**Arch Linux Installation Documentation**

1. To list the available keyboards

* Ls /usr/share/kbd/keymaps/\*\*/\*.map.gz

1. To list the current language and current status of kernel

* localectl status

1. To set console keymap to Finnish

localectl set-keymap --no-convert fi

1. [**udev**](https://wiki.archlinux.org/index.php/Udev) (it is a device manager for linux kernel) should detect your [**network interface controller**](https://en.wikipedia.org/wiki/Network_interface_controller) (NIC) and automatically load the necessary [**kernel module**](https://wiki.archlinux.org/index.php/Kernel_module) at startup. Check the "Ethernet controller" entry (or similar) from the lspci -v output. It should tell you which kernel module contains the driver for your network device. For example:
2. When lspci -v command was given, some outputs are:

* DeviceName: Ethernet0
* Subsystem: VMware PRO/1000 MT Single Port Adapter
* Physical Slot: 33
* Kernel driver in use: e1000
* Kernel modules: e1000

1. Check network interfaces

* ls /sys/class/net

(ens33 and lo displayed. **lo** is a loopback device. You can imagine it as a virtual **network** device that is on all systems, even if they aren't connected to any **network**. It has an IP address of 127.0.0.1 and can be used to access **network** services locally. The **ens33** network interface has the IPv4 address 192.168.21.131)

1. To set the time zone, list available zone

* timedatectl list-timezones (it displays all time zones)

1. To set the timezone

* timedatectl set-timezone Europe/Helsinki

**Disk Management**

1. Command to see different disks and partitions

* lsblk (list block or disks)

1. We are going to write on “sda”. (/dev/sda)

* cfdisk (to write on sda)

1. This command displays file system options, like gpt (UEFI), dos (legacy BIOS system). I am choosing “dos”
2. When the disk is shown, we will make bootable partitions for root and SWAP partition.
3. I chose 20 GB for /dev/sda1 and 4 GB for /dev/sda2 which is SWAP
4. When partition and writing on disk is done, hit “Quit” and it will be back to console.
5. When partition is done, these partitions need to be formatted in an appropriate file system. For example, root partition is in /dev/sda1 and it will contain ext4 file system (there are other file system like ext4 or so. We can choose other file system as well but ext4 is the default file system on most Linux system.)
6. To create this file system,

* mkfs.ext4 /dev/sda1

1. To initialize the SWAP,

* mkswap /dev/sda2
* swapon /dev/sda2

1. Lets mount the file system on the root partition.

mount /dev/sda1 /mnt (/mnt is a standard subdirectory of the root directory on Linux or other Unix like opertatin system.

**Selecting the mirrors**

1. Packages to be installed must be downloaded from mirror servers, which are defined in /etc/packman.d/mirrorlist. The higher a mirror is placed in the list, the more priority is given when downloading a package. So, it is necessary to edit the mirrorlist file according to my location. So, lets edit this file with the command

* nano /etc/pacman.d/mirrorlist

1. I deleted most of the list lines with Ctrl+K and kept few lists from Finland and Germany. Save the change and exit from the editor.

**Installing essential packages**

1. We install the kernel whose name is linux and also base package linux which has different packages like bash, shadow, tar, grep etc. But the base package does not include all tools such as software needed for networking or so.

* pacstrap /mnt base linux (this takes a while)

**Configuring the system**

1. We will generate fstab file. The /etc/fstab file is system configuration file that contains all available disks, disk partitions and their options.

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

1. We now change the current running process and their children into the apparent root directory. (In other words, we bring all directories and subdirectories of Linux file system inside root, I think)

* arch-chroot /mnt

**Localization**

1. A locale is a set of environmental variables that defines the language, country and so. It is located in /etc/locals.gen. Lets generate locales with the following command.

* locale-gen

1. Lets create a file inside /etc/locale.conf where we set the LANG variable.

* nano /etc/locale.conf
* LANG=en\_US.UTF-8 (write this inside the locale.conf file)

1. In my case, nano code was not found in the bash, so I downloaded the package with the following command.

* pacman -S nano

1. Now, lets edit /etc/locale.conf file.

* Nano /etc/locale.conf
* LANG=en\_US.UTF-8

**Network Configuration**

1. Create a hostname

* nano /etc/hostname
* shrees-network

1. Add matching entries to hosts

* Nano /etc/hosts
* 127.0.0.1 localhost
* ::1 localhost
* 127.0.1.1 shrees-network.localdomain shrees-network

1. Lets enable dhcpcd

* systemctl enable dhcpcd (I already had internet access without network configuration, not sure how but may be because of VM)

**Add users with sudo privilege**

1. Lets make a new user.

* useradd -m haru

1. Adding user to the group “wheel” (gives root privilege in arch)

usermod -aG wheel,audo,video,optical,storage haru (We have added the user haru to wheel, audio,video, optical and storage group)

1. Lets add haru to a plane text file of sudoers with the command visudo. (Download visudo if it does not exit)
2. Inside visudo go down to find wheel group and uncomment it deleting the # sign. (to delete use ‘X’ and to quit use ‘:WQ’

**Install bootloader**

1. Grup is bootloader in linux arch. To install the package, hit the following command.

-pacman -S grub

2) Now lets install grub in the folder /dev/sda

- grub install /dev/sda

3) Lets configure this grub file

- grub-mkconfig -o /boot/grub/grub.cfg

(login as root and the password is F……)