

QUICK NAVIGATION

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Before updating or upgrading the system, check [the arch news](#) (could save your system)!

BASIC INSTALL

Setting keymap

```
loadkeys hu
```

Enable and connect to wifi (Optional)

```
rfkill unblock wifi  
iwctl  
device list  
station **device** scan  
station **device** get-networks  
station **device** connect **SSID**
```

Sync time

```
pacman -Syyy  
timedatectl set-ntp true
```

Set fastest mirrorlist

```
pacman -Syyy  
pacman -S reflector  
reflector -c Hungary -a 10 --sort rate --save /etc/pacman.d/mirrorlist  
pacman -Syyy
```

PARTITIONING

Check if running UEFI or BIOS

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

If writes what's inside the folder: UEFI

If folder doesn't exist: BIOS

UEFI INSTALL

Creating partitions

```
fdisk /dev/sda
```

EFI g → n → ENTER → ENTER → +512M → t → 1
ROOT n → ENTER → ENTER → ENTER → w

Formatting the created partitions

```
mkfs.fat -F32 /dev/sda1  
mkfs.ext4 /dev/sda2
```

Mounting formatted partitions

```
mount /dev/sda2 /mnt  
mkdir /mnt/boot  
mount /dev/sda1 /mnt/boot
```

BIOS INSTALL

Creating partition

```
fdisk /dev/sda
```

n → ENTER → ENTER → ENTER → ENTER → w

Formatting the created partitions

```
mkfs.ext4 /dev/sda1
```

Mounting formatted partitions

```
mount /dev/sda1 /mnt
```

INSTALLING PACKAGES ONTO THE SYSTEM

Basic packages

```
pacstrap /mnt base linux linux-firmware
```

Fstab

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

Configuring the system

```
arch-chroot /mnt
```

Time zone

```
ln -sf /usr/share/zoneinfo/Europe/Budapest /etc/localetime  
hwclock --systohc
```

Localization

```
nano /etc/locale.gen  
uncomment en_US.UTF-8 UTF-8  
↓  
sed -i '177s/^#//' /etc/locale.gen  
  
locale-gen  
nano /etc/locale.conf  
    LANG=en_US.UTF-8  
nano /etc/vconsole.conf  
    KEYMAP=hu  
    localectl set-keymap --no-convert hu
```

Setting the system hostname

```
nano /etc/hostname  
arch
```

```
nano /etc/hosts  
127.0.0.1      localhost  
::1            localhost  
127.0.1.1      arch.localedomain      arch
```

Setting the root password

```
passwd
```

Installing packages

```
pacman -S grub efibootmgr networkmanager network-manager-applet  
wireless_tools wpa_supplicant dialog os-prober base-devel linux-headers reflector  
git bluez bluez-utils xdg-utils xdg-user-dirs
```

Enable SSH connection (optional)

```
pacman -S openssh  
systemctl enable sshd
```

Setting up GRUB (UEFI)

```
grub-install --target=x86_64-efi --efi-directory=/boot --bootloader-id=GRUB  
grub-mkconfig -o /boot/grub/grub.cfg
```

Setting up GRUB (BIOS)

```
grub-install --target=i386-pc /dev/sda  
grub-mkconfig -o /boot/grub/grub.cfg
```

Enabling internet

```
systemctl enable NetworkManager
```

Enabling bluetooth (optional)

```
systemctl enable bluetooth
```

Adding a new user

```
useradd -mG wheel hakszi  
passwd hakszi
```

EDITOR=nano visudo, and uncomment:

```
%wheel ALL=(ALL:ALL) ALL
```

```
↓
```

```
sudo sed -i '/%wheel ALL=(ALL:ALL) ALL/s/^#//g' /etc/sudoers
```

Finish initial setup

```
exit
```

```
umount -a  
reboot
```

CONTINUING THE INSTALL FROM THE SYSTEM

(unplug USB)

Setting up wifi (optional)

```
sudo nmtui
```

Installing graphics drivers

For AMD

```
sudo pacman -S xf86-video-amdgpu
```

For NVIDIA (open source) (recommended)

```
sudo pacman -S xf86-video-nouveau
```

NVS 310, GT & GTX 3xx 4xx 5xx series (proprietary)

```
yay -S nvidia-340xx
```

GTX 6xx 7xx 9xx series (proprietary)

```
yay -S nvidia-390xx
```

RTX 2060, GTX 10xx series (proprietary)

```
yay -S nvidia-418xx
```

Setting up an AUR

Install display driver

```
sudo pacman -S xorg xorg-drivers
```

Install desktop environment (of personal choice)

XFCE

```
sudo pacman -Syu  
sudo pacman -S xfce4 xfce4-goodies
```



Cinnamon

```
sudo pacman -Syu  
sudo pacman -S cinnamon gnome-terminal nemo-fileroller
```

#Note that the firewall, no-disturb toggle and auto-login script will only work with XFCE
See here: Firewall, no disturb mode and autologin quick settings

Installing login manager

```
sudo pacman -S lightdm lightdm-gtk-greeter lightdm-gtk-greeter-settings  
sudo systemctl enable lightdm
```

Set extra keyboard settings

```
localectl set-x11-keymap hu $USER  
reboot
```

OPTIMIZATION BEFORE INSTALLING APPS

Enable 32-bit applications (recommended)

```
sudo sed -i '93s/^#/' /etc/pacman.conf  
sudo sed -i '94s/^#/' /etc/pacman.conf  
pacman -Sy
```

Check to make sure *[multilib]* and *include = /etc/pacman.d/mirrorlist* are uncommented
`cat /etc/pacman.conf`

Optimize package making (caching, using all cores, compression, etc...)

```
su  
cd /etc  
rm -rf makepkg.conf  
wget https://pastebin.com/raw/9KVnvpbQ  
mv 9KVnvpbQ makepkg.conf
```

*Note: Comment *BUILDDIR=/tmp/makepkg* on older computers with <8 GB of ram

Restore the original makepkg.conf file:

```
su  
cd /etc  
rm -rf makepkg.conf  
wget https://pastebin.com/raw/RYEuK9ND  
mv RYEuK9ND makepkg.conf
```

Enable parallel downloads (recommended)

```
sudo sed -i '/ParallelDownloads/s/^#//g' /etc/pacman.conf
```

Setting up an AUR manager

```
git clone https://aur.archlinux.org/yay-git  
cd yay-git  
makepkg -si  
cd ~  
sudo rm -rf yay-git
```

Setting up SNAP

```
yay -S snapd  
sudo systemctl enable --now snapd.socket  
sudo ln -s /var/lib/snapd/snap/snap
```

Installing GUI package manager:

```
yay -S octopi
```

Clean system & update & upgrade & reboot before installing apps

```
sudo pacman -Syu --noconfirm -q  
sudo pacman -Syyu --noconfirm -q  
paccache -rvk3  
yay -Syu --noconfirm  
yay --clean -Sc --noconfirm  
sudo snap refresh  
reboot
```

INSTALLING APPS OF CHOICE

Essentials:

```
sudo pacman -S linux-lts pavucontrol alsamixer alsavolume alsapulse alsaplug  
pulseaudio-alsa pulseaudio libcanberra a52dec dvdauthor dvgrab faac faad2 gstreamer1.0-libav  
libdca libdvcss libdvdnav libmad libmpeg2 exfat-utils fuse-exfat wget ifplugd  
python tar rsync zip unzip fdupes bat curl youtube-dl bc htop pciutils xfce4-  
whiskermenu-plugin xf86-input-synaptics viewnior ccache neofetch rust
```

```
yay -S update-grub timeshift zramswap xfce4-mixer etcher-bin woeusb-ng safe-rm  
mkinitcpio-numlock
```

Most used apps:

```
sudo pacman -S virtualbox virtualbox-sdk virtualbox-host-dkms virtualbox-guest-iso  
kdeconnect redshift libreoffice gnome-disk-utility gparted clamav krita qbittorrent  
vlc ufw ufw-extras okular firefox engrampa torbrowser-launcher putty obs-studio  
openssl
```

```
yay -S rider podman docker dotnet-sdk-5.0-bin spotify qdirstat electronmail github-  
desktop-bin pyakm stacer
```

```
snap install teams-for-linux discord jpg2pdf pdfmixtool
```

Laptop-only:

```
yay -S slimbookbattery auto-cpufreq
```

For gaming:

```
yay -S dxvk-bin mesa-git ttf-ms-fonts rocm-opencl-runtime amf-amdgpu-pro proton  
physx proton-ge-custom-bin libquicktime adobe-reader-11 nwn-gog mhwd-amdgpu
```

```
sudo pacman -S lutris steam jre-openjdk lib32-mesa lib32-vulkan-radeon dotnet-  
runtime wine winetricks wine wine-gecko wine-mono vulkan-radeon lib32-gnutls lib32-  
libldap lib32-libgpg-error lib32-libxml2 lib32-alsa-plugins lib32-sdl2 lib32-  
freetype2 lib32-dbus lib32-libgcrypt libgcrypt lib32-mesa vulkan-radeon lib32-  
vulkan-radeon vulkan-icd-loader lib32-vulkan-icd-loader
```

Wallpapers

```
curl https://pastebin.com/raw/0EScRV8M
```

Themes

```
yay -S matcha-gtk-theme papirus-maia-icon-theme-git  
Other manjaro themes
```

Other apps:

<i>ncdu</i>	- <i>Disk usage analyzer</i>
<i>lyx-git</i>	- <i>LaTeX editor</i>
<i>vim neovim</i>	- <i>Nano alternative for text editing</i>
<i>pkgbuild-watch</i>	- <i>Monitor upstream for updates</i>
<i>firejail firetools</i>	- <i>Linux namespaces sandbox program & GUI</i>
<i>calibre</i>	- <i>Ebook management application</i>
<i>transmission-makepkg</i>	- <i>makepkg download agent for magnet URIs</i>
<i>aur-out-of-date</i>	- <i>Determines out-of-date AUR packages</i>
<i>net-tools</i>	- <i>Configuration tools for Linux networking</i>
<i>nmap</i>	- <i>Utility for network discovery and security auditing</i>
<i>ntop</i>	- <i>A network traffic probe that shows the network usage.</i>
<i>archlinux-contrib</i>	- <i>useful scripts</i>
<i>pacman-contrib</i>	- <i>useful scripts</i>

ENABLING SERVICES

Start and enable RAM swap at boot

```
sudo systemctl enable zramswap.service  
sudo systemctl start zramswap.service
```

Start and enable CPU frequency modifying

```
sudo systemctl enable auto-cpufreq.service  
sudo systemctl start auto-cpufreq.service
```

Enabling TLP

```
sudo systemctl enable tlp.service  
sudo systemctl start tlp.service
```

Enabling Trimming

```
sudo systemctl enable fstrim.timer  
sudo systemctl start fstrim.timer
```

TWEAK KERNEL SETTINGS

```
#paste into /etc/sysctl.conf

net.ipv6.conf.all.disable_ipv6 = 1
vm.swappiness = 80
vm.vfs_cache_pressure = 300
vm.dirty_background_ratio = 5
vm.dirty_ratio = 10
vm.dirty_background_bytes = 4194304
vm.dirty_bytes = 4194304
vm.min_free_kbytes = 8192
kernel.sysrq = 1

#Network tweaks
net.ipv4.tcp_slow_start_after_idle = 0
net.core.default_qdisc = cake
net.ipv4.tcp_congestion_control = bbr
#Receive queue
net.core.netdev_max_backlog = 16384
#Max connections
net.core.somaxconn = 16384
#Max memory
net.core.rmem_default = 1048576
net.core.rmem_max = 16777216
net.core.wmem_default = 1048576
net.core.wmem_max = 16777216
net.core.optmem_max = 65536
net.ipv4.tcp_rmem = 4096 1048576 2097152
net.ipv4.tcp_wmem = 4096 65536 16777216
#UDP Limit
net.ipv4.udp_rmem_min = 8192
net.ipv4.udp_wmem_min = 8192
#TCP FastOpen feature
net.ipv4.tcp_fastopen = 1
```

USING DIFFERENT KERNELS

Comparing hardened, original, LTS, and zen kernels

Harden kernel (more stable)

```
su
pacman -S linux-hardened linux-hardened-headers
mkinitcpio -p linux-hardened
grub-mkconfig -o /boot/grub/grub.cfg
reboot
```

Zen kernel (for performance)

```
su
sudo pacman -S linux-zen linux-zen-headers
mkinitcpio -p linux-zen
grub-mkconfig -o /boot/grub/grub.cfg
reboot
```

Remember last boot entry

```
nano /etc/default/grub
modify:
    GRUB_DEFAULT=saved
add new line:
    GRUB_SAVEDEFAULT=true
```

MODIFY GRUB SETTINGS

Using Octopi download “grub-customizer”

Download distro theme of choice

<https://www.gnome-look.org/p/1482847>

Open grub customizer

Go into General settings

Set Boot default entry to 1 second

Set kernel parameters to:

quiet apparmor=1 security=apparmor udev.log_priority=3

Go into Appearance settings

Set theme to arch

CUSTOMIZING .BASHRC

```
#PS1="\[\033[38;5;1m\]\u\[$(tput sgr0)\] \[$(tput bold)\]\W\[$(tput sgr0)\] \\$ \[$(tput sgr0)\]"
PS1="\[\033[38;5;51m\]\u\[$(tput sgr0)\] \W \\$ \[$(tput sgr0)\]"

neofetch --ascii_distro archmerge --color_blocks off --cpu_temp C --refresh_rate on --os_arch on --
package_managers on --cpu_brand on --cpu_cores on --cpu_speed on --cpu_temp C --speed_type
current
#neofetch --ascii_distro blackarch --color_blocks off --cpu_temp C --refresh_rate on --os_arch on --
package_managers on --cpu_brand on --cpu_cores on --cpu_speed on --cpu_temp C --speed_type
current
#Actual used aliases
alias calculator='bc -l'
alias yaystat='sudo yay -Ps'
alias pacman='sudo pacman'
alias boot='systemctl-analyze'
alias error='sudo journalctl -p 3 -xb'
alias firewall='sudo ufw status verbose'
alias bashrc="nano ~/.bashrc && source ~/.bashrc"
alias disk='ncdu'

#More readable / nicer look / better usability
alias vi='nvim'
alias vim='nvim'
alias mv='mv -vv'
alias ping='prettyping'
alias ls='ls --color=auto'
alias df='df -h'
alias diff='diff --color=auto'
alias free='free -m'
alias grep='grep --color=auto'
alias ip='ip -color=auto'
alias ls='ls --color=auto'
alias more='less'
alias nano='sudo nano'
alias lsblk='lsblk -e 7'
alias cat='bat'

#Are you sure?
#copy
alias cp='cp -i'
#move / rename
alias mv='mv -i'
#delete
alias rm='rm -i'
untar='tar zxf

#Firewall, no disturb mode and autologin quick settings:
alias home='bash ~/.config/home.sh'
alias work='bash ~/.config/work.sh'
```

COMFORT ZONE & SETTING THE LOOK

Enable auto-login:

```
su  
cd /etc/lightdm/  
rm -rf lightdm.conf  
wget https://pastebin.com/raw/R3UqReib  
mv R3UqReib lightdm.conf
```

Revert to original lightdm config file:

```
su  
cd /etc/lightdm/  
rm -rf lightdm.conf  
wget https://pastebin.com/raw/n8THjn0u  
mv n8THjn0u lightdm.conf
```

Improve look of fonts

[Improve look of fonts](#)

Lightdm settings:

Theme:	Matcha-aliz [GTK2/3]
Icons:	Papirus-Maia [GTK2], Adwaita [GTK3]
Font:	Cantarell Bold
Terminal font:	Monospace 12

See downloaded looks here: Themes

[Stop beep sound:](#)

```
sudo mkdir /etc/modprobe.d  
sudo touch /etc/modprobe.d/pcbeep.conf  
nano /etc/modprobe.d/pcbeep.conf  
blacklist pcspkr  
reboot
```

Disable F1 for help and F11 for fullscreen for terminal

```
nano ~/.config/xfce4/terminal/accels.scm  
add these lines:  
(gtk_accel_path "<Actions>/terminal-window/fullscreen" "F11")  
(gtk_accel_path "<Actions>/terminal-window/contents" "F1")
```

[Set keyboard shortcut to launch whisker menu](#)

[One wallpaper across multihead](#)

[Set all java apps to use GTK theme settings](#)

[Activate numlock on startup](#)

[Dualboot arch with windows](#)

CUSTOM SCRIPTS

Firewall, no disturb mode and autologin quick settings

curl <https://pastebin.com/raw/Vna6dNRz>

Alias them on page 13

Custom neofetch

```
rm -rf ~/.config/neofetch/config.conf
cd ~/.config/neofetch/
wget https://pastebin.com/raw/dWnPDBaX
mv dWnPDBaX config.conf
```

Custom polkit

```
su
mkdir /etc/polkit-1/rules.d/
cd /etc/polkit-1/rules.d/
wget https://pastebin.com/raw/144dRAbP
mv 144dRAbP 99-manjaro.rules
```

Auto-cpufreq config

```
cd /etc/
wget https://pastebin.com/raw/4ChzT2Tm
mv 4ChzT2Tm auto-cpufreq.conf
```

SYSTEM MAINTAINING

Remove broken symlinks

```
find . -xtype l -delete
```

Automate cache clearing

```
find ~/.cache/ -type f -atime +100 -delete
```

Remove all journalctl older than 2 weeks:

```
journalctl --vacuum-time=2weeks
```

TROUBLESHOOTING

If bluetooth is not working

```
sudo systemctl enable bluetooth && sudo systemctl start bluetooth
```

Have boot messages stay on screen

```
su  
mkdir /etc/systemd/system/getty@tty1.service.d  
nano /etc/systemd/system/getty@tty1.service.d/noclear.conf  
[Service]  
TTYVTDisallocate=no
```

Failed services:

```
systemctl --failed
```

Logfiles:

```
journalctl -p 3 -b
```

Check packages that were installed but no packages depend on them now:

```
pacman -Qtd
```

Manually installed packages that no package depend on:

```
pacman -Qm
```

List installed packages:

```
pacman -Ql  
yay -Ql
```

Touchpad not working:

```
yay -S xf86-input-libinput
```

Check connected usb devices:

```
yay -S xorg-xinput  
xinput
```

Windows unmountable due to hibernation

Screen tearing

[Using compton](#)
[Using dmenu](#)
[Fixes specifically for NVIDIA](#)

Volume stuck on mute

Reactivating the screen backlight (BIOS ONLY)

```
sudo sed -i "s/\\(GRUB_CMDLINE_LINUX=\\)\\\"\\\"\\1\\\"acpi_osi=Linux acpi_backlight=vendor\\\"/" /etc/default/grub -i  
sudo update-grub
```

Enable crontab

```
sudo pacman -S cronie  
sudo systemctl enable cronie.service  
sudo systemctl start cronie.service
```

USEFUL COMMANDS

Using SED to uncomment

Uncomment when text matches:

```
sudo sed -i '/SEARCH_FOR_THIS/s/^#/g' WHERE_TO_UNCOMMENT  
sudo sed -i '/autologin-user=hakszi/s/^#/g' /etc/lightdm/lightdm.conf
```

Uncomment at line X:

```
sed 'line_numbers/^#/' /etc/pacman.conf  
sed '93s/^#/' /etc/pacman.conf
```

Setup alias SSH connection with password

```
sshpass -p PASSWORD_HERE ssh username@ip_address  
sshpass -p hakszi ssh pi@pi.hole
```

Run the last command with sudo

```
sudo !!
```

UNSAFE COMMANDS

(without thinking)

- **pacman -Sy**
 - Note that this is essential when installing the system.
 - The bash script checkupdates, included with the pacman package, provides a safe way to check for upgrades to installed packages without running a system update at the same time.
 - TLDR: Refreshes package list, without upgrading the system, and this could lead to dependency issues.
- **rm -rf**
 - Doesn't ask, whether you want to uninstall the files, or not and deletes everything recursively. You can delete essential system files with this. Use safe-rm (yay -S safe-rm).
- **dd**
 - Informally known as disk destroyer (be very careful when using this)
- **chmod 777**
 - [What does chmod 777 mean?](#)
 - TLDR: Setting 777 permissions to a file or directory means that it will be readable, writable and executable by all users and may pose a huge security risk.

[Other dangerous commands](#)

GAMING

Getting steam set up:

```
sudo mkdir ~/.fonts/ && cd ~/.fonts/  
wget https://support.steampowered.com/downloads/1974-YFKL-4947/SteamFonts.zip  
unzip SteamFonts.zip && rm SteamFonts.zip
```

Mouse latency

```
sudo nano /etc/default/grub  
add:      usbhid.mousepoll=1  
to:      GRUB_CMDLINE_LINUX_DEFAULT  
update-grub
```

STEAM

[Steam configuration](#)

[Enable game mode sceduling \(performance improvement\)](#)

[Enable saving the Shader Cache](#)

[Laggy screen updates](#)

[using enviroment variables](#)

Set-up an AMD GPU for daily usage (Graphics,Gaming,Compute,etc) in Arch Linux.:

```
sudo nano /etc/environment  
AMD_VULKAN_ICD=RADV
```

Complied for certain games:

```
yay -S wine-ge-custom
```

Java (if another version is needed):

Find all available versions

```
sudo pacman -ss java | grep jdk
```

Install the one you want.

32 bit wine

[origin](#)

[origin on linux #2](#)

[Simcity](#)

Lutris install

SECURITY

[Block list for qbittorrent](#) & original list can be found [here](#)

cd ~/ .config/qBittorrent/
download files from [here](#) into this folder.

[Microcode](#)

AMD

```
sudo pacman -Syy amd-ucode  
yay -S iucode-tool  
sudo update-grub
```

Intel

```
sudo pacman -Syy intel-ucode  
yay -S iucode-tool  
sudo update-grub
```

[Enforcing strong passwords](#)

[Running apps in sandbox \(firejail\)](#)

[Firejail \(manjaro\)](#)

[Running apps in sandbox \(polkit\)](#)

SAVING & RELOADING THE SYSTEM

Save:

```
fstrim /  
dd if=/partition/to/be/written/on bs=64M status=progress | zstd -q3T2c --adapt - > NAME.img.zst  
dd if=/dev/nvme0n1 bs=64M status=progress | zstd -q3T2c --adapt - > manjaro.img.zst
```

Reload previous save (from a live system):

```
zstd -vkdc /backup/file.img.zst | dd of=/dev/sdX bs=4M status=progress  
zstd manjaro.img.zst | dd of=/dev/sdX bs=4M status=progress
```

Speed up save and reload:

```
su  
cd /where/you/save/or/load/backup/from
```

Troubleshooting:

Problem #1: Terminal kills program, ram usage at 100%

Solution to #1: Extend ram, or (slower method):

```
sudo nano /etc/makepkg.conf  
MAKEFLAGS="-j2"
```

EXTRA PRODUCTIVENESS

[Control 2 PC with one mouse and keyboard](#)

[Set up virtualbox on arch](#)

Useful things to take a look at later (guessed right, procrastination)

https://wiki.archlinux.org/title/Frequently_asked_questions

https://wiki.archlinux.org/title/Improving_performance

https://wiki.archlinux.org/title/Improving_performance/Boot_process

https://wiki.archlinux.org/title/Security#Enforcing_strong_passwords_with_pam_pwquality

https://wiki.archlinux.org/title/Lenovo_V15_G2-ALC

https://wiki.archlinux.org/title/Lenovo_V15_G2-ALC#Function_Keys

https://wiki.archlinux.org/title/System_maintenance

<https://wiki.archlinux.org/title/Security>

https://wiki.archlinux.org/title/Domain_name_resolution#Privacy_and_security

https://wiki.archlinux.org/title/Power_management#Power_management_with_systemd

https://wiki.archlinux.org/title/CPU_frequency_scaling

https://wiki.archlinux.org/title/Solid_state_drive

https://wiki.archlinux.org/title/Uniform_look_for_Qt_and_GTK_applications

<https://wiki.archlinux.org/title/Backlight>

https://wiki.archlinux.org/title/Webcam_setup

https://wiki.archlinux.org/title/Hardware_video_acceleration#NVIDIA

<https://wiki.archlinux.org/title/Acpid>

https://wiki.archlinux.org/title/Extra_keyboard_keys

https://wiki.archlinux.org/title/Network_configuration/Wireless

https://wiki.archlinux.org/title/Display_Power_Management_Signaling

https://wiki.archlinux.org/title/CPU_frequency_scaling