Welcome to the set up for my build. This is everything I've installed and steps / order I did it. Note some steps are during main installation are geared towards my system, but a great list to follow for general start.

SPECS:

Prime-A	MOB
i5 9600k	CPU
32GB 3200 Hz	RAM
dGTX 1080 8GB	GPU
250GB 970 Evo Pro	M.2
1TB Q5	M.2
2TB WDC	HDD

Installing the OS (Arch OCT 2021)
Built upon from notes JULY 2019
---
1. Partition the disks
2. Install essential packages
3. Config the system
4. Install GRUB
5. Install Desktop Environment (XFCE)
6. All programs after reboot

first 2 things to always do
ping archlinux.org (CTR+C to stop)
timedatectl set-ntp true

#checking what all disk are physically connected to the system. Helps figure out which drive you want to install OS on.

fdisk -l

cfdisk has a "custom" GUI compared to the standard terminal.
Use arrow keys to move around the interface.
Swap should be the size of the amount of RAM you have.
* Create 4 partitions Boot / Swap / Root / Home

cfdisk /dev/sda OR /dev/nvme0n1

NAME	SIZE	TYPE
Boot	200M	EFI System
Swap	32GB	Linux Swap
Root	15GB	Linux Filesystem
Home	201GB	Linux Filesystem

```
# checking partitions
gdisk -l /dev/sda

# setup swap partition
free -m
mkswap /dev/sda2
swapon /dev/sda2
free -m

# format partitions
mkfs.fat -F 32 /dev/sda1
mkfs.ext4 /dev/sda3
mkfs.ext4 /dev/sda4

# install essential packages (very long download depends on your internet)
mount /dev/sda3 /mnt
pacstrap /mnt base base-devel linux linux-firmware

# mount partitions
mount /dev/sda4 /mnt/home
mkdir /mnt/boot/efi
mount /dev/sda1 /mnt/boot/efi

# generate fstab
genfstab -U /mnt >> /mnt/etc/fstab
cat /mnt/etc/fstab
arch-chroot /mnt

# timezones
ln -sf /usr/share/zoneinfo/AREA/CITY  /etc/localtime
        (America/Chicago OR Europe/Rome)
hwclock --systohc

# install nano
pacman -S nano

# localization (will go through a text editor to select the language)
nano /etc/locale.gen
* DEL hashtag next to lang
en_US.UTF-8
* CTR+X exits and saves file
locale-gen
```

nano /etc/locale.conf
* it's a empty file so add this below
LANG=en_US.UTF-8
* save and exit

network config
nano /etc/hostname
* this will be the name of your computer
Mars-lab
* save and exit
nano /etc/hosts
* you'll need to add this default config
127.0.0.1 localhost
::1 localhost
127.0.1.1 mars-lab.localdomain mars-lab
* save and exit

initramfs
mkinitcpio -P

change root password
passwd

#install GRUB
pacman -S grub efibootmgr os-prober
grub-install --target=x86_64-efi --bootloader-id=GRUB
grub-mkconfig -o /boot/grub/grub.cfg

creating new user with password
useradd -G wheel -s /bin/bash -m -c "tony" tony
passwd tony

installing the desktop environment / window manager
* can either use XFCE, same as mine, or you can use anything else.
pacman -S xfce4 xfce4-goodies

#install display manager
pacman -S lightdm lightdm-gtk-greeter
pacman -S xorg-server
nano /etc/lightdm/lightdm.conf
* you'll have to scroll down till you find this below
* some new systems like mine or way to fast for the console to keep up, so the login check helps prevent certain commands going to fast and not waiting for other dependencies

* remove hashtag and change false to true, to prevent lightdm failing to load on first reboot
[LightDM]
logind-check-graphical=true

* then go down a bit and find the line below
#greeter-session=example-gtk-gnome
* replace "gnome" with "greeter" & "example" with "lightdm", should like below
* then remove the hashtag in the beginning of just this one.
* greeter-session=lightdm-gtk-greeter
* save and exit
systemctl enable lightdm

#install network manager
pacman -S networkmanager
systemctl enable NetworkManager

install some necessary packages to start off with, add more if you wish
pacman -S vim firefox network-manager-applet git xdg-user-dirs gvfs ntfs-3g

enable multilib
nano /etc/pacman.conf
* look for what's below and DEL hashtag
[multilib]
Include=/etc/pacman.d/mirrorlist
* save and exit
pacman -Syu

add user to sudoers list
* there are multiple ways on doing this
nano /etc/sudoers
* scroll down till you see " root ALL=(ALL) ALL " then add line right below it
tony ALL=(ALL) ALL
* save and exit

exit
* just type exit

unmount all partitions
umount --all

that's it, reboot and you'll be introduced to the desktop environment.
* once you to the desktop, open the terminal and type one more command, then
* you're all good to do whatever after.

xdg-user-dirs-update

##
#
* Post install tips and tricks
* with steps on how to set up each one.
* (mainly the req ones)

For Multimonitors

Pacman -S arandr autorandr
* Run it then config how the monitors you want to be like
* XFCE has a display gui menu set up to help

Enabling Network Manager
---
systemctl enable NetworkManager.service
systemctl start NetworkManager.service

Uncomplicated Firewall
---
pacman -S ufw
systemctl enable ufw.service
systemctl start ufw.service

Enabling Sound
---
pacman -S pulseaudio pavucontrol
* then reboot

Nvidia w/ Intel drivers
---
* enable multilib
nano /etc/pacman.conf
pacman -Syu
pacman -S nvidia lib32-nvidia-libgl nvidia-utils nvidia-dkms nvidia-settings
	lib32-mesa vulkan-intel lib32-vulkan-intel vulkan-icd-loader lib32-vulkan-icd-loader
* reboot

Adding multiple Operating Systems to grub
---
os-prober has been disabled by default, you need to uncomment/add GRUB_DISABLE_OS_PROBER=false to /etc/default/grub and run sudo update-grub.

Y.A.Y
---
git clone https://aur.archlinux.org/yay.git
cd yay-git
makepkg -si

Chrome
---
git clone https://aur.archlinux.org/google-chrome.git
cd google-chrome
makepkg -si

Spotify
git clone https://aur.archlinux.org/spotify.git
cd spotify
makepkg -si
*if cannot create because of missing key, then do gpg --recv-key $KEYID (whatever the unknown public key is next to the FAILED)

Termite terminal
---
git clone https://aur.archlinux.org/termite.git
cd termite
makepkg -si
*if cannot create because of missing key, then do gpg --recv-key $KEYID (whatever the unknown public key is next to the FAILED)

HTOP
---
pacman -S htop

Geany
---
pacman -S geany

This bottom section will be installing the i3 window manager. Personal preference. Not needed to continue for an arch linux build.

i3 window manager
---
* have to install nitrogen with
pacman -S nitrogen
pacman -S i3
git clone https://aur.archlinux.org/i3ipc-glib-git.git
cd i3ipc-glib-git
makepkg -si
git clone https://aur.archlinux.org/xfce4-i3-workspaces-plugin-git.git
cd xfce4-i3-workspaces-plugin-git
makepkg -si
* update system
pacman -Syu
* go to session and startup in settings and disable 2 things
* Current Session / xfwm4 - never xfdesktop - never
* go to application autostart tab and add the i3 application
name: i3
description: Tiling Window Manager
command: i3
* click ok
* now we got to remove the xfce keyboard shortcuts
    * search keyboard and go to application shortcuts
    * remove all keyboard shortcuts
* now we'll have to create the i3 config file if it's not there in the first place.
* the OG config file can found on the git hub https://github.com/i3/i3
*i3 exit from aur needed for blur lock screen to work
git clone https://aur.archlinux.org/i3exit.git
su
rofi
---
pacman -S rofi
pacman -S xorg-xrdb0

polybar
---
git clone https://aur.archlinux.org/polybar.git
cd polybar

Makepkg -si
* than in the terminal type out
        sudo chmod +x .config/polybar/launch.sh

A lot of packages needed to make it work
media controls
pacman -S platyerctl

pacman -S *everything else
dunst , xautolock , linux-headers , lxappearance , numlockx , steam , lutris , gnome-disks , gnome-calculator , gnome-disk-utility , gnome-tweaks , lightdm-gtk-greeter-settings, lightdm-settings , minecraft-technic-launcher , neofetch , numlockx , os-prober , papirus-icon-theme , discord , geany , playerctl , xarchiver0 , picom

Git clone https://aur.archlinux.org/i3exit.git

LIST OF ALL PROGRAMS INSTALLED AT CURRENT BUILD JAN 8 2022
---
arandr 0.1.10-7
arc-gtk-theme 20220102-1
autoconf 2.71-1
automake 1.16.5-1
autorandr 1.12.1-1
base 2-2
bashtop 0.9.25-1
binutils 2.36.1-3
bison 3.8.2-1
discord 0.0.16-1
downgrade 10.1.0-1
dunst 1.7.3-1
efibootmgr 17-2
exo 4.16.3-1
fakeroot 1.26-1
file 5.41-1
findutils 4.8.0-1
firefox 95.0.2-1
flex 2.6.4-3
garcon 4.16.1-1
gawk 5.1.1-1

gcc 11.1.0-3
geany 1.38-1
gettext 0.21-1
git 2.34.1-1
gnome-calculator 41.1-1
gnome-disk-utility 41.0-1
gnome-tweaks 40.0-2
google-chrome 95.0.4638.54-1
grep 3.7-1
groff 1.22.4-6
grub 2:2.06-3
gtk4 1:4.6.0-1
gvfs 1.48.1-1
gzip 1.11-1
htop 3.1.2-1
i3-gaps 4.20.1-2
i3blocks 1.5-3
i3exit 2-2
i3ipc-glib-git r183.1634568402.ef6d030-1
i3lock 2.13-1
i3status 2.14-1
lib32-nvidia-utils 495.46-1
libreoffice-still 7.1.8-5
libtool 2.4.6+42+gb88cebd5-16
lightdm 1:1.30.0-4
lightdm-gtk-greeter 1:2.0.8-1
lightdm-gtk-greeter-settings 1.2.2-7
lightdm-settings 1.5.4-1
linux 5.15.13.arch1-1
linux-firmware 20211027.1d00989-1
linux-headers 5.15.13.arch1-1
lutris 0.5.9.1-3
lxappearance 0.6.3-4
m4 1.4.19-1
make 4.3-3
minecraft-technic-launcher 4.695-1
mousepad 0.5.8-1
nano 6.0-1
neofetch 7.1.0-2
network-manager-applet 1.24.0-1
networkmanager 1.32.12-2
nitrogen 1.6.1-4
ntfs-3g 2021.8.22-1

numlockx 1.2-5
nvidia 495.46-7
nvidia-dkms 495.46-1
os-prober 1.79-1
pacman 6.0.1-2
papirus-icon-theme 20220101-1
parole 4.16.0-1
patch 2.7.6-8
pavucontrol 1:5.0-1
pcmanfm 1.3.2-1
picom 8.2-1
pkgconf 1.8.0-1
playerctl 2.4.1-1
polybar-git 3.5.7.r219.gf488a889-1
pulseaudio 15.0-1
pulseaudio-alsa 1:1.2.6-2
redshift-minimal 1.12-4
ristretto 0.12.1-1
rofi 1.7.2-1
rxvt-unicode 9.26-2
sed 4.8-1
snapd 2.53.4-1
spotify 1:1.1.68.632-1
steam 1.0.0.74-1
sudo 1.9.8.p2-3
termite 16.1-1
texinfo 6.8-2
thunar 4.16.10-1
thunar-archive-plugin 0.4.0-3
thunar-media-tags-plugin 0.3.0-2
thunar-volman 4.16.0-1
tumbler 4.16.0-3
ufw 0.36.1-1
vertex-themes 20170128-1
vim 8.2.3890-1
which 2.21-5
xarchiver 0.5.4.17-1
xautolock 2.2-6
xdg-user-dirs 0.17-3
xfburn 0.6.2-1
xfce4-appfinder 4.16.1-2
xfce4-artwork 0.1.1a_git20110420-6
xfce4-battery-plugin 1.1.4-1

xfce4-clipman-plugin 1.6.2-1
xfce4-cpufreq-plugin 1.2.5-1
xfce4-cpugraph-plugin 1.2.5-1
xfce4-datetime-plugin 0.8.1-1
xfce4-dict 0.8.4-1
xfce4-diskperf-plugin 2.6.3-1
xfce4-eyes-plugin 4.5.1-1
xfce4-fsguard-plugin 1.1.2-1
xfce4-genmon-plugin 4.1.1-1
xfce4-i3-workspaces-plugin-git 1.4.0.r0.gbaec90d-1
xfce4-mailwatch-plugin 1.3.0-1
xfce4-mount-plugin 1.1.5-1
xfce4-mpc-plugin 0.5.2-2
xfce4-netload-plugin 1.4.0-1
xfce4-notes-plugin 1.9.0-1
xfce4-notifyd 0.6.2-2
xfce4-panel 4.16.3-2
xfce4-power-manager 4.16.0-3
xfce4-pulseaudio-plugin 0.4.3-1
xfce4-screensaver 4.16.0-1
xfce4-screenshooter 1.9.9-2
xfce4-sensors-plugin 1.4.2-1
xfce4-session 4.16.0-2
xfce4-settings 4.16.2-1
xfce4-smartbookmark-plugin 0.5.2-1
xfce4-systemload-plugin 1.3.1-1
xfce4-taskmanager 1.4.2-1
xfce4-terminal 0.8.10-2
xfce4-time-out-plugin 1.1.2-1
xfce4-timer-plugin 1.7.1-1
xfce4-verve-plugin 2.0.1-1
xfce4-wavelan-plugin 0.6.2-1
xfce4-weather-plugin 0.11.0-1
xfce4-whiskermenu-plugin 2.7.1-1
xfce4-xkb-plugin 0.8.2-1
xfconf 4.16.0-2
xfdesktop 4.16.0-2
xfwm4 4.16.1-3
xfwm4-themes 4.10.0-4
xorg-server 21.1.3-1
xorg-xbacklight 1.2.3-2
yay 11.0.2-1