

ARCH LINUX "FROM SCRATCH" + GNOME + INTEL CHIPSET + UEFI + SECURE BOOT

1. UEFI & KEYBOARD & LOCALE

ls /sys/firmware/efi/efivars ... if there's an error ... it's not UEFI
efibootmgr ... should list "Linux Boot Manager"

```
loadkeys br-abnt2
```

```
nano /etc/locale.gen ... unmark LANG=pt_BR.UTF-8  
locale-gen  
nano /etc/locale.conf ... set LANG=pt_BR.UTF-8
```

2. NETWORK & CONNECTIVITY BY WI-FI

```
ip link  
iwctl  
device list  
station wlan0 scan  
station wlan0 get-networks  
station wlan0 connect  
exit  
ping 1.1.1.3
```

```
timedatectl
```

```
ls /usr/share/kbd/consolefonts/ | grep ter-124b  
if yes: setfont ter-124b  
if not: pacman -Sy terminus-font  
if ok: setfont ter-124b
```

3. PARTITIONING & FORMATTING NVME

```
parted /dev/nvme0n1 mklabel gpt  
parted /dev/nvme0n1 mkpart ESP fat32 1MiB 1025MiB  
parted /dev/nvme0n1 set 1 esp on  
parted /dev/nvme0n1 mkpart primary linux-swaps 1025MiB 9217MiB  
parted /dev/nvme0n1 mkpart primary btrfs 9217MiB 100%
```

```
mkfs.fat -F32 /dev/nvme0n1p1  
mkswap /dev/nvme0n1p2  
swapon /dev/nvme0n1p2  
mkfs.btrfs -L ROOT /dev/nvme0n1p3
```

4. MOUNTING BTRFS SUBVOLUMES

```
mount /dev/nvme0n1p3 /mnt  
btrfs subvolume create /mnt/@  
btrfs subvolume create /mnt/@home  
btrfs subvolume create /mnt/@log  
btrfs subvolume create /mnt/@cache  
btrfs subvolume create /mnt/@snapshots  
umount /mnt
```

```
mount -o subvol=@ /dev/nvme0n1p3 /mnt  
mkdir -p /mnt/{home,var/log,var/cache,var/snapshots}  
mount -o subvol=@home /dev/nvme0n1p3 /mnt/home  
mount -o subvol=@log /dev/nvme0n1p3 /mnt/var/log  
mount -o subvol=@cache /dev/nvme0n1p3 /mnt/var/cache
```

```
mount -o subvol=@snapshots /dev/nvme0n1p3 /mnt/var/snapshots
mkdir -p /mnt/boot
mount /dev/nvme0n1p1 /mnt/boot
```

5. BASE SYSTEM INSTALLATION FOR INTEL CHIPSET

```
reflector --latest 20 --sort rate --save /etc/pacman.d/mirrorlist

pacstrap -K /mnt base linux-firmware linux-zen linux-zen-headers dkms dracut
intel-ucode vulkan-intel vulkan-mesa-device-select vulkan-tools apparmor
btrfs-progs efibootmgr iwd nano networkmanager sbctl sudo

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

6. CHROOT CONFIGURATION

```
arch-chroot /mnt

ln -sf /usr/share/zoneinfo/America/Araguaina /etc/localtime
hwclock --systohc
nano /etc/locale.gen ... check if LANG=pt_BR.UTF-8 is enabled
locale-gen
nano /etc/locale.conf ... set LANG=pt_BR.UTF-8
nano /etc/vconsole.conf ... set KEYMAP=br-abnt2
nano /etc/hostname ... set book (choose a personal name)

passwd ... setting "root" admin password
useradd -m -g users -G wheel -s /bin/bash arch (choose a personal name)
passwd arch ... setting arch sudo password
EDITOR=nano visudo
%wheel ALL=(ALL:ALL) ALL ... uncomment for enabling sudo for arch user
```

7. BOOTLOADER (SYSTEMD-BOOT)

```
bootctl install

blkid /dev/nvme0n1p3 ... catch the UUID in PARTUUID field

nano /boot/loader/entries/arch.conf

title Arch Linux Zen
linux /vmlinuz-linux-zen
initrd /intel-ucode.img
initrd /initramfs-linux-zen.img
options root=PARTUUID=<UUID caught> rw
rootflags=subvol=@,compress=zstd,ssd,discard=async,space_cache=v2 apparmor=1
security=apparmor quiet loglevel=3

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

title Arch Linux Fallback
linux /vmlinuz-linux-zen
initrd /intel-ucode.img
initrd /initramfs-linux-zen-fallback.img
options root=PARTUUID=<UUID caught> rw
rootflags=subvol=@,compress=zstd,ssd,discard=async,space_cache=v2 apparmor=1
security=apparmor quiet loglevel=3

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

```
default arch.conf
timeout 2
console-mode max
editor no
```

```
sbctl verify
sbctl create-keys
sbctl verify
sbctl sign -s (above verified list)
sbctl enroll-keys
sbctl list-enrolled-keys
sbctl status
```

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

```
[Trigger]
Operation = Upgrade
Type = Package
Target = linux-zen
Target = systemd
```

```
[Action]
Description = Signing linux-zen kernel, initramfs and systemd-boot with sbctl
When = PostTransaction
Exec = /bin/sh -c 'sbctl sign -s /boot/vmlinuz-linux-zen 2>/dev/null || true
&& sbctl sign -s /boot/initramfs-*.img 2>/dev/null || true && sbctl sign
-s /boot/EFI/B00T/B00TX64.EFI 2>/dev/null || true && sbctl sign -s
/boot/EFI/systemd/systemd-bootx64.efi 2>/dev/null || true'
```

```
ls /sys/firmware/efi/efivars ... check if UEFI remain active
efibootmgr ... should list "Linux Boot Manager"
```

```
systemctl enable NetworkManager.service ... enable network connection
```

```
dracut -f -H -v
```

```
exit ... exiting from chroot environment
```

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

```
restart + F2 + Enable Secure Boot + Custom Mode + Import keys (if you did not
has used sbctl enroll-keys)
```

8. 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"
```

```
pacman -Sy terminus-font
```

```
setfont ter-124b
```

9. INSTALLING GNOME AND ESSENTIAL PACKAGES

```
pacman -S adwaita-icon-theme collision decibels eog extension-manager  
eyedropper file-roller firefox firefox-18n-pt-br foliate font-manager  
fragments gdm gedit gedit-plugins gnome gnome-backgrounds gnome-bluetooth  
gnome-browser-connector gnome-calendar gnome-characters gnome-clocks gnome-  
color-manager 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-  
extensions gnome-terminal gnome-text-editor gnome-themes-extra gnome-tweaks  
gnome-usage gnome-user-docs gnome-weather gparted grilo-plugins gthumb gvfs  
gvfs-afc gvfs-dnssd gvfs-goa gvfs-gphoto2 gvfs-mtp gvfs-nfs gvfs-smb gvfs-  
wsdd libreoffice-still libreoffice-still-pt-br loupe mpv mutter nautilus  
network-manager-applet papers pavucontrol qalculate-gtk rygel seahorse  
shotwell showtime simple-scan snapshot system-config-printer timeshift xdg-  
desktop-portal-gnome xdg-user-dirs-gtk xkeyboard-config yelp yelp-tools yelp-  
xsl zed
```

```
pacman -S alsa-utils aspell aspell-en aspell-pt at-spi2-core avahi bashtop  
bat bind-tools bluez bluez-utils colord cronie cups cups-browsed cups-filters  
cups-pdf curl ethtool fail2ban fastfetch fd ffmpeg firewalld foomatic-db  
foomatic-db-engine foomatic-db-ppds fwupd fzf git glances grc gst-plugins-  
base gst-plugins-base-libs gutenprint hspell htop hunspell hwininfo imagemagick  
inxi iproute2 less libssh libssh2 libvncserver libvoikko libwireplumber  
localsearch lsd lsof man-db man-pages mesa-utils meson micro mission-center  
ninja nmap nss-mdns ntfs-3g nuspell p7zip pacman-contrib parted pipewire  
pipewire-pulse powertop ptyxis pwgen qt5-wayland qt6-wayland reflector  
ripgrep rpcbind smartmontools speech-dispatcher speedtest-cli tecla  
tinysparql tlp tree unzip upower v4l-utils v4l2loopback-utils wget  
wireless_tools wireplumber yt-dlp zip zram-generator zsh zsh-autocomplete  
zsh-autosuggestions zsh-completions zsh-history-substring-search zsh-lovers  
zsh-syntax-highlighting
```

```
systemctl enable gdm.service
```

```
systemctl status gdm.service
```

```
systemctl enable apparmor.service
```

```
systemctl enable avahi-daemon.service
```

```
systemctl enable bluetooth.service
```

```
systemctl enable cronie.service
```

```
systemctl enable cups.service
```

```
systemctl enable cups-browsed.service
```

```
systemctl enable firewalld.service
```

```
systemctl enable tlp.service
```

```
reboot
```

Login: "user" & "password" ... if fail --> make login by CLI

CLI command: sudo systemctl start gdm.service

sbctl status

Secure Boot: enabled
Setup Mode: disabled
Vendor keys: disabled
User keys: enrolled

bootctl status

Secure Boot: enabled (user keys)

10. CONFIGURATIONS AND OPTIMIZATIONS

1. configure gnome-control-center
2. configure gnome-tweaker
3. configure extension-manager
4. configure fstab: sudo nano /etc/fstab
5. configure timeshift
6. configure zram-generator
7. configure zsh: chsh -s /bin/zsh arch
8. install fonts :

```
sudo pacman -S gnu-free-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-
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
```

* * *