ARCH LINUX “FROM SCRATCH” TO GNOME IN INTEL CHIPSET

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-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 sudo

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/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 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

dracut -f -v

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

on the next page ...
```

9. Installing GNOME and Essential Packages

```
pacman -S adwaita-icon-theme contrast decibels eog evolution extension-
manager eyedropper file-roller firefox firefox-i18n-pt-br foliate font-
manager fragments gdm gedit gedit-plugins gimp gimp-help-pt_br 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 letterpress libreoffice-still
libreoffice-still-pt-br loupe morphosis 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 bpytop btop colord cronie cups cups-browsed
cups-filters cups-pdf curl ethtool fail2ban 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 hwinfo 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 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” <--> if fail → make login by CLI

CLI command: sudo systemctl start gdm.service
```

on the next page ...

11. Configurations and Optimizations

1. configure in gnome-control-center
2. configure in gnome-tweaker
3. configure in extension-manager
4. configure fstab: sudo nano /etc/fstab
5. configure timeshift
6. configure zram-generator
7. configure zsh: chsh -s /bin/zsh “user”
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-monaspace-frozen ttf-monaspace-variable ttf-monofur ttf-monoid ttf-montserrat ttf-nunito ttf-opensans ttf-overpass ttf-roboto ttf-roboto-mono

O seu ambiente de recuperação é:

1) Live USB do Arch
2) mount /mnt
3) arch-chroot /mnt
4) dracut -f /boot/initramfs-linux-zen.img

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