://gitlab.archlinux.org/archlinux/arch-boxes>
- Arch Linux provides VirtualBox and libvirt/QEMU images
  - With corresponding guest tools pre-installed

```
$ vagrant init archlinux/archlinux
$ vagrant up
$ vagrant ssh
```
- Suitable for testing
  - Creates an account `vagrant` with password `vagrant`

# Local Virtual Machines – WSL



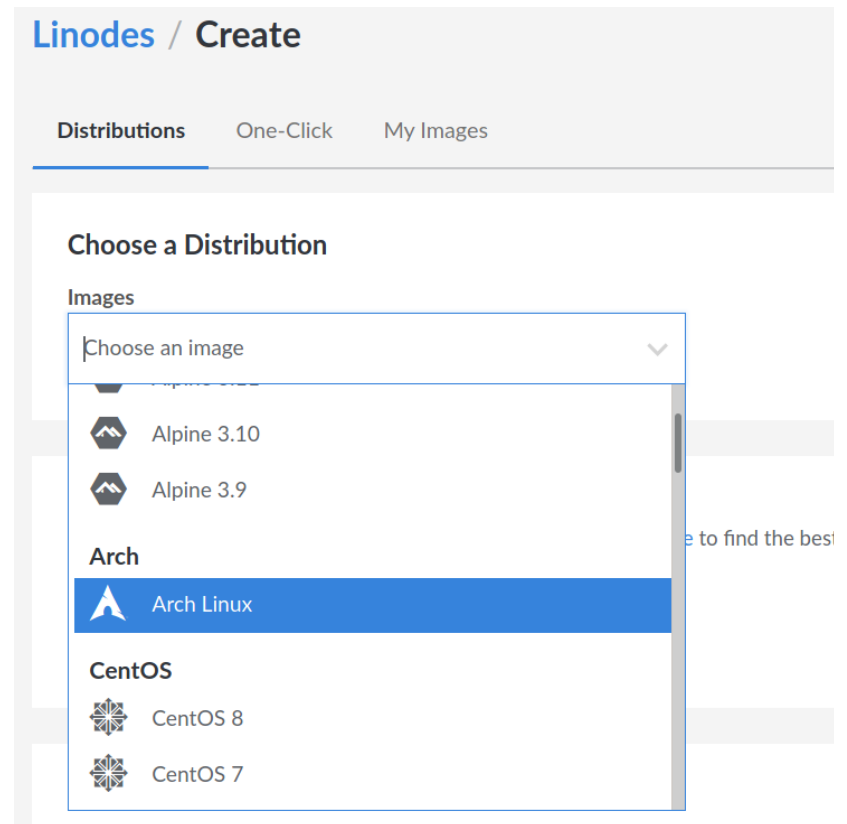
- <https://github.com/yuk7/ArchWSL/>

The image shows three overlapping terminal windows on a Windows Surface3. The background window is Ubuntu 16.04 xenial, showing system information like OS, Kernel (x86\_64 Linux 4.4.0-43-Microsoft), and Uptime (0m). The middle window is Alpine Linux, showing OS, Kernel (x86\_64 Linux 4.4.0-43-Microsoft), Uptime (0m), Packages (17), and Shell (ash). The foreground window is Arch Linux, showing OS, Kernel (x86\_64 Linux 4.4.0-43-Microsoft), Uptime (0m), Packages (113), Shell (bash 4.4.12), CPU (Intel Atom x7-Z8700 @ 4x 1.601GHz), and RAM (1283MiB / 4012MiB). A large ASCII art logo of a Surface3 is visible in the background of the Ubuntu window.

# Cloud VMs - Linode



- Officially supported by Linode
- I didn't find the script to build the image
- By default, the image uses a custom kernel not packaged on AUR



# Cloud VMs - Google Compute Engine



- Semi-officially supported by Google
  - No Arch Linux in public GCE images
  - A Google-maintained script and a GCP project with a prebuilt Arch image

GoogleCloudPlatform / [compute-archlinux-image-builder](#)

<> Code Issues 1 Pull requests Actions Projects Wiki Security Insights

master 1 branch 5 tags Go to file Add file Code

toastwaffle Merge pull request #35 from yan12125/dont-touch-host-machine-id 0b502ed 12 days ago 45 commits

CONTRIBUTING.md	Brings the project up to date with a new bash implementation.	2 years ago
LICENSE	Update LICENSE	3 years ago
README.md	Fixes typo.	2 years ago
build-arch-gce	Don't touch machine-id on the building host	12 days ago

# Clone an Existing System on a Physical/ Virtual Machine



- rsync
  - Cloning files – slower
- Snapshot features built into filesystems
  - Btrfs send/receive
  - ZFS send/receive
- CloneZilla (再生龍)
  - Cloning partitions/disks, not supporting cloning from larger to smaller partitions/disks



# Customized Live System



- Arch ISO build scripts:  
<https://gitlab.archlinux.org/archlinux/archiso>
- My own live CD with many tools at  
<https://github.com/yan12125/archiso>
  - X11
  - Firefox
  - CloneZilla
  - GParted



# Clone an Existing Container



- Docker

```
$ docker export -o filename.tar container_id  
$ docker import filename.tar another_container_id
```

- LXC+LXD

- May need to be patched for rsync compatibility on Arch Linux

```
$ lxc copy container_name another_container_name
```

---



# Post-installation – System Settings



- Ansible
  - Using YAML
  - Supports bare metal (SSH), virtual machines (libvirt) and containers (docker, LXD+LXC, ...)

```
# install.sh
pacman -S --needed \
  --noconfirm foobar
```

Define “steps”

```
# install.yml
pacman: name=foobar state=present
```

Define “states”

- Check out a talk later – *Ansible: From VM to Kubernetes*

# Post-Installation – Personal Settings



- Keep settings for as many applications as possible in XDG directories
  - Application support:  
[https://wiki.archlinux.org/index.php/XDG\\_Base\\_Directory#Supported](https://wiki.archlinux.org/index.php/XDG_Base_Directory#Supported)
  - Ex: `alias gdb="gdb -x $HOME/.config/gdbinit.py"`
- Sync XDG directories whenever a new copy of Arch Linux is installed

