

# ARCH LINUX + UEFI + SECURE BOOT + LVM + INTEL + GNOME

## 1. UEFI & KEYBOARD & LOCALE

IMPORTANT: MAKE SURE THAT SECURE BOOT WITH NO KEYS ENROLLED IS SET

```
ls /sys/firmware/efi/efivars
efibootmgr
```

```
loadkeys br-abnt2
nano /etc/locale.gen [unmark LANG=pt_BR.UTF-8]
locale-gen
cat /etc/locale.conf
echo 'LANG=pt_BR.UTF-8' > /etc/locale.conf
```

## 2. NETWORK & CONNECTIVITY BY WI-FI

```
ip link
iwctl
device list
station wlan0 scan
station wlan0 get-networks
station wlan0 connect
exit
ping 1.1.1.1
timedatectl
```

```
ls /usr/share/kbd/consolefonts/ | grep ter-120b
if yes: setfont ter-120b
if not: pacman -S kbd terminus-font ttf-terminus-nerd
then : setfont ter-120b
```

## 3. PARTITIONING & FORMATTING & MOUNTING NVME LVM

```
parted /dev/nvme0n1 mklabel gpt
parted /dev/nvme0n1 mkpart ESP fat32 1MiB 1025MiB
parted /dev/nvme0n1 set 1 esp on
parted /dev/nvme0n1 mkpart CRYPTO 1025MiB 100%
```

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

```
cryptsetup luksFormat --type luks2 /dev/nvme0n1p2
cryptsetup open --allow-discards /dev/nvme0n1p2 cryptroot
```

```
pvcreate /dev/mapper/cryptroot
vgcreate vg0 /dev/mapper/cryptroot
```

```
lvcreate -L 3G -n boot vg0
```

```
mkfs.ext4 /dev/vg0/boot
```

```
lvcreate -l 100%FREE -n root vg0
```

```
mkfs.btrfs -f -L ROOT /dev/vg0/root
```

```
mount /dev/vg0/root /mnt
```

```
btrfs subvolume create /mnt/@
```

```
btrfs subvolume create /mnt/@home
```

```
btrfs subvolume create /mnt/@log
```

```
btrfs subvolume create /mnt/@pkg
```

```
btrfs subvolume create /mnt/@snapshots
```

```
umount /mnt
```

```
mount -o subvol=@ /dev/vg0/root /mnt
```

```
mkdir -p /mnt/{home,var/log,var/cache/pacman/pkg,var/snapshots}
```

```
mount -o subvol=@home /dev/vg0/root /mnt/home
```

```
mount -o subvol=@log /dev/vg0/root /mnt/var/log
```

```
mount -o subvol=@pkg /dev/vg0/root /mnt/var/cache/pacman/pkg
```

```
mount -o subvol=@snapshots /dev/vg0/root /mnt/var/snapshots
```

```
mkdir -p /mnt/boot
```

```
mount /dev/vg0/boot /mnt/boot
```

```
mkdir -p /mnt/boot/efi
```

```
mount /dev/nvme0n1p1 /mnt/boot/efi
```

#### 4. BASE SYSTEM INSTALLATION FOR INTEL CHIPSET

```
reflector --country CA,BR,PT,NO,CH --protocol https --latest 15 --score 10 --  
delay 1 --sort rate --save /etc/pacman.d/mirrorlist
```

```
pacstrap -K /mnt base intel-ucode linux-firmware linux-lts linux-lts-headers  
vulkan-intel vulkan-tools sudo sbctl networkmanager nano lvm2 efibootmgr dkms  
dracut cryptsetup btrfs-progs apparmor
```

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

#### 5. CHROOT CONFIGURATION

```
arch-chroot /mnt
```

```
ln -sf /usr/share/zoneinfo/America/Araguaina /etc/localtime
```

```
hwclock --systohc
```

```
nano /etc/locale.gen [unmark pt_BR.UTF-8 UTF-8]
```

```
locale-gen
```

```
echo 'LANG=pt_BR.UTF-8' > /etc/locale.conf
```

```
echo 'KEYMAP=br-abnt2' > /etc/vconsole.conf
```

```
echo 'sofos' > /etc/hostname
```

```
passwd [root]
```

```
useradd -m -g users -G wheel -s /bin/bash archer
```

```
passwd archer
```

```
EDITOR=nano visudo
```

```
%wheel ALL=(ALL:ALL) ALL [uncomment for enable sudo for "archer" user]
```

## 6. BOOTLOADER

### a. bootctl config

```
blkid /dev/nvme0n1p2 [catch PARTUUID code]
```

```
nano /boot/loader/entries/arch-lts.conf
```

```
title Arch Linux LTS
```

```
linux /vmlinuz-linux-lts
```

```
initrd /intel-ucode.img
```

```
initrd /initramfs-linux-lts.img
```

```
options rd.luks.name=<PARTUUID>=cryptroot rd.lvm.vg=vg0 root=/dev/vg0/root
```

```
rootfstype=btrfs rootflags=subvol=@ rw zswap.enabled=0 apparmor=1
```

```
security=apparmor nvme_core.default_ps_max_latency_us=0 loglevel=3
```

```
nano /boot/loader/loader.conf
```

```
default arch-lts.conf
```

```
timeout 2
```

```
console-mode max
```

```
editor no
```

### b. sbctl config

```
sbctl status
```

```
sbctl create-keys
```

```
sbctl verify
```

[sign the EFI and Kernels according to example below]

```
sbctl sign -s /boot/EFI/BOOT/BOOTX64.EFI
```

```
sbctl sign -s /boot/EFI/systemd/systemd-bootx64.efi
```

```
sbctl sign -s /boot/vmlinuz-linux-lts
```

```
sbctl verify
```

```
sbctl enroll-keys
```

```
sbctl list-enrolled-keys
```

```
sbctl status
```

c. hooks config

```
nano /etc/sysctl.d/99-sysctl.conf
```

```
kernel.kptr_restrict = 2
kernel.dmesg_restrict = 1
kernel.randomize_va_space = 2
fs.protected_hardlinks = 1
fs.protected_symlinks = 1
```

```
sysctl --system
```

```
mkdir -p /etc/pacman.d/hooks/
```

```
nano /etc/pacman.d/hooks/99-secureboot.hook
```

```
[Trigger]
```

```
Operation = Upgrade
```

```
Type = Package
```

```
Target = systemd
```

```
Target = linux-lts
```

```
[Action]
```

```
Description = Signing EFI binaries and kernel for Secure Boot
```

```
When = PostTransaction
```

```
Exec = /bin/sh -c '(sbctl sign -s /boot/EFI/BOOT/BOOTX64.EFI 2>/dev/null ||
true) && (sbctl sign -s /boot/EFI/systemd/systemd-bootx64.efi 2>/dev/null ||
true) && (sbctl sign -s /boot/vmlinuz-linux-lts 2>/dev/null || true)'
```

d. insert fallback

```
mkdir -p /etc/dracut.conf.d/ [ if necessary ]
```

```
nano /etc/dracut.conf.d/optimize.conf
```

```
hostonly="yes"
```

```
compress="zstd"
```

```
add_drivers+=" i915 " [ if Intel ]
```

```
omit_dracutmodules+=" biosdevname brltty cifs dmraid fcoe iscsi mdraid
```

```
multipath network nfs plymouth rngd resume "
```

```
dracut -f -v /boot/initramfs-linux-lts.img
```

```
dracut -f -v --no-hostonly /boot/initramfs-linux-lts-fallback.img
```

```
ls /boot | grep lts
```

```
vmlinuz-linux-lts
```

```
initramfs-linux-lts.img
```

```
initramfs-linux-lts-fallback.img
```

```
cp /boot/loader/entries/arch-lts.conf /boot/loader/entries/arch-lts-fallback.conf
```

```
nano /boot/loader/entries/arch-lts-fallback.conf
```

```
title    Arch Linux LTS Fallback
linux    /vmlinuz-linux-lts
initrd   /intel-ucode.img
initrd   /initramfs-linux-lts-fallback.img
options  rd.luks.name=<PARTUUID>=cryptroot rd.lvm.vg=vg0 root=/dev/vg0/root
rootfstype=btrfs rootflags=subvol=@ rw zswap.enabled=0 apparmor=1
security=apparmor nvme_core.default_ps_max_latency_us=0 loglevel=3
```

e. generate initramfs

```
ls /sys/firmware/efi/efivars
efibootmgr
```

```
lsblk -o NAME,SIZE,FSTYPE,TYPE,MOUNTPOINT
btrfs subvolume list /
```

```
sbctl verify
sbctl status
```

```
systemctl enable apparmor.service
systemctl enable NetworkManager.service
```

```
dracut -f -v
```

```
exit [arch-chroot environment logoff]
```

```
umount -R /mnt
swapoff -a
```

reboot + F2 + Secure Boot + Key Management [verify keys or import keys if you did not has used sbctl enroll-keys] + F10

## 7. POST-INSTALLATION NETWORK CONFIGURATION

Login: "root"

```
systemctl start NetworkManager.service
```

```
nmcli general status
nmcli device status
nmcli device wifi list
nmcli device wifi connect "SSID" --ask
```

```
pacman -S kbd terminus-font ttf-terminus-nerd
setfont ter-120b
```

## 8. INSTALLING GNOME DESKTOP

```
pacman -S adwaita-icon-theme bluez bluez-libs bluez-obex bluez-utils colord eog
gdm gnome-backgrounds gnome-bluetooth gnome-boxes gnome-calculator gnome-
calendar gnome-characters gnome-clocks gnome-color-manager gnome-console gnome-
control-center gnome-disk-utility gnome-firmware gnome-info-collect gnome-
keyring gnome-logs gnome-menus gnome-music gnome-online-accounts gnome-power-
manager gnome-session gnome-settings-daemon gnome-shell gnome-shell-extensions
gnome-system-monitor gnome-terminal gnome-text-editor gnome-themes-extra gnome-
tweaks gnome-usage gnome-user-docs gnome-user-share gnome-weather grilo-plugins
gst-plugins-base gst-plugins-base-libs gvfs gvfs-afc gvfs-dnssd gvfs-goa gvfs-
google gvfs-gphoto2 gvfs-mtp gvfs-nfs gvfs-onedrive gvfs-smb gvfs-wsdd
localsearch loupe mesa-utils mutter nautilus network-manager-applet orca rygel
sushi system-config-printer tecla tinysparql xdg-desktop-portal-gnome xdg-user-
dirs-gtk xkeyboard-config yelp yelp-tools yelp-xsl
```

```
systemctl enable gdm.service
systemctl status gdm.service
```

```
reboot
```

```
Login: "user"
```

```
sudo systemctl start gdm.service [if login was failed]
```

## 10. ESSENTIALS PACKAGES AND CONFIGURATIONS

Complementary applications and services to Gnome Desktop [Ctrl C + Ctrl V]

```
pacman -S collision decibels eyedropper file-roller firefox firefox-i18n-pt-br
foliate font-manager fragments gedit gedit-plugins gnome-browser-connector
gnome-shell-extension-appindicator gnome-shell-extension-arc-menu gnome-shell-
extension-cafe gnome-shell-extension-dash-to-panel gnome-shell-extension-
desktop-icons-ng gnome-shell-extension-vitals gnome-shell-extension-weather-
oclock gparted gthumb libreoffice-still libreoffice-still-pt-br mpv pavucontrol
pdfarranger ptyxis qalculate-gtk seahorse shotwell showtime snapshot
```

```
sudo pacman -S alsa-utils apparmor aspell aspell-en aspell-pt at-spi2-core
audio-convert avahi bashtop bat bind-tools cronie cups cups-browsed cups-
filters cups-pdf curl dconf ethtool fail2ban fastfetch fd ffmpeg firewallld
foomatic-db foomatic-db-engine foomatic-db-ppds fwupd fzf git glances grc
gutenprint hspell htop hunspell hwinfo imagemagick inxi iproute2 less libcamera
libssh libssh2 libvncserver libvoikko libwireplumber lsd lsof man-db man-pages
meson ninja nmap nodejs npm nss-mdns ntfs-3g nuspell p7zip pacman pacman-
contrib parted pipewire pipewire-libcamera pipewire-pulse powertop pwgen
python-pyqt5 python-pyqt6 qt5-wayland qt6-wayland reflector ripgrep rpcbind
smartmontools speech-dispatcher speedtest-cli tlp tree unzip upower v4l-utils
v4l2loopback-utils wget wireless_tools wireplumber zip zram-generator zsh zsh-
autocomplete zsh-autosuggestions zsh-completions zsh-history-substring-search
zsh-lovers zsh-syntax-highlighting
```

```
sudo pacman -S gnu-free-fonts inter-font powerline-fonts ttf-anonymous-pro ttf-
atkinson-hyperlegible ttf-bitstream-vera ttf-caladea ttf-carlito ttf-cascadia-
```

```
code ttf-crimson-pro ttf-crimson-pro-variable ttf-croscore ttf-dejavu ttf-
doulos-sil ttf-droid ttf-eurof ttf-fantasque-sans-mono ttf-fira-code ttf-fira-
mono ttf-fira-sans ttf-hack ttf-ibm-plex ttf-inconsolata ttf-input ttf-
jetbrains-mono ttf-jetbrains-mono-nerd ttf-junicode ttf-junicode-variable ttf-
khmer ttf-lato ttf-liberation ttf-libertinus ttf-linux-libertine ttf-linux-
libertine-g ttf-material-icons ttf-material-symbols-variable ttf-meslo-nerd
ttf-mona-sans ttf-monospace-frozen ttf-monospace-variable ttf-monofur ttf-
monoid ttf-montserrat ttf-nunito ttf-opensans ttf-overpass ttf-roboto ttf-
roboto-mono ttf-ubuntu-font-family
```

```
sudo chown -R root:root /usr/share/fonts
sudo find /usr/share/fonts -type d -exec chmod 755 {} \;
sudo find /usr/share/fonts -type f -exec chmod 644 {} \;
sudo fc-cache -fv
```

```
sudo wget -O /usr/local/bin/yt-dlp
https://github.com/yt-dlp/yt-dlp/releases/latest/download/yt-dlp && sudo chmod
a+rx /usr/local/bin/yt-dlp
```

```
sudo systemctl enable --now apparmor.service
sudo systemctl enable --now avahi-daemon.service
sudo systemctl enable --now bluetooth.service
sudo systemctl enable --now cronie.service
sudo systemctl enable --now cups.service
sudo systemctl enable --now cups-browsed.service
sudo systemctl enable --now firewalld.service
sudo systemctl enable --now fstrim.timer
sudo systemctl enable --now tlp.service
```

```
sudo systemctl mask systemd-rfkill.service systemd-rfkill.socket
```

reboot

1. setup gnome-control-center
2. setup gnome-tweaker
3. setup extension-manager
4. setup fstab: sudo nano /etc/fstab
5. setup zram-generator
6. setup zsh: chsh -s /bin/zsh \$USER

\* \* \*