

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

## 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 linux-zen
linux-zen-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 quiet loglevel=3
```

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

```
title Arch Linux ZEN
linux /vmlinuz-linux-zen
initrd /intel-ucode.img
initrd /initramfs-linux-zen.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 quiet loglevel=3
```

IMPORTANT: dracut does not create or manage initramfs fallback

```
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 sign -s /boot/vmlinuz-linux-zen
```

```
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
Target = linux-zen

[Action]
Description = Signing EFI binaries and kernels 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) && (sbctl sign -s /boot/vmlinuz-linux-zen 2>/dev/null || true)'

d. 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-gphoto2 gvfs-ftp gvfs-nfs gvfs-smb gvfs-wsdd localsearch loupe  
mesa-utils mutter nautilus network-manager-applet orca rygel sushi xdg-desktop-portal-  
gnome xdg-user-dirs-gtk yelp yelp-tools yelp-xsl system-config-printer tecla tinysparql  
xkeyboard-config
```

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

```
sudo pacman -S alsaview 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 firewalld 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 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 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 ( for tlp.service )
```

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

reboot

\* \* \*