

<https://arch.d3sox.me/installation/#why-this-guide>
<https://youtu.be/DPLnBPM4DhI>

```
/dev/nvme0n1p1  EFI SYSTEM
/dev/nvme0n1p2  MICROSOFT BASIC DATA
/dev/nvme0n1p3  WINDOWS RECOVERY ENVIRONMENT
/dev/nvme0n1p4  LINUX FILESYSTEM
/dev/nvme0n1p5  LINUX SWAP
```

```
ip addr a || ip a || ap addr show
iwctl
## device list
## station <> scan
## station <> get-networks
## station <> connect "<>"
ping -c 5 8.8.8.8
ping -c 5 www.google.com
```

```
(600M) /dev/nvme0n1p1  EFI SYSTEM
(080G) /dev/nvme0n1p2  LINUX SWAP
(600M) /dev/nvme0n1p3  LINUX FILESYSTEM
(REM) /dev/nvme0n1p4  LINUX LVM
```

```
-----UEFI w/ ENCRYPTION-----
fdisk -l ## Obtain hard disk name
```

```
fdisk <Hard-Disk-Name>
(create GPT partition)
```

*Format Partition*

```
mkfs.fat -F32 /dev/nvme0n1p1
mkfs.ext4 /dev/nvme0n1p3
```

*Swap Drive*

```
mkswap /dev/nvme0n1p2
swapon /dev/nvme0n1p2
```

*Encrypt Partition*

```
cryptsetup luksFormat /dev/nvme0n1p4
<Create-A-Passphrase>
```

*Decrypt Partition*

```
cryptsetup open --type luks /dev/nvme0n1p4 lvm
<Enter-Passphrase>
```

*Create Physical Volume*

```
pvcreate --dataalignment 1m /dev/mapper/lvm
```

*Create Volume Group*

```
vgcreate volgroup0 /dev/mapper/lvm
```

```
lvcreate -L 30GB volgroup0 -n lv_root
```

```
lvcreate -l 100%FREE volgroup0 -n lv_home
```

*Activate volumes*

```
modprobe dm_mod
```

```
vgscan
```

```
vgchange -ay
```

*Format volumes*

```
mkfs.ext4 /dev/volgroup0/lv_root
```

```
mount /dev/volgroup0/lv_root /mnt
```

```
mkdir /mnt/boot
```

```
mount /dev/nvme0n1p3 /mnt/boot
```

```
mkfs.ext4 /dev/volgroup0/lv_home
```

```
mkdir /mnt/home
```

```
mount /dev/volgroup0/lv_home /mnt/home
```

*Setup FSTAB file*

```
mkdir /mnt/etc
```

```
genfstab -U -p /mnt >> /mnt/etc/fstab
```

```
cat /mnt/etc/fstab ## Take a look at that file
```

*Rank Mirrorlist*

```
reflector -c 'United States' -a 15 -p https --sort rate --save /etc/pacman.d/mirrorlist
```

```
pacman -Syy
```

*Start the Install*

```
pacstrap -i /mnt base
```

*Change root*

```
arch-chroot /mnt
```

*Core Installation*

```
pacman -S base-devel linux linux-firmware linux-headers dkms ## Core
```

```
pacman -S linux-lts-headers linux-lts-
```

```
pacman -S jshon expac git wget acpid avahi net-tools xdg-user-dirs
```

```
pacman -S nano less which man-db man-pages ## Help, editing, and info tools
```

```
pacman -S amd-ucode (OR intel-ucode)
```

```
systemctl enable acpid avahi-daemon systemd-timesyncd
```

```
pacman -S extra/nvidia
```

SSD

systemctl enable fstrim.timer

Encryption and LVM2

pacman -S lvm2

nano /etc/mkinitcpio.conf

HOOKS=(base udev autodetect modconf block encrypt lvm2 filesystems keyboard fsck)

mkinitcpio -p linux

mkinitcpio -p linux-lts **## If LTS is installed run it against linux-lts**

Modify Locale

nano /etc/locale.gen

en_US.UTF-8 UTF-8

locale-gen

Set Root Password

passwd

Create Standard User

useradd -m -g users -G wheel <username>

passwd <username>

Sudo

pacman -S sudo **## Check if pacman is installed**

which sudo

EDITOR=nano visudo

%wheel ALL=(ALL) ALL **## Uncomment this**

~~gptfdisk~~ fatresize

Install Bootloader (non-UEFI)

pacman -S grub dosfstools os-prober mtools

grub-install --target=i386-pc --recheck /dev/nvme0n1

Install Bootloader (UEFI)

pacman -S grub efibootmgr os-prober mtools

mkdir /boot/EFI

mount /dev/nvme0n1p1 /boot/EFI **## Mounting of EFI Partition**

grub-install --target=x86_64-efi --bootloader-id=grub_uefi --recheck --efi-directory=/boot/EFI --recheck

Create locate directory

```
ls -l /boot/grub  
/mkdir /boot/grub/locale
```

Relatively Long command

```
cp /usr/share/locale/en\@quot/LC_MESSAGES/grub.mo /boot/grub/locale/en.mo
```

Encryption Finalization With Grub

```
nano /etc/default/grub  
GRUB_CMDLINE_LINUX_DEFAULT="cryptdevice=/dev/nvme0n1p4:volgroup0:allow-  
discards loglevel=3 quiet" ## Add Underlined  
GRUB_ENABLE_CRYPTDISK=y ## Uncomment
```

Generate Grub Configuration File

```
grub-mkconfig -o /boot/grub/grub.cfg
```

```
exit  
umount -a  
reboot
```

Network Profiles

```
pacman -S systemd-networkd
```

Wired Networking

```
pacman -S networkmanager networkmanager-openvpn  
pacman -S networkmanager-pptp networkmanager-vpnc  
pacman -S inetutils ## Bunch of internet tools  
pacman -S openssh ## SSH (included in inetutils)  
systemctl enable sshd  
systemctl enable NetworkManager
```

Wireless Connection #1

```
pacman -S wireless_tools wpa_supplicant wpa_cli dialog
```

Wireless Connection #2

```
pacman -S systemd (alt to openresolv) dhcpcd iwd (alt to wpa_supplicant) ## Wireless  
systemctl enable dhcpcd.service  
systemctl enable iwd.service  
systemctl mask wpa_supplicant
```

Enabling interface DHCP using systemd-networkd

```
# nano /etc/systemd/entwork/25-wireless.network  
# [Match]  
# Name=< name of your wifi interface or * for every interface >
```

```
# [Network]
# DHCP=yes
```

*Configure DNS*

```
nano /etc/iwd/main.conf
# [Network]
# NameResolvingService=systemd
```

*IWD Configuration File for Auto-Connect*

```
# /var/lib/iwd/spaceship.psk
# [General]
# use_default_interface=true
# [Security]
# Passphrase=test1234
# PreSharedKey=aafb192ce2da24d8c78...
# [Settings]
# AutoConnect=true (or false to disable)
# [Network]
# DHCP=yes
# IPv6PrivacyExtensions=true
```

*Time Setup*

```
timedatectl list-timezone | grep -i "US"
timedatectl set-timezone "US/Eastern"
hwclock --show
hwclock --systohc
```

*Window Manager*

```
pacman -S xfce4 xfce4-goodies
pacman -S lightdm lightdm-gtk-greeter xorg ## (xorg-server)
pacman -S accountsservice
systemctl enable lightdm
```

*Media Codecs*

```
pacman -S gst-libav gst-plugins-base gst-plugins-good gst-plugins-bad gst-plugins-ugly
gststreamer-vaapi gst-transcoder x265 x264 lame
```

*Printer support - Add some packages needed for printing and scanning*

```
pacman -S system-config-printer foomatic-db foomatic-db-engine gutenprint gsfonts cups
cups-pdf cups-filters sane
systemctl enable cups.service saned.socket
```

*UI for HP Printers*

```
pacman -S hplip
```

*Bluetooth support*

```
pacman -S bluez bluez-utils pulseaudio-bluetooth  
systemctl enable bluetooth
```

*Input Driver*

```
pacman -S xf86-input-synaptics xf86-input-libinput xf86-input-evdev  
##When installing inside a virtual machine:  
pacman -S xf86-input-vmmouse
```

*Intel Graphics*

```
pacman -S vulkan-intel (utilities) xf86-video-intel (video driver)
```

*Add kernel module*

```
nano /etc/mkinitcpio.conf  
Change MODULES=() to  
MODULES=(i915) if you installed xf86-video-intel  
mkinitcpio -P
```

*Archive and file system utils*

```
pacman -S p7zip unrar unarchiver unzip unace xz rsync  
pacman -S nfs-utils cifs-utils ntfs-3g exfat-utils
```

*Audio*

```
pacman -S alsa-utils pulseaudio-alsa pulseaudio-equalizer
```

*Decrypt Partition*

```
cryptsetup open --type luks /dev/nvme0n1p4 lvm  
<Enter-Passphrase>
```

```
mount /dev/volgroup0/lv_root /mnt  
mount /dev/nvme0n1p3 /mnt/boot  
mount /dev/volgroup0/lv_home /mnt/home
```

```
arch-chroot /mnt
```

*Format Everything*

```
mkfs.fat -F32 /dev/nvme0n1p1  
mkfs.ext4 /dev/nvme0n1p3  
cryptsetup open --type luks /dev/nvme0n1p4 lvm  
<Enter-Passphrase>  
cryptsetup luksFormat /dev/nvme0n1p4
```

```
mkfs.ext4 /dev/volgroup0/lv_root  
mkfs.ext4 /dev/volgroup0/lv_home
```