

## Arch Linux Installation From Scratch To "Gnome"

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### 1. UEFI & Keyboard & Locale

```
ls /sys/firmware/efi/efivars <--> if any error change to MBR+BIOS Legacy  
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

```
ip link  
iwctl  
device list  
station wlan0 scan  
station wlan0 get-networks  
station wlan0 connect  
exit  
ping archlinux.org
```

```
timedatectl <--> Time Zone Setting
```

```
ls /usr/share/kbd/consolefonts/ | grep ter-128b  
if yes: setfont ter-128b  
if not: pacman -Sy terminus-font  
if ok: setfont ter-128b <--> for best readability
```

### 3. Partitioning & Formatting

```
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-swap 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-zen linux-firmware intel-ucode vulkan-intel
vulkan-mesa-device-select vulkan-tools apparmor btrfs-progs dhcpcd hwdetect
iproute2 iwd mkinitcpio mkinitcpio-busybox mkinitcpio-systemd-tool
mkinitcpio-utils net-tools netctl networkmanager sudo systemd systemd-
resolvconf util-linux wpa_supplicant
```

```
genfstab -U /mnt > /mnt/etc/fstab <--> disk partition mount table
```

## 6. Chroot Configuration

```
arch-chroot /mnt <--> entering to chroot environment
```

```
ln -sf /usr/share/zoneinfo/America/Sao_Paulo /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 preferred name)

passwd <--> setting "root" admin password
useradd -m -g users -G wheel -s /bin/bash archer (choose a preferred name)
passwd archer <--> setting "archer" sudo password
EDITOR=nano visudo
%wheel ALL=(ALL:ALL) ALL <--> uncomment for enabling sudo for "archer" 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 catched> 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 catched> 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

ls /sys/firmware/efi/efivars <--> check if UEFI remain active
efibootmgr <--> should list "Linux Boot Manager"

systemctl enable NetworkManager.service <--> enable network access options

mkinitcpio -P

exit <--> exiting from chroot environment

umount -R /mnt
swapoff -a

shutdown

remove the USB drive before "initiate"

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 "wifi name" password "wifi password"

e.g.: nmcli device wifi connect "my-network" password "1234567890"

pacman -Sy terminus-font
setfont ter-128b
```

## 9. Installing GNOME and Essential Packages

```
pacman -S adwaita-icon-theme contrast decibels eog evolution eyedropper file-  
roller firefox firefox-i18n-pt-br foliate fragments gdm gedit gedit-plugins  
gimp gimp-help-pt_br gnome gnome-applets gnome-backgrounds gnome-bluetooth  
gnome-browser-connector gnome-calendar gnome-characters gnome-clocks gnome-  
color-manager gnome-commander gnome-control-center gnome-disk-utility gnome-  
firmware gnome-info-collect gnome-keyring gnome-logs gnome-menus gnome-music  
gnome-nettool gnome-online-accounts gnome-packagekit gnome-power-manager  
gnome-remote-desktop gnome-screenshot gnome-session gnome-settings-daemon  
gnome-shell gnome-shell-extension-appindicator gnome-shell-extension-arc-menu  
gnome-shell-extension-caffeine gnome-shell-extension-dash-to-panel gnome-  
shell-extension-weather-oclock 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 gparted grilo-plugins gthumb  
gvfs gvfs-afc gvfs-dnssd gvfs-goa gvfs-gphoto2 gvfs-mtp gvfs-nfs gvfs-smb  
gvfs-wsdd letterpress loupe morphosis mpv mutter nautilus network-manager-  
applet orca 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 xorg-server yelp yelp-tools yelp-xsl zed
```

```
systemctl enable gdm.service
systemctl status gdm.service
systemctl enable apparmor.service
systemctl enable avahi-daemon.service
systemctl enable bluetooth.service
systemctl enable cups.service
systemctl enable cups-browsed.service
systemctl enable firewalld.service
systemctl enable timeshift.timer
systemctl enable tlp.service
```

reboot

Login: user <-> if fail → make login by CLI

CLI command: sudo systemctl start gdm.service

on the next page ...

## 11. Services and Optimizations

```
sudo nano /etc/mkinitcpio.conf
```

HOOKS=(base udev autodetect microcode modconf kms keyboard keymap consolefont  
block filesystems fsck) <--> fields that must be verified

1. make setup in gnome-control-center
2. make setup in gnome-shell-extensions
3. make setup in gnome-tweaker
4. configure fstab: sudo nano /etc/fstab
5. configure timeshift
6. configure zram-generator
7. zsh <--> chsh -s /bin/zsh \$USER
8. install fonts :

```
sudo pacman -S gnu-free-fonts ttf-atkinson-hyperlegible ttf-bitstream-vera  
ttf-caladea ttf-carlito ttf-cascadia-code ttf-croscore ttf-dejavu ttf-droid  
ttf-fira-code ttf-fira-mono ttf-fira-sans ttf-firacode-nerd ttf-hack ttf-ibm-  
plex ttf-inconsolata ttf-input ttf-jetbrains-mono ttf-junicode ttf-junicode-  
variable ttf-liberation ttf-libertinus ttf-linux-libertine ttf-linux-  
libertine-g ttf-meslo-nerd ttf-mona-sans ttf-monospace-frozen ttf-monospace-  
variable ttf-opensans ttf-roboto ttf-roboto-mono
```

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