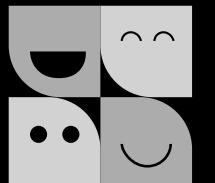




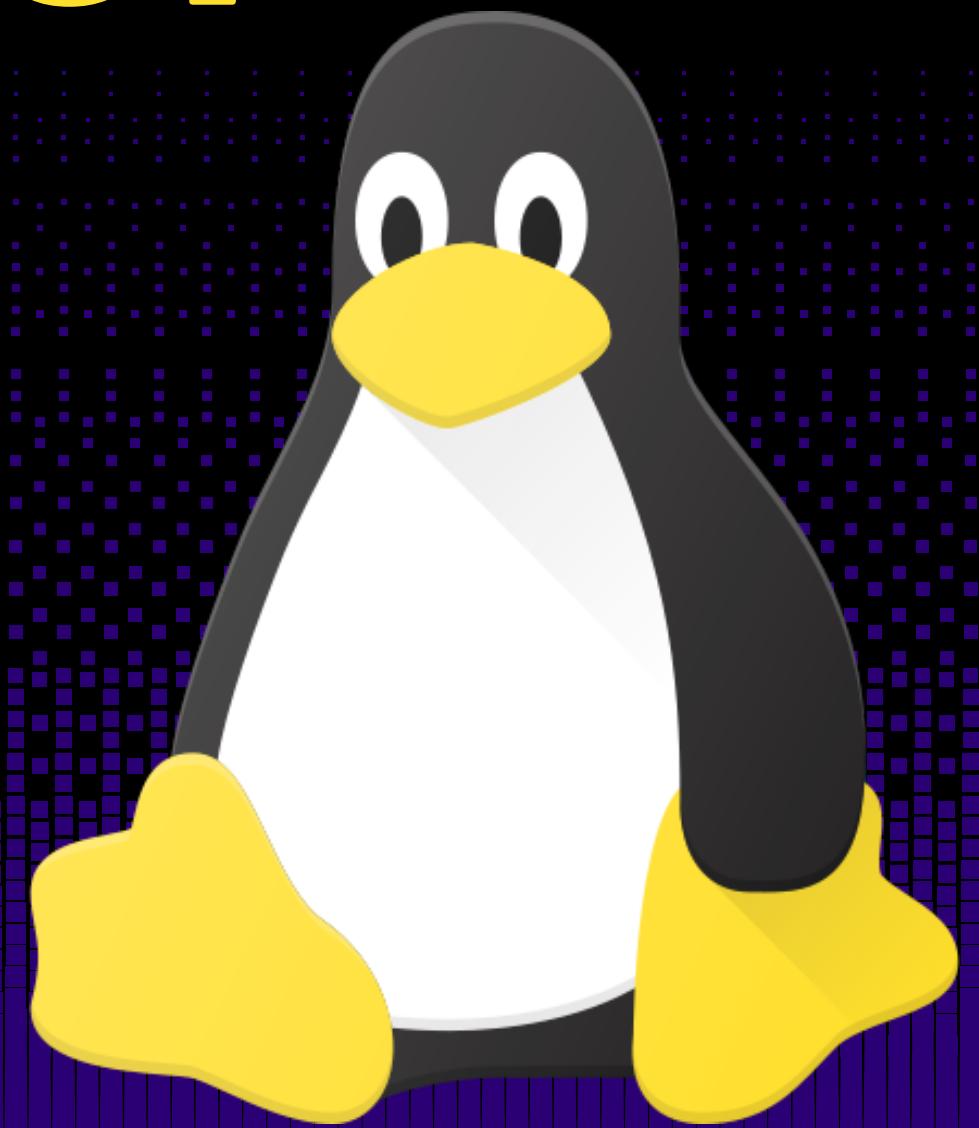
KHARAGPUR OPEN SOURCE SOCIETY



FOSS Club

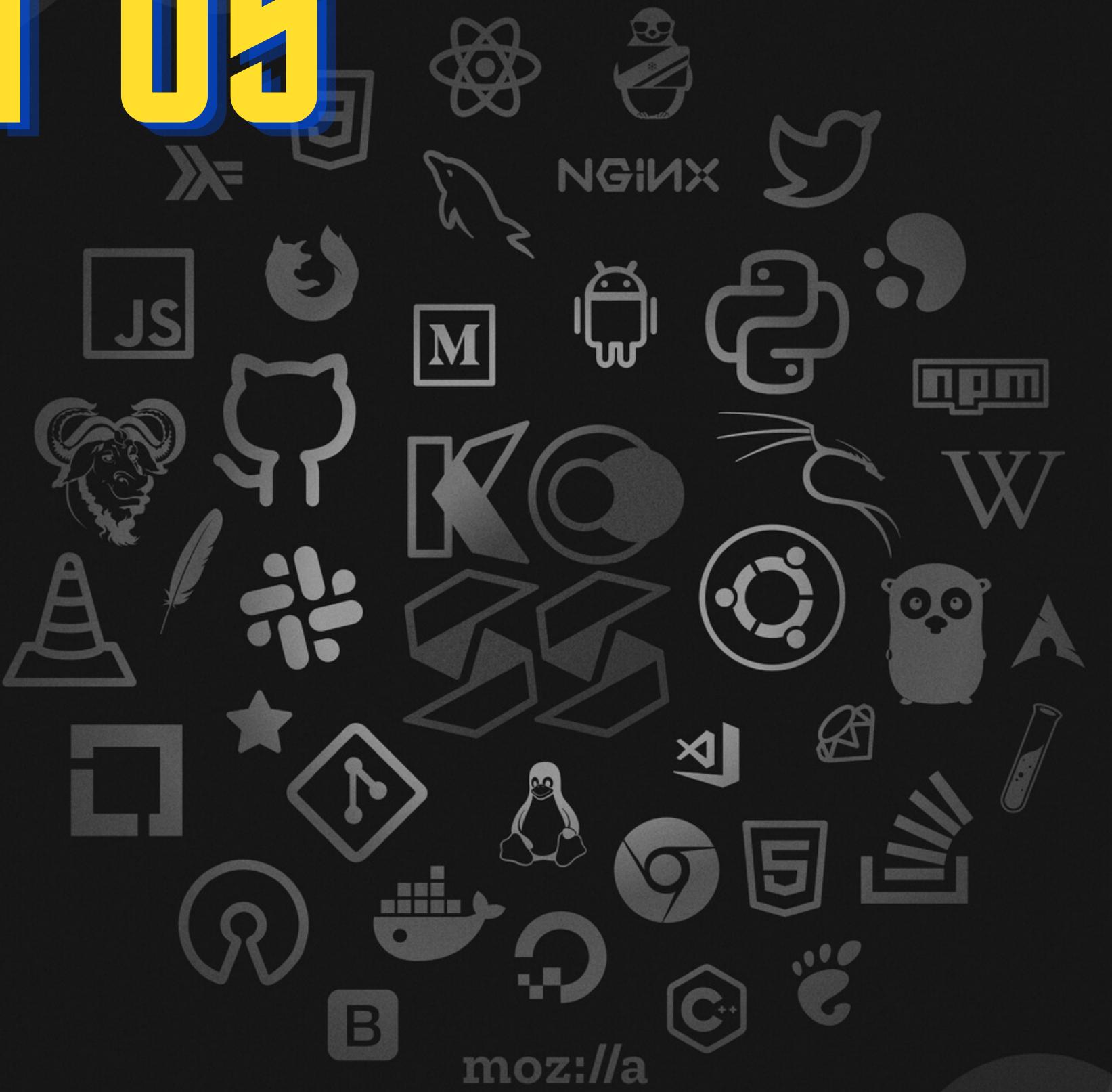


LINUX INSTALLATION FEST



ABOUT US

We are a group of Open Source Enthusiasts who focus on something more preliminary and relevant, “A Love for Coding”. Every year KOSS plans to hold events for familiarizing students with UNIX tools, Linux environment, Git Development Workflow, besides conducting workshops on GUI programming, Web development, Android application Development and Hackathons.



ABOUT US

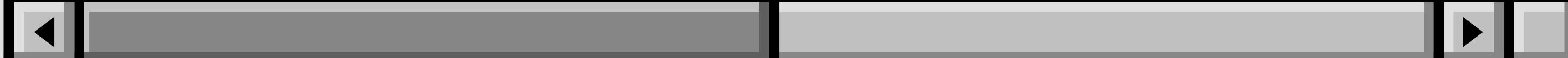
FOSS United Foundation is a registered non-profit founded in 2020, dedicated to the cause of building Free and Open Source (FOSS) projects and communities in India. The foundation aims to provide grassroots support to FOSS projects and events, and evolve into a community-industry collaboration with a diverse group of members and patrons.



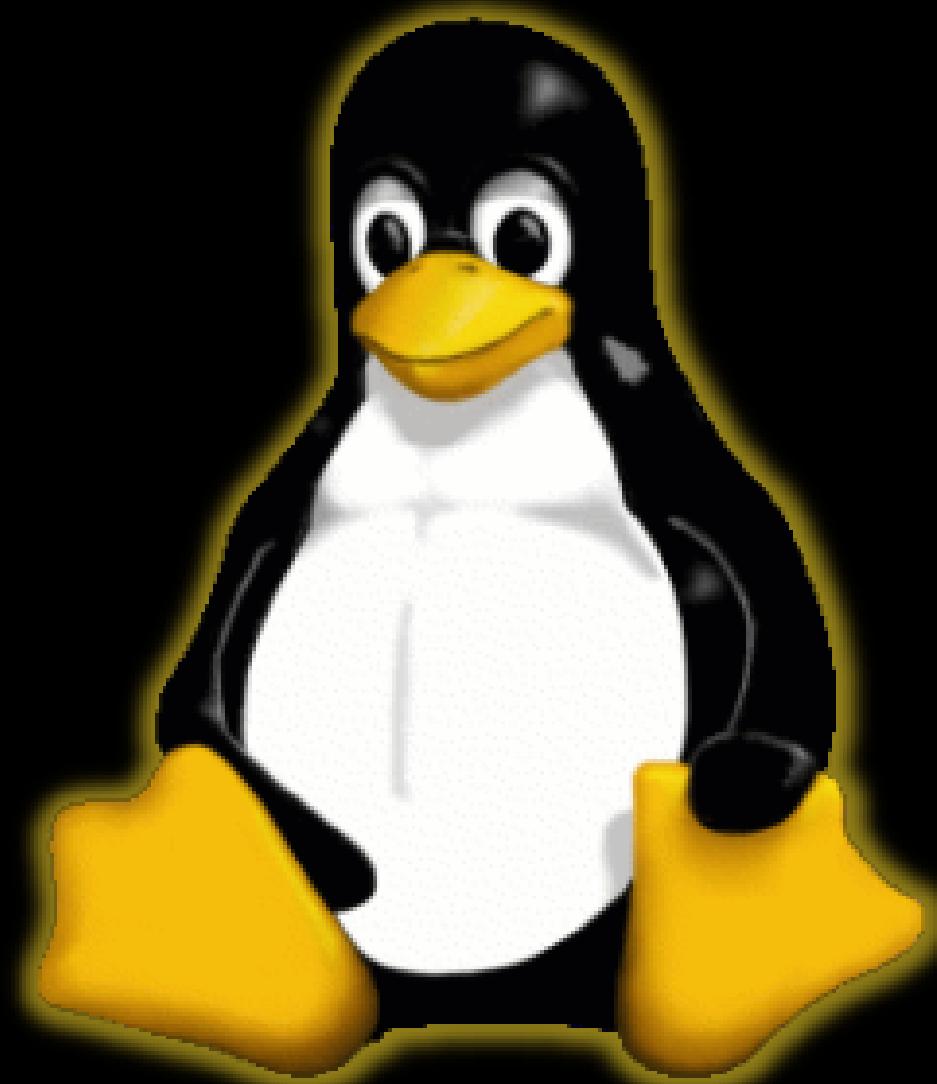
OVERVIEW

LINUX INSTALLATION

- BASIC TERMINOLOGIES
- DISABLING BITLOCKER
- SECURE AND FAST BOOT
- INSTALLATION
- DESKTOP ENVIRONMENTS
- USER MORE KERNEL MODE
- SUDO
- FILE SYSTEM
- PACKAGE MANAGERS
- SETTING UP DC++



BASIC TERMS



BASIC TERMINOLOGY

X

- **Distro (Linux Distribution):** operating system package composed of the Linux kernel, GNU tools and various applications and GUI.
 - **Examples:** Ubuntu, Pop_OS!, Arch, Linux Mint, Kali Linux, Chrome OS
- **Dual Boot:** a way of using two or more different operating systems on a single computer.
- **Live USB:** portable USB-attached external data storage device containing a full operating system that can be booted from.

Me: Installing 300th distro
on my Computer

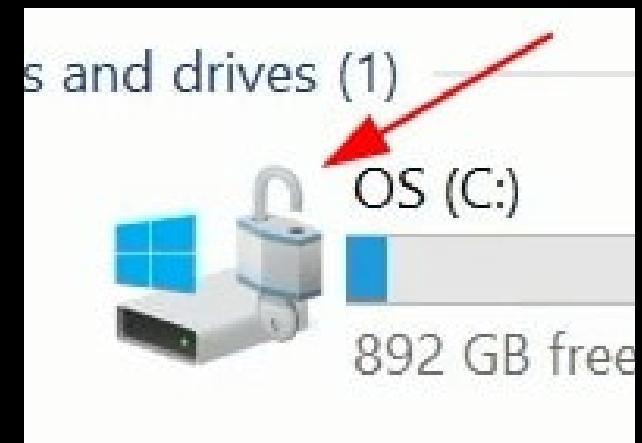
My computer:



DISABLE

BITLOCKER



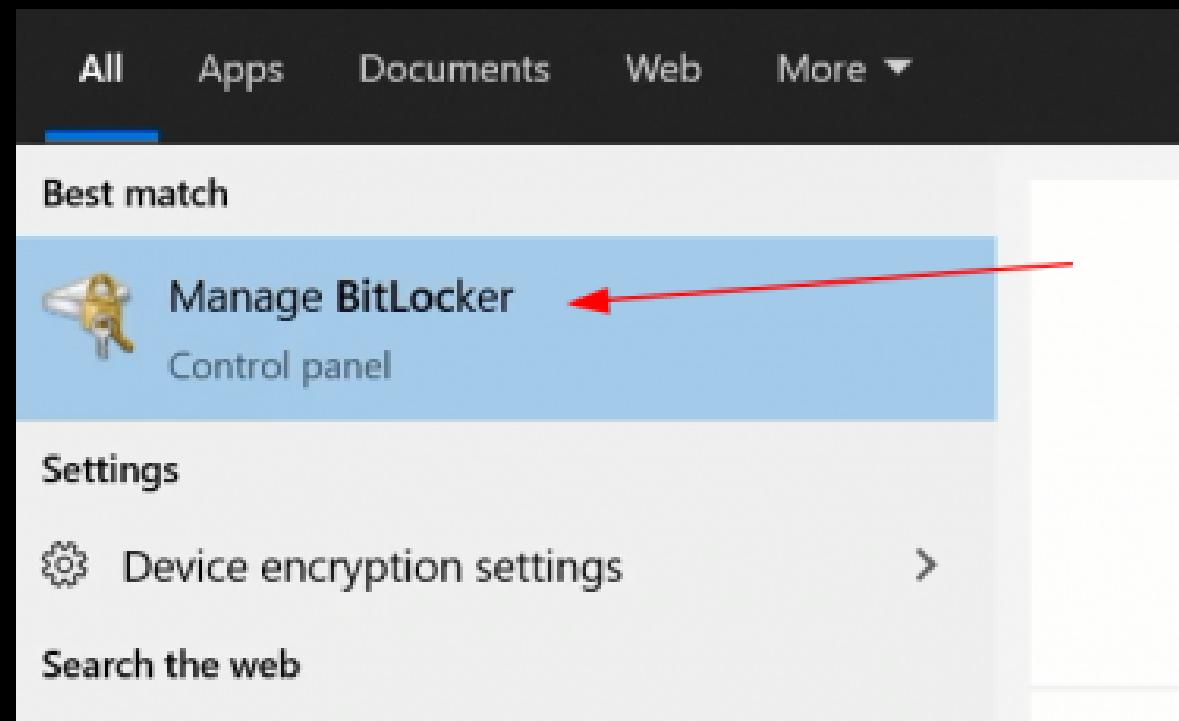


Bitlocker Encryption

It encrypts the entire drive, including the boot partition. This means that only Windows can decrypt the drive and boot up. If you try to boot from another operating system, such as Linux, it will not be able to access the drive

How to Disable It?

1. Go to “Manage Bitlocker”
2. Back up your Recovery Key
3. Disable Bitlocker



BitLocker Drive Encryption

Help protect your files and folders from unauthorized access by protecting your

i For your security, some settings are managed by your system administrator

Operating system drive

OS (C:) BitLocker on



Suspend protection

Back up your recovery key

Turn off BitLocker

DISABLE

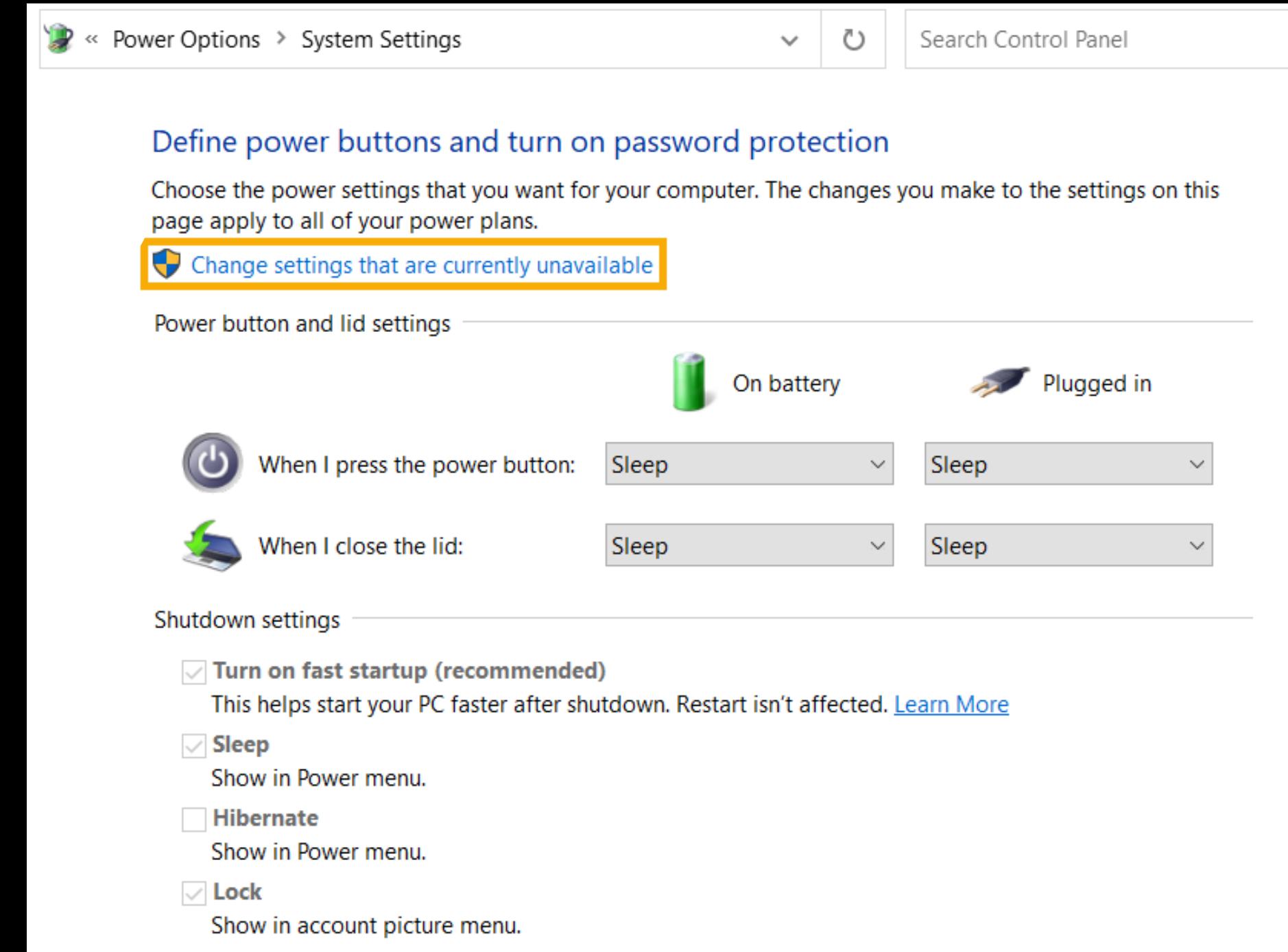
**SECURE BOOT
& FAST BOOT**

Fast Boot

Fast Boot works by saving an image of the loaded Windows kernel and drivers before a computer shuts down. Upon restarting, Windows uses this image to speed up the boot time, creating a better user experience. Fast Startup can cause disk errors or data loss if another operating system accesses the Windows partition.

How to Disable It?

1. Navigate to the Control Panel and select 'Power Options'.
2. Click 'Choose what the power buttons do'.
3. Click on 'Change settings that are currently unavailable'.
4. Under 'Shutdown settings', uncheck the 'Turn on fast startup' box

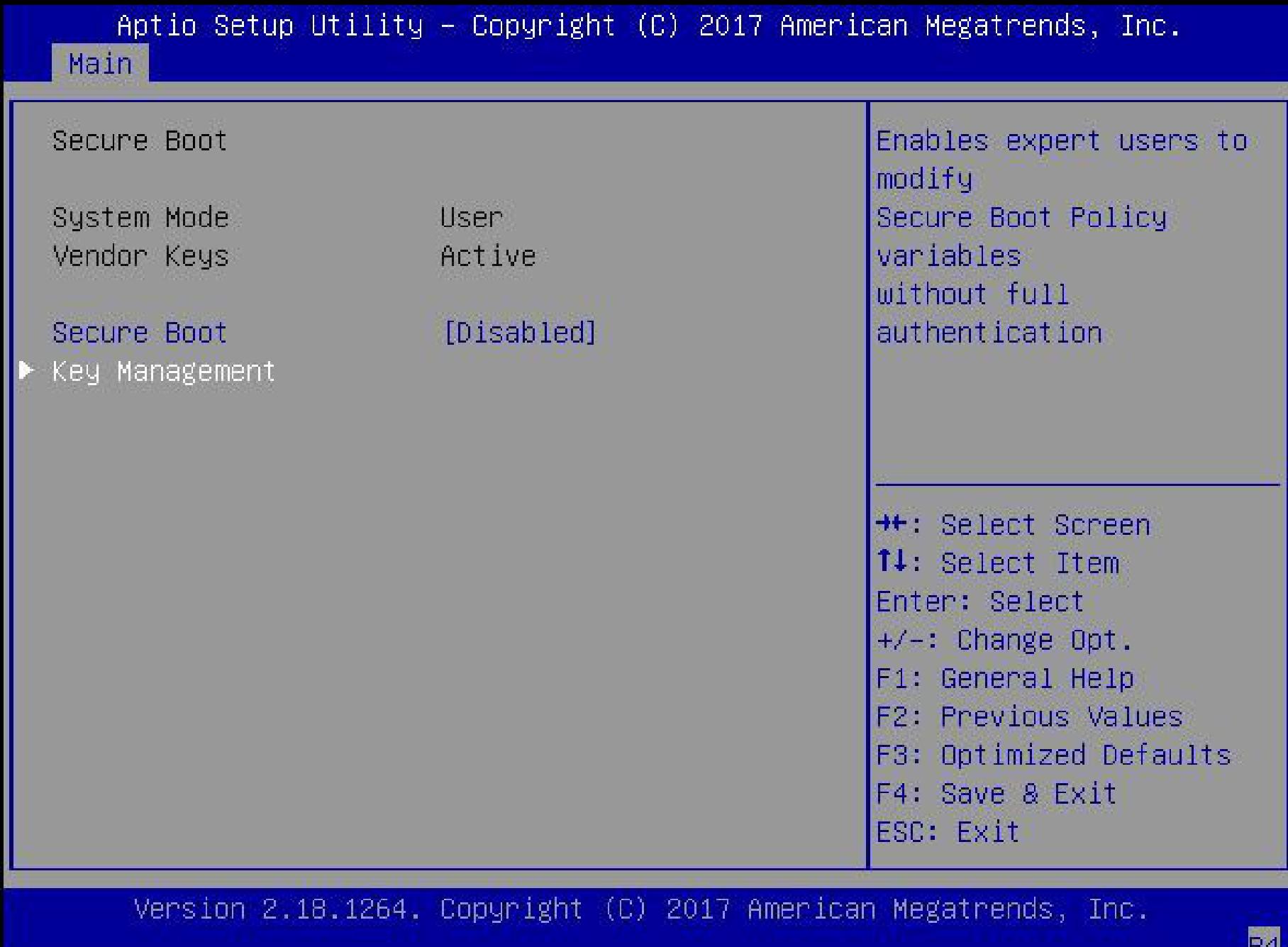


Secure Boot

Allows only those bootloaders that are signed in to UEFI firmware. if you want to boot from a Linux USB or if you want to use a bootable Windows USB it won't let you do that

How to Disable It?

1. Open BIOS menu while your PC loads up (generally F12, F1, F2, Del, or Esc to open)
2. Find secure boot setting (generally in boot, security or authentication menu)
3. Set it to disabled
4. If there is an option of fast boot, disable it too (it will give you enough time to access the boot loader)
5. Save





INSTALLATION

Beginner-friendly

Intermediate

Hard mode



 Ubuntu
Based on Debian

 Garuda Linux
Based on Arch

 Arch
[Independent] – DIY

 Pop!_OS
Based on Ubuntu

 EndeavourOS
Based on Arch

 Gentoo
[Independent] – DIY

 elementary OS
Based on Ubuntu (LTS)

 Manjaro
Based on Arch

 Slackware
[Independent]

 Mint
Based on Ubuntu

 MX Linux
Based on Debian

 Linux From Scratch
[Independent] – DIY

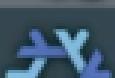
 Zorin
Based on Ubuntu

 Fedora
Based on Red Hat

 Qubes OS
Based on Fedora – Security

 Solus
[Independent]

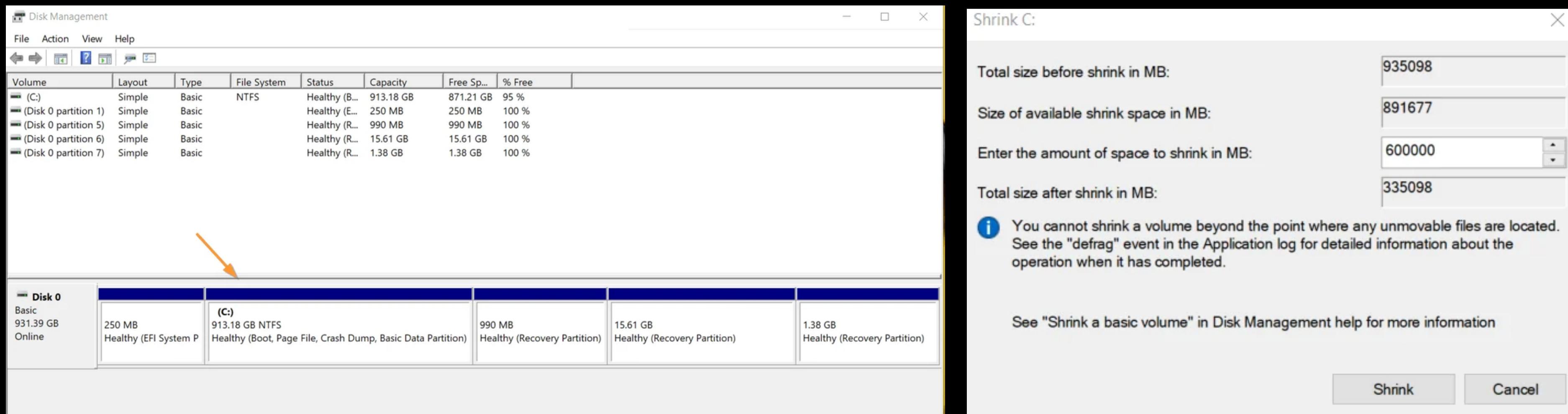
 openSUSE
[Independent]

 NixOS
[Independent] – DIY

CHOOSE A DISTRO

DISK PARTITIONING

- In Windows, go to start menu and type ‘partition’
- This will bring up **Disk Management** utility
- Right click on the drive you want to shrink and select “**shrink volume**” option
- Enter the desired size for the new partition in megabytes (MB). Make sure to allocate enough space (**50-60GBs (60,000 MBs)**)





Download Pop!_OS

If you have NVIDIA graphics, download the ISO with the proprietary NVIDIA driver preinstalled.

Disable Secure Boot in your BIOS to install Pop!_OS.

[DOWNLOAD 22.04 LTS](#)

[DOWNLOAD 22.04 LTS \(NVIDIA\)](#)

[DOWNLOAD 22.04 \(RAS PI 4\)](#)

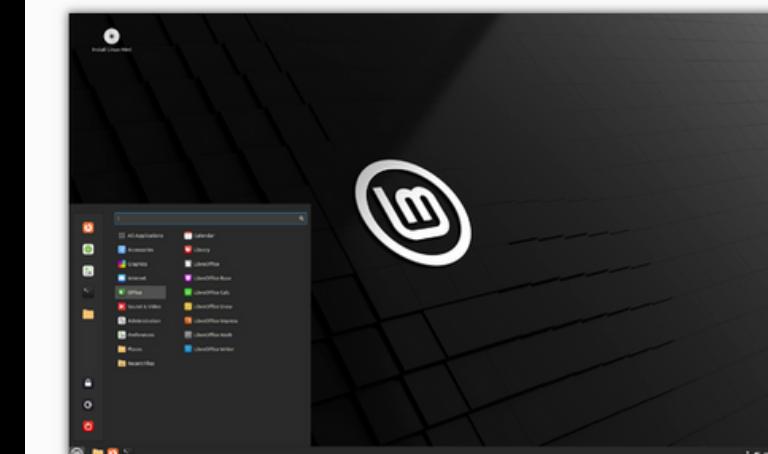
<https://pop.system76.com/>

Linux Mint 21.2 "Victoria"

Ready to download?

Linux Mint is available in different flavors. Choose an edition below.
For more information read the installation instructions.

[Installation Instructions](#)



Sleek, modern, innovative

Cinnamon Edition

The most popular version of Linux Mint is the Cinnamon edition. Cinnamon is primarily developed for and by Linux Mint. It is slick, beautiful, and full of new features.

[Download](#) [New Features](#) [Release Notes](#)



Stable, robust, traditional

MATE Edition

<https://linuxmint.com/download.php>

CREATING A LIVE USB

Some tools to write ISO images to external media (make a live USB):

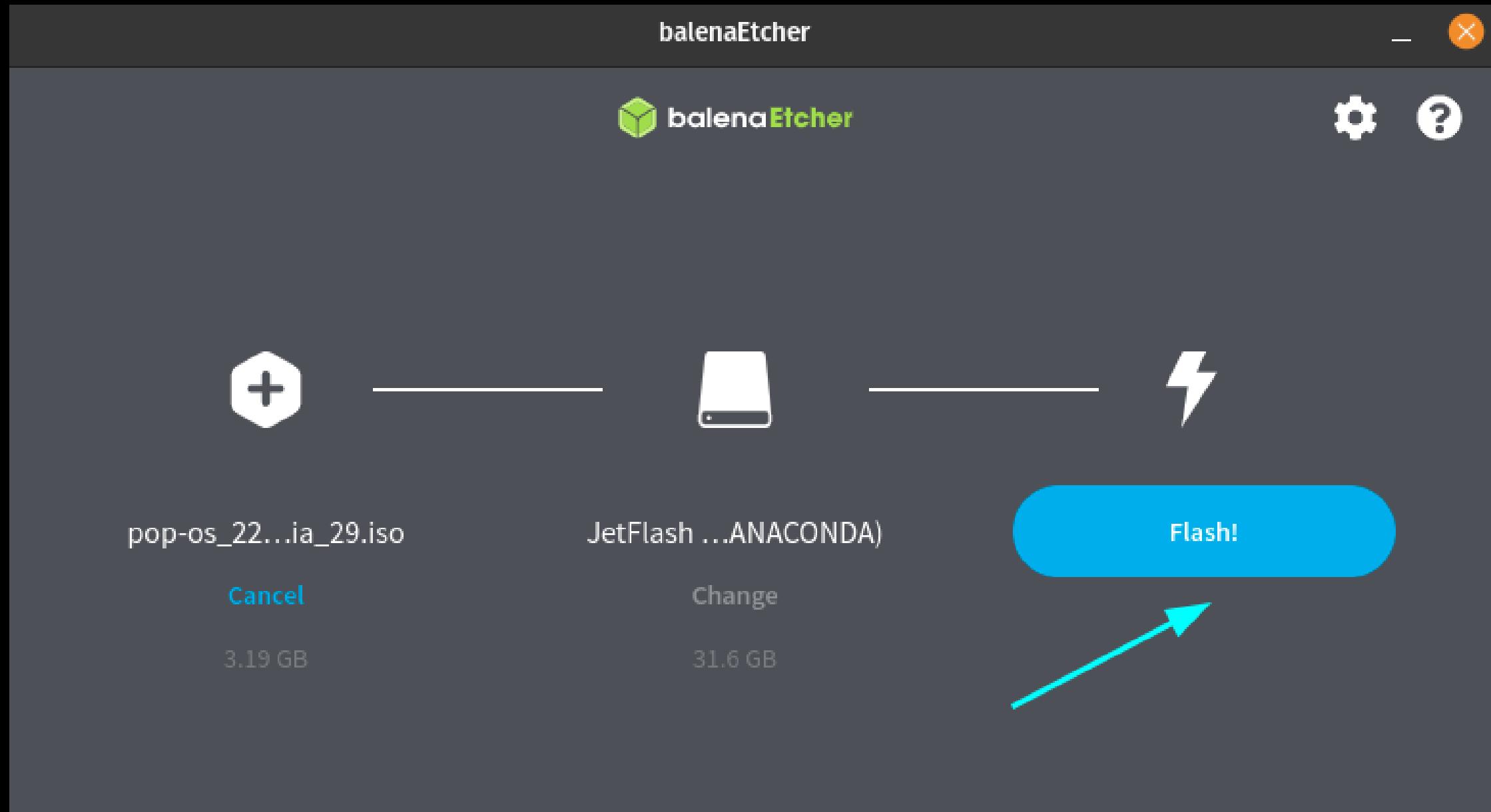
Etcher, Rufus, Universal USB Installer...



1. Insert the external drive (USB device) that you intend to use.
2. Launch Etcher and select the "**Flash from file**" option.
3. Click on the file selection button and browse to the location where you saved the ISO image file, and select it.
4. Select the target drive. Ensure that the correct external drive is selected as the target device. Double-check to avoid accidentally writing the ISO image to an incorrect drive.

<https://etcher.balena.io/>

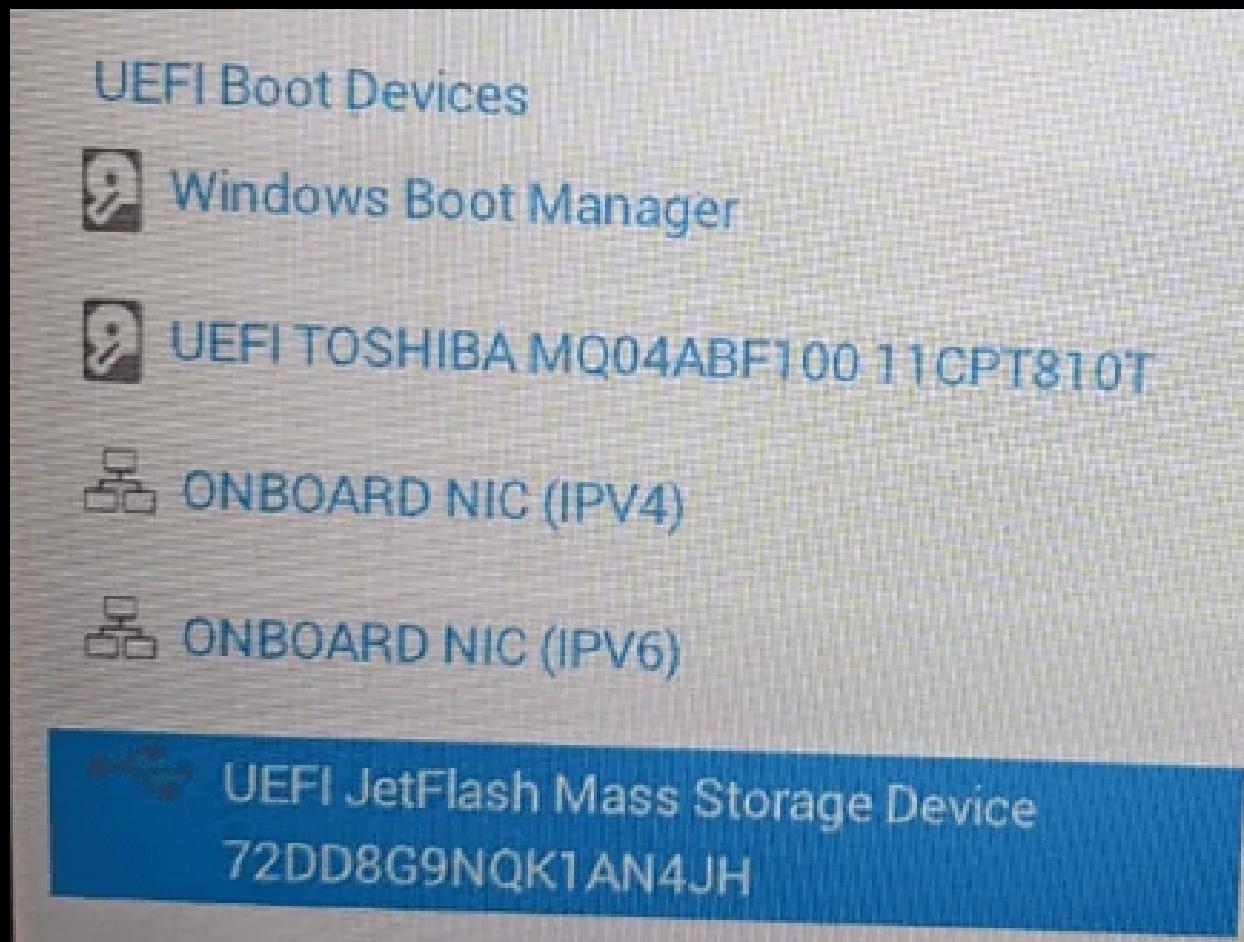
CREATING A LIVE USB



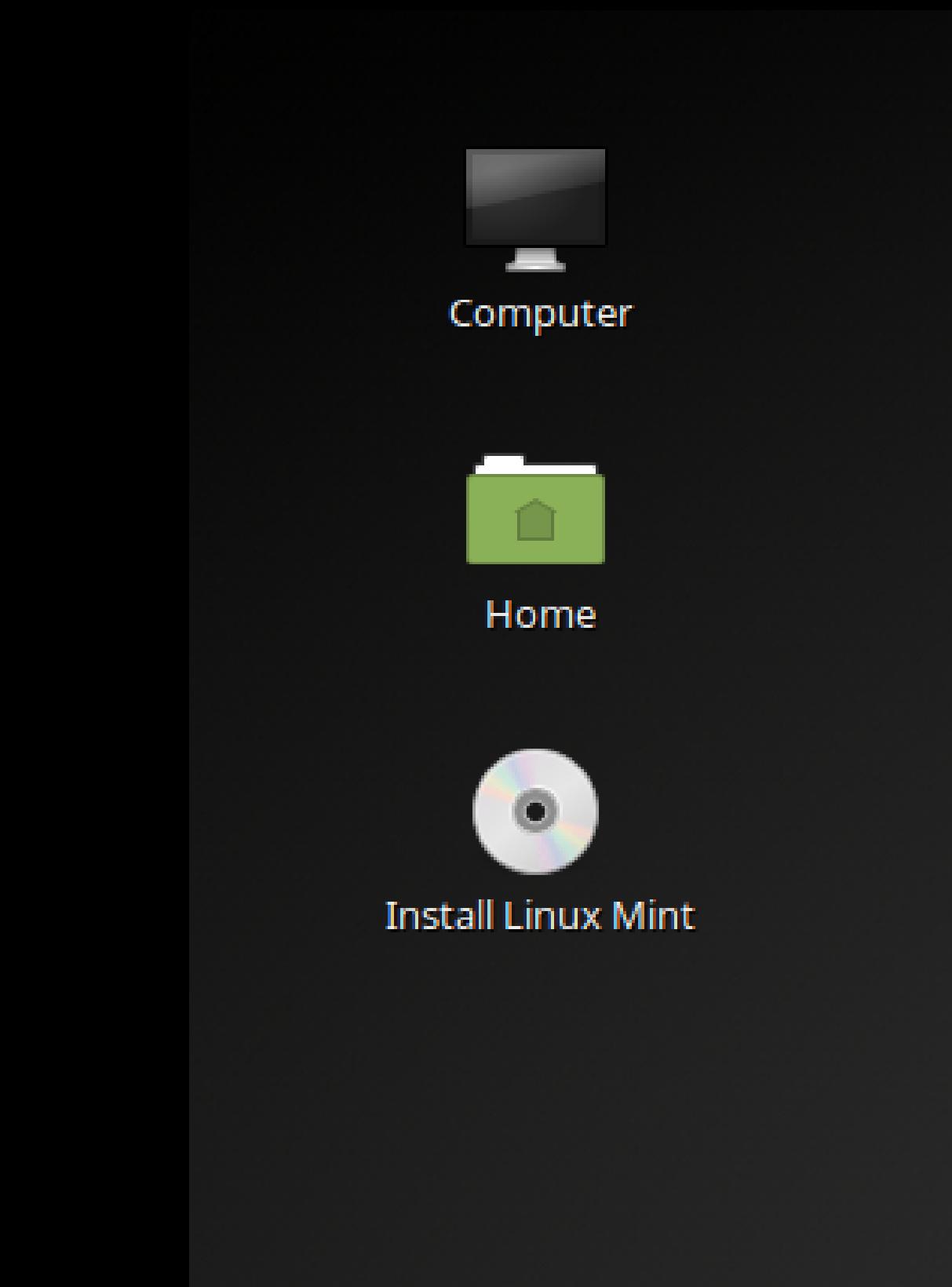
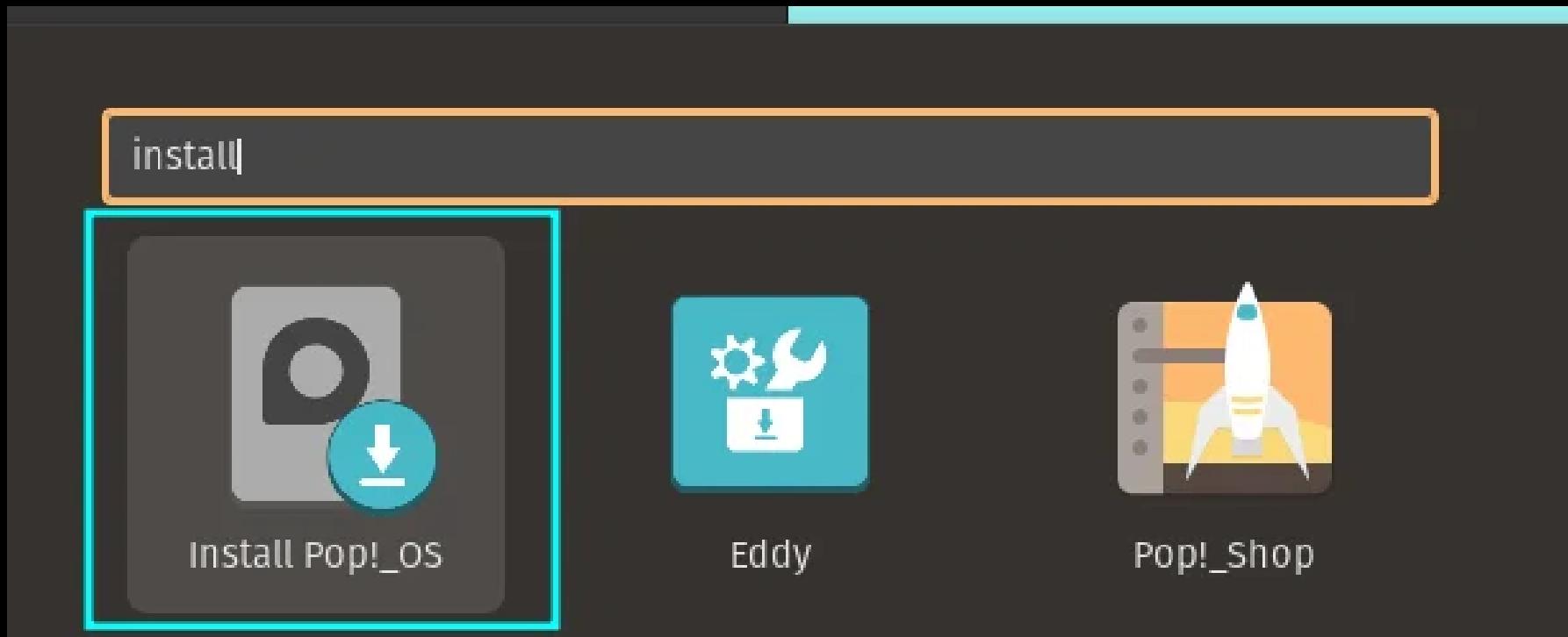
5. Review the settings to ensure they are correct.
6. Click on the "**Flash!**" button to begin the process of writing the ISO image to the USB device. This may take some time, so be patient until the process completes.

BOOTING IN...

Plug the live USB or disk into the computer and restart the computer. While booting the computer press F10 or F12 function key (defers from computer to computer) to go to the boot menu



Choose the option to boot from USB or Removable Media.





Install Pop!_OS 22.04 LTS

Select a Language

- English ✓
- 中文
- Español
- français
- Português
- русский
- Deutsch
- Afar
- Afrikaans
- Aguaruna
- Akan
- Albanian
- Angika
- Aragonese

Select

Languages English

United States ✓

Antigua and Barbuda

Australia



Welcome

Install

- English
- Español
- Esperanto
- Euskara
- Français
- Gaeilge
- Galego
- Hrvatski
- Íslenska
- Italiano
- Kurdî

Quit Back Continue

.....



Install Pop!_OS 22.04 LTS

The screenshot shows the 'Keyboard Layout' configuration screen during the Pop!_OS installation process. On the left, there's a decorative illustration of a person working on a computer keyboard. The main area lists various keyboard layouts. The 'English (US)...' option is highlighted with a light blue background. Below the list is a text input field labeled 'Type to test your layout' with a small keyboard icon. At the bottom are 'Back' and 'Select' buttons.

- Croatian...
- czech...
- Danish...
- Dhivehi
- Dutch...
- Dzongkha
- English (Australian)
- English (cameroon)...
- English (Ghana)...
- English (Nigeria)...
- English (South Africa)
- English (UK)...
- English (us)...**

Type to test your layout

Back Select

This screenshot shows the system tray of a running Pop!_OS desktop environment. It displays the 'Input Language' indicator, which shows 'English (US)' as the active language. Below the indicator is a dropdown menu with three options: 'Default', 'Cherokee', and 'English (colemak)'. The 'Default' option is highlighted with a light blue background.

< Input Language English (US)

- Default
- Cherokee
- English (colemak)





Install

Wireless

Connecting this computer to a wi-fi network allows you to install third-party software, download updates, automatically detect your timezone, and install full support for your language.

I don't want to connect to a wi-fi network right now

Connect to this network

▼ Intel Corporation Wireless 7260 (Dual Band Wireless-AC 7260)

- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]
- [Redacted]

Password: Display password

Quit Back Connect

.....



Install Pop!_OS 22.04 LTS

Clean Install
Erase everything and install a fresh copy of Pop!_OS 22.04 LTS.

Custom (Advanced)
Create, resize, or otherwise manage partitions manually. This method may lead to data loss.

Install

Try Demo Mode

Back

Custom (Advanced)

Install

Preparing to install Linux Mint

Install third-party software for graphics and Wi-Fi hardware, Flash, MP3 and other media
This software is subject to license terms included with its documentation. Some is proprietary.

Installation type

This computer currently has Linux Mint 18.3 Sylvia (18.3) on it. What would you like to do?

Erase disk and install Linux Mint
Warning: This will delete all your programs, documents, photos, music, and any other files in all operating systems.

Encrypt the new Linux Mint installation for security
You will choose a security key in the next step.

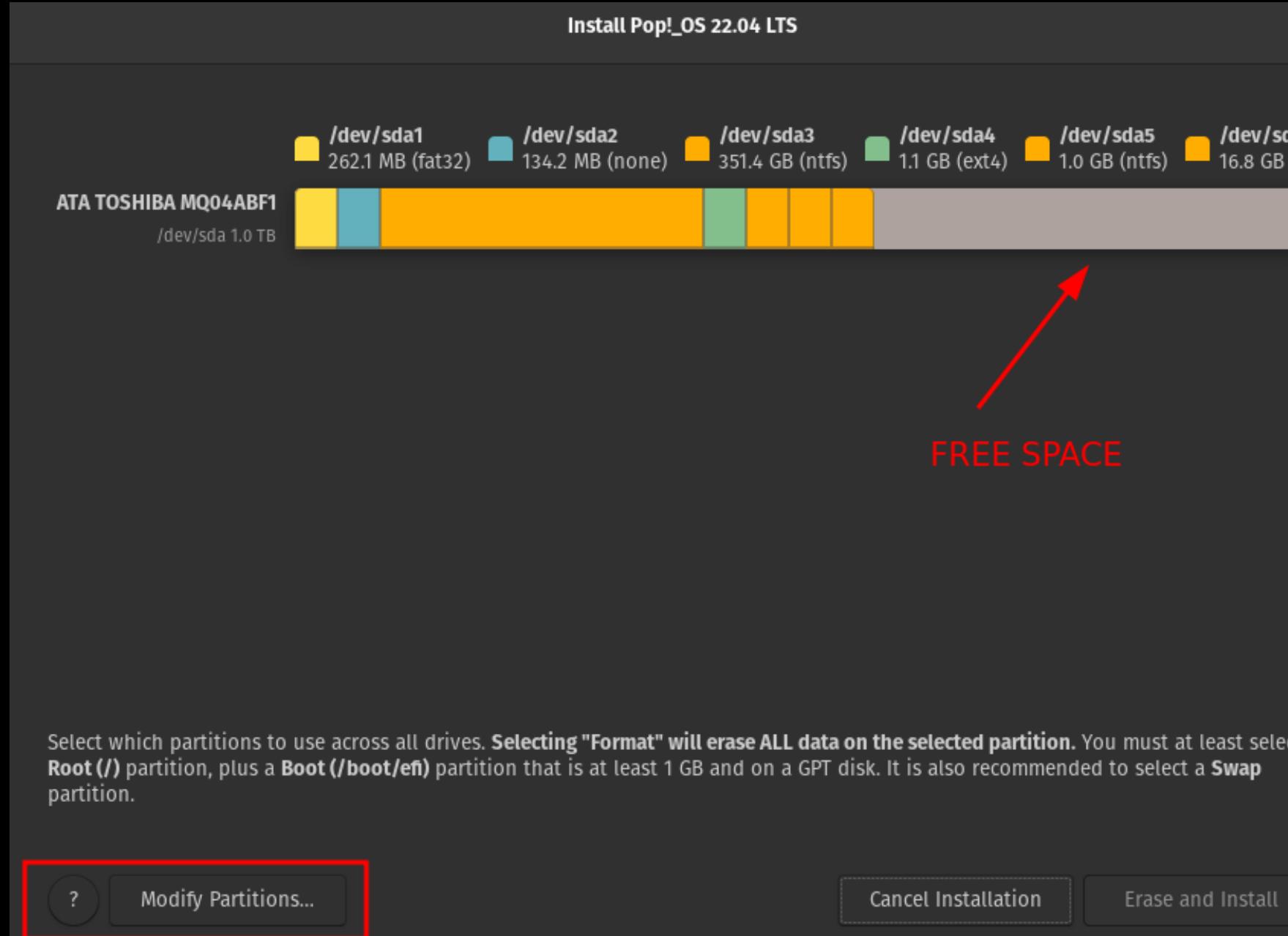
Use LVM with the new Linux Mint installation
This will set up Logical Volume Management. It allows taking snapshots and easier partition resizing.

Something else
You can create or resize partitions yourself, or choose multiple partitions for Linux Mint.

Quit

Back

Continue





Create new Partition

Minimum size: 1 MiB Maximum size: 598977 MiB

Free space preceding (MiB): 0 New size (MiB): 72000 Free space following (MiB): 526977

Align to: MiB

Create as: Primary Partition Partition name: /

File system: ext4 Label:

Cancel Add

Install

Installation type

Device Type Mount
/dev/sda ntfs
/dev/sda1 ntfs
/dev/sda2 ntfs
/dev/sda5 ntfs
free space

Create partition

Size: 21485 MB

Type for the new partition: Primary
 Logical

Location for the new partition: Beginning of this space
 End of this space

Use as: Ext4 journaling file system

Mount point: /

Device for boot loader installation:
/dev/sda ATA ST9320325AS (320.1 GB)

Cancel OK

Quit Back Install Now

root



Create new Partition

Minimum size: 1 MiB Maximum size: 526977 MiB

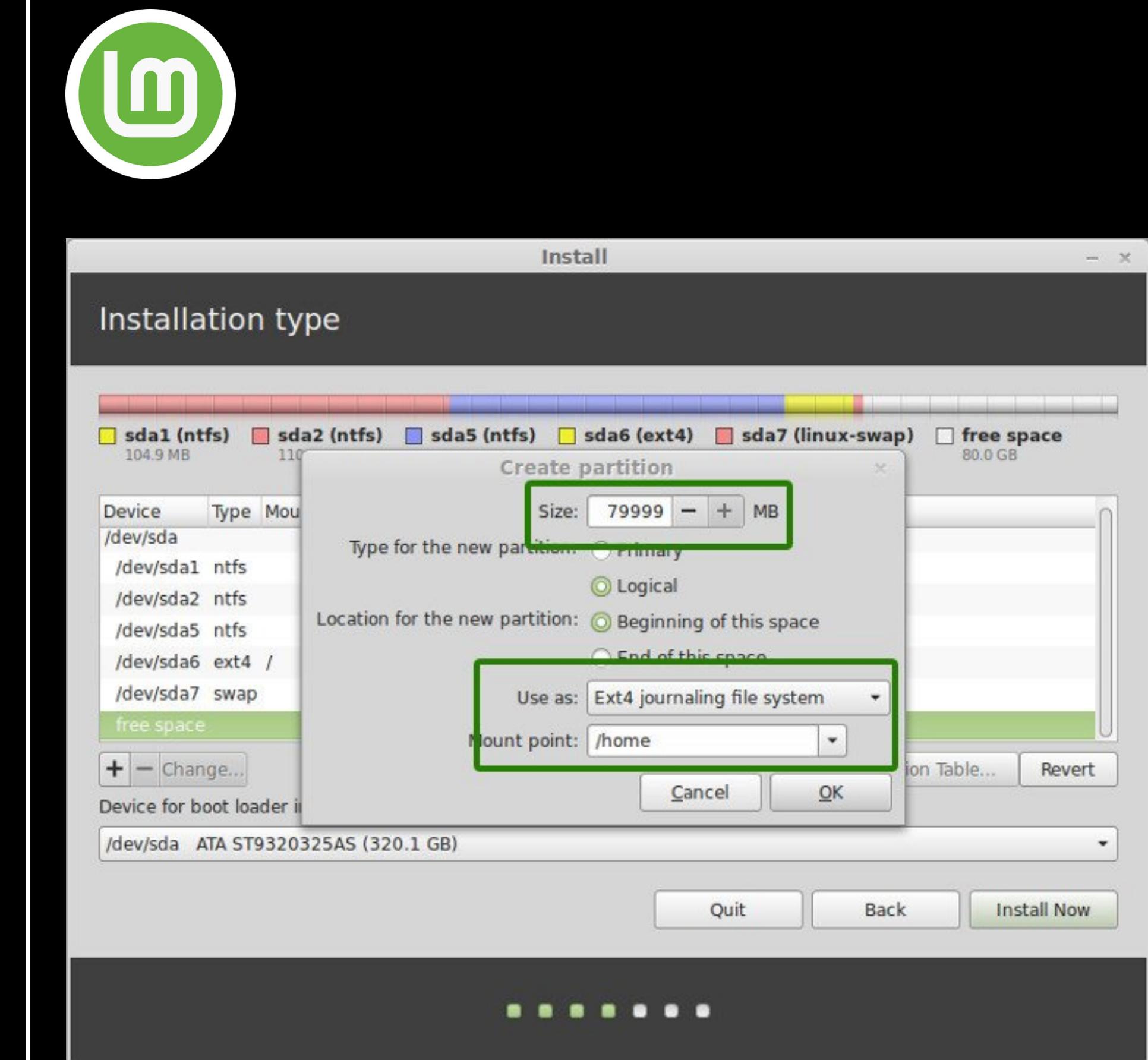
Free space preceding (MiB): 0 New size (MiB): 526977 Free space following (MiB): 0

Align to: MiB

Create as: Primary Partition Partition name: /home

File system: ext4 Label:

Cancel Add



home



Create new Partition

Minimum size: 1 MiB Maximum size: 600001 MiB

Free space preceding (MiB): 0 Create as: Primary Partition

New size (MiB): 1024 Partition name: /boot

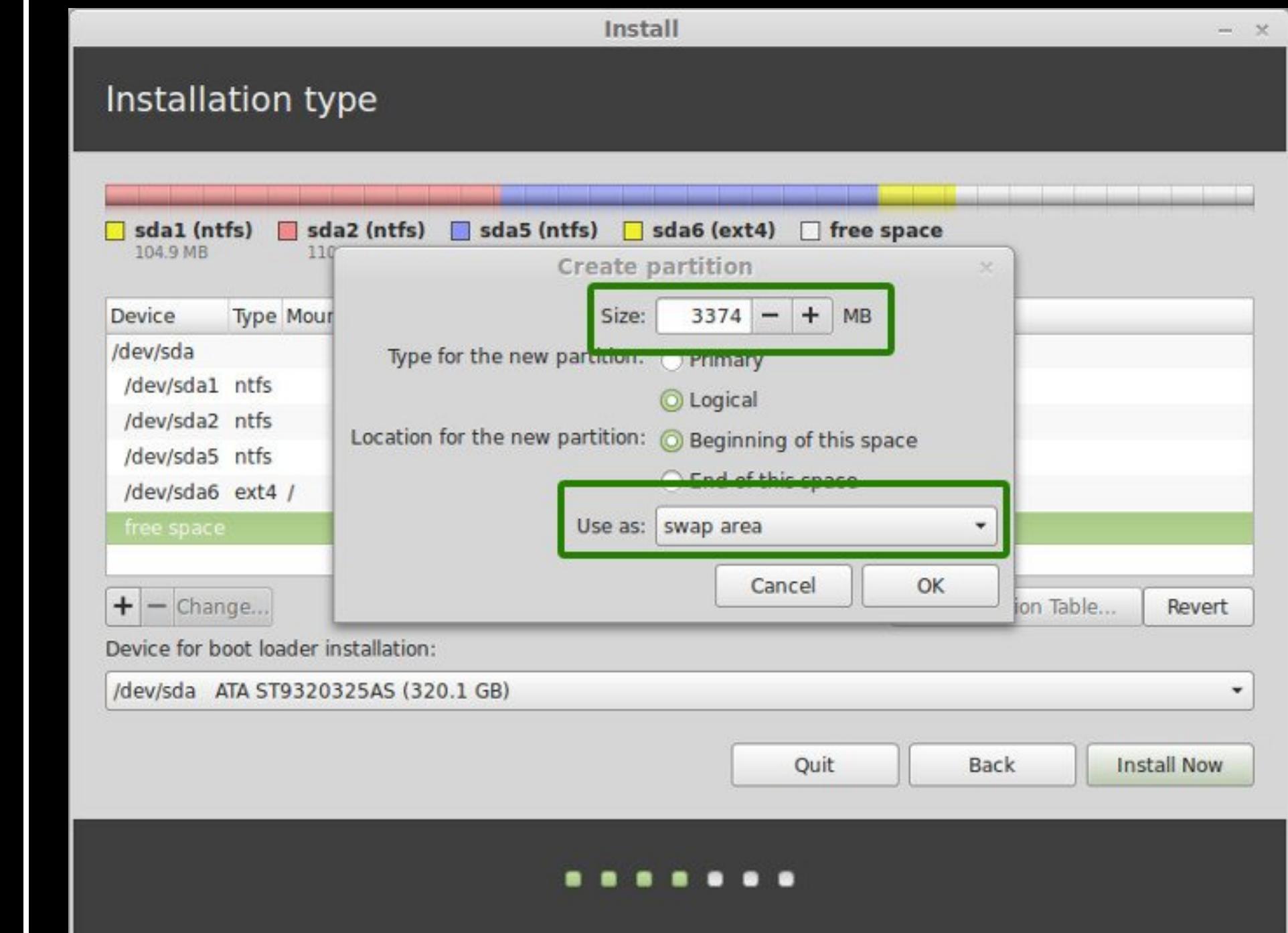
Free space following (MiB): 598977 File system: ext4

Align to: MiB Label:

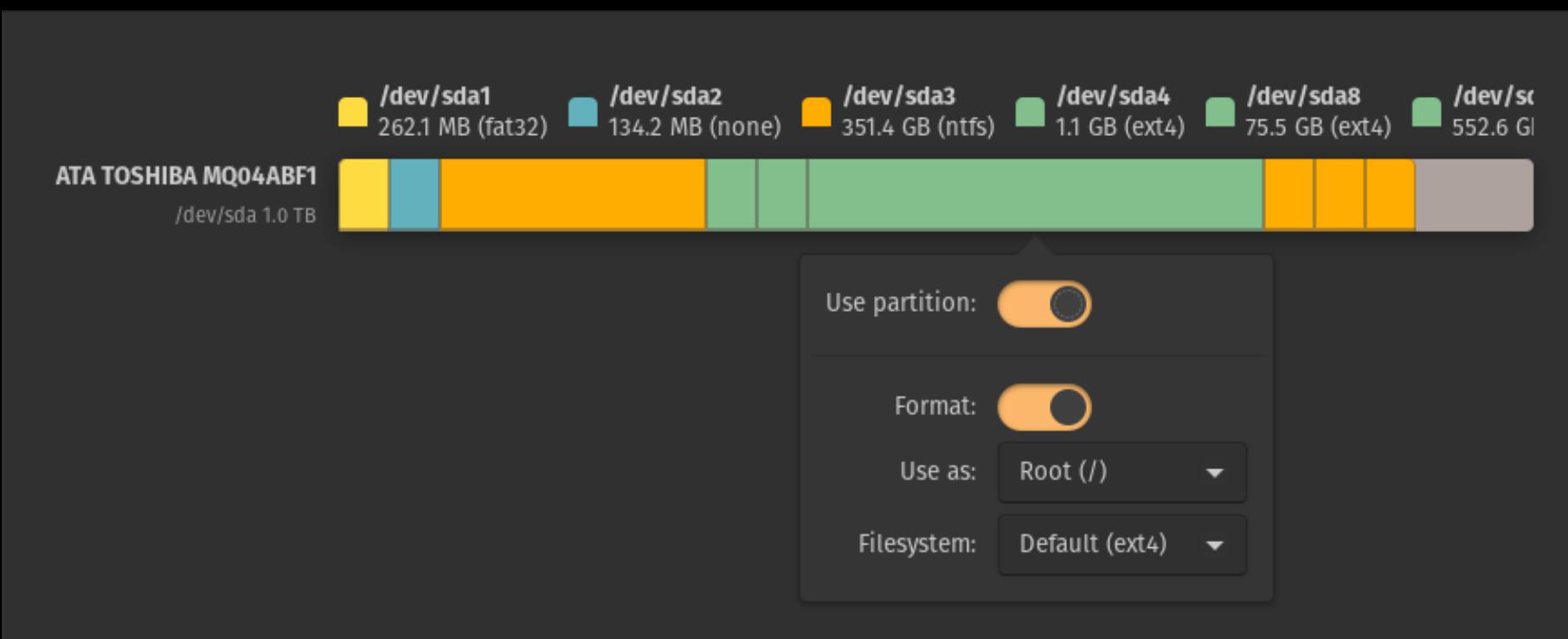
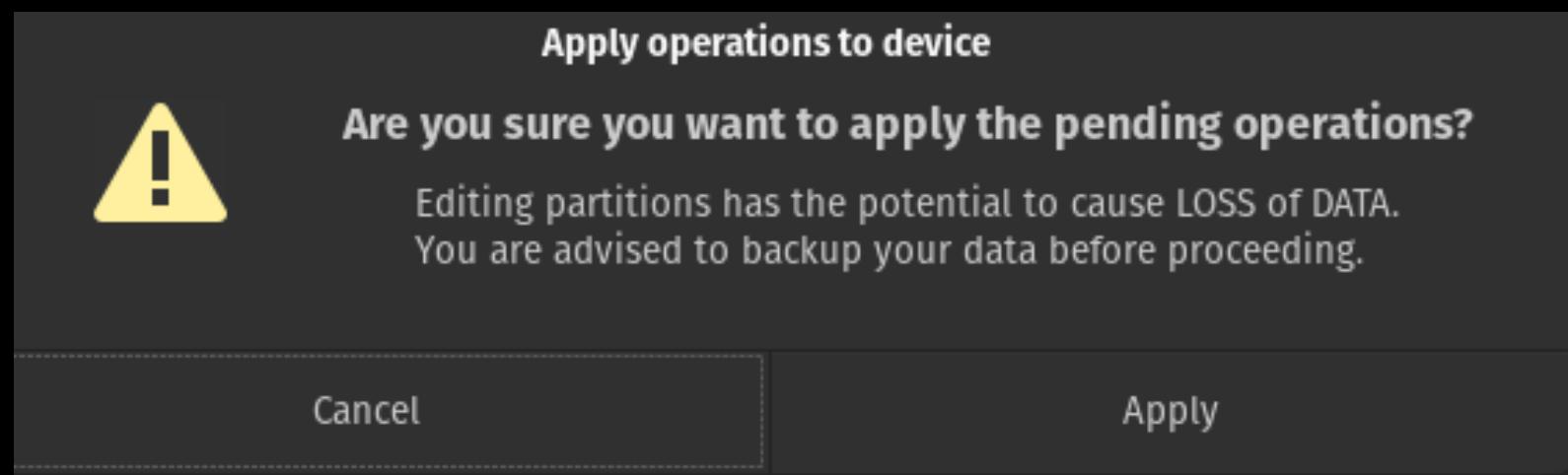
Cancel Add

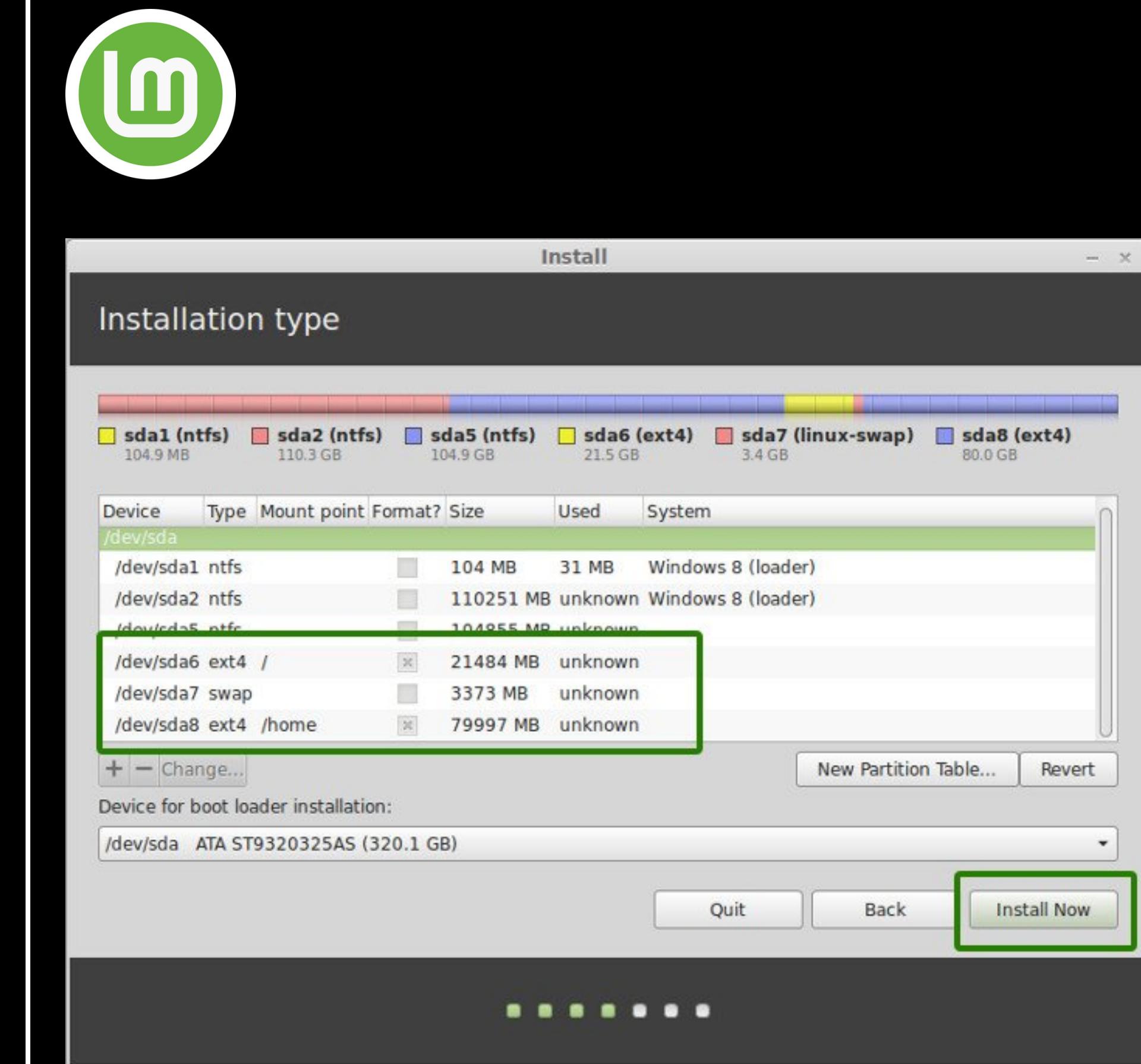
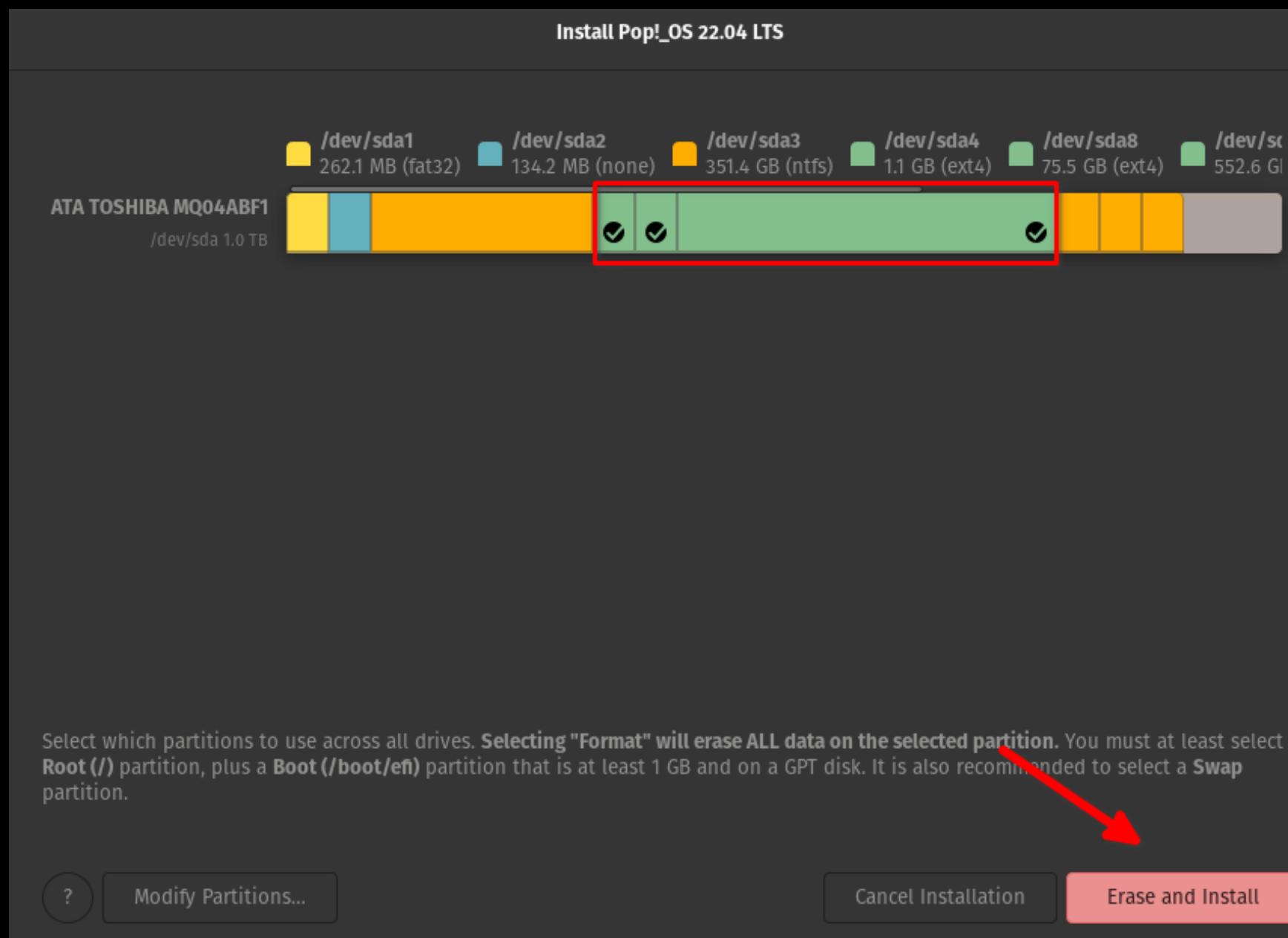


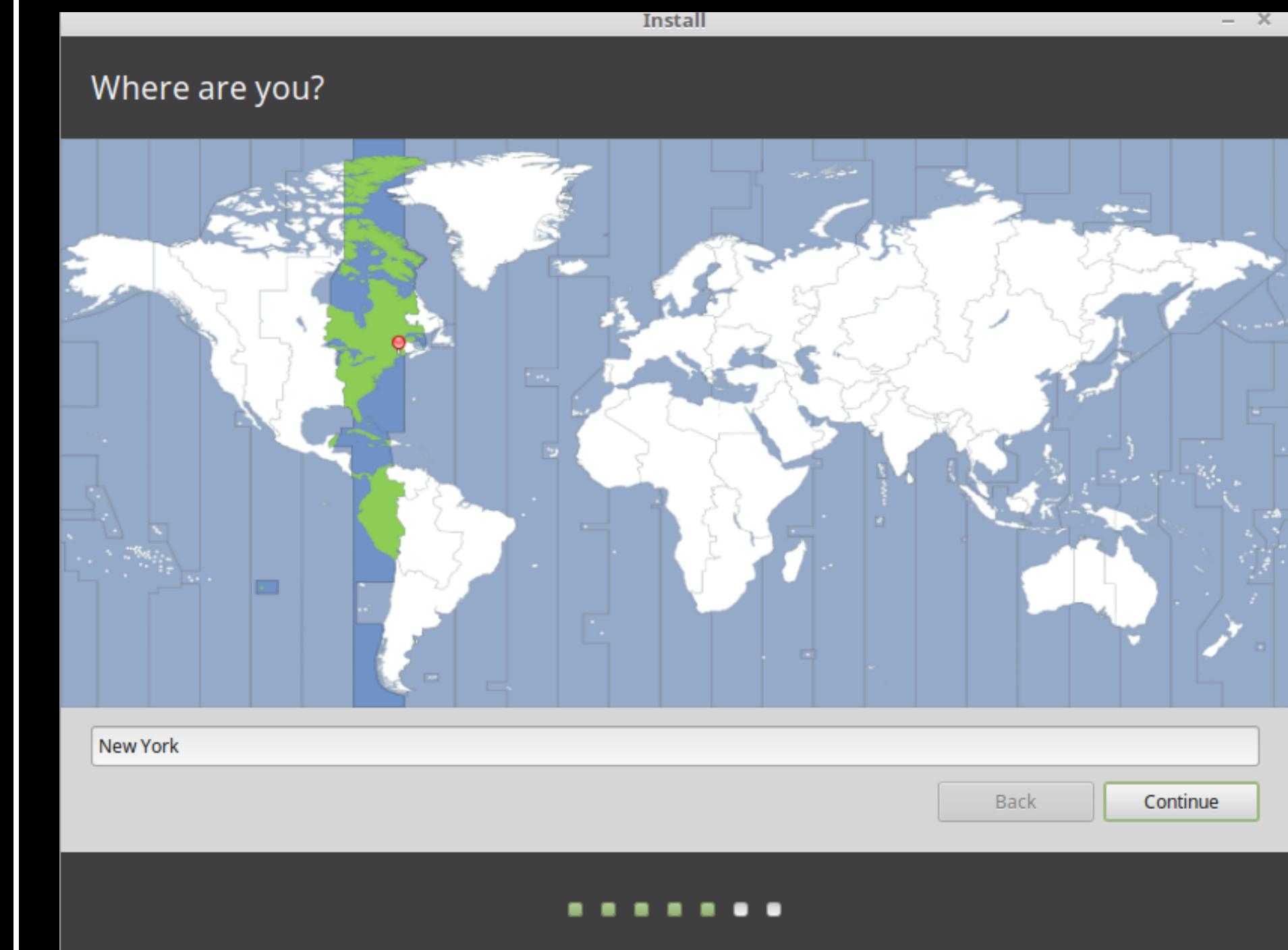
boot



swap









Install

Keyboard layout

Choose your keyboard layout:

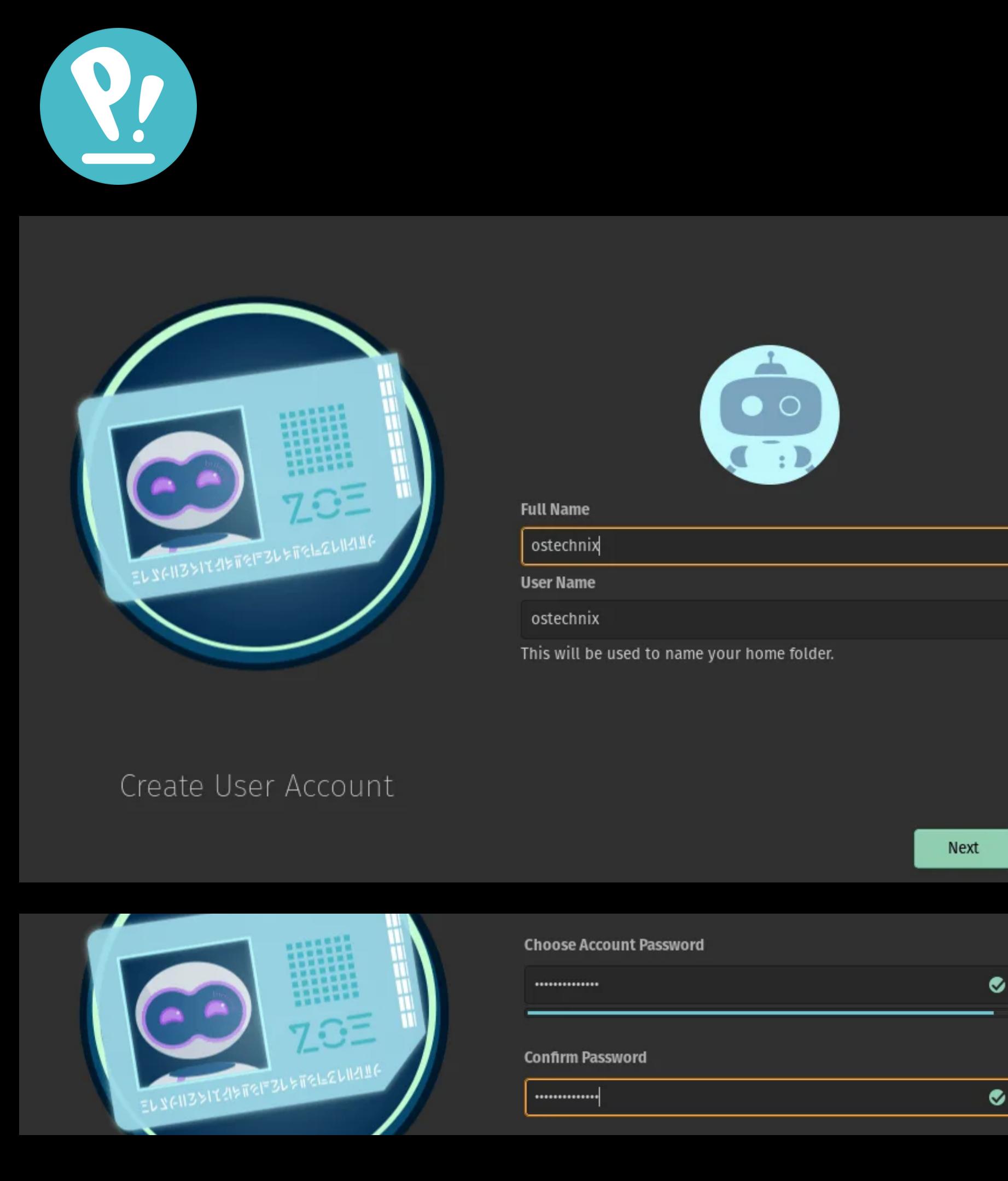
- Dzongkha
- English (Cameroon)
- English (Ghana)
- English (Nigeria)
- English (South Africa)
- English (UK)**
- English (US)**
- Esperanto
- Estonian
- Faroese
- Filipino
- Finnish
- French

Type here to test your keyboard

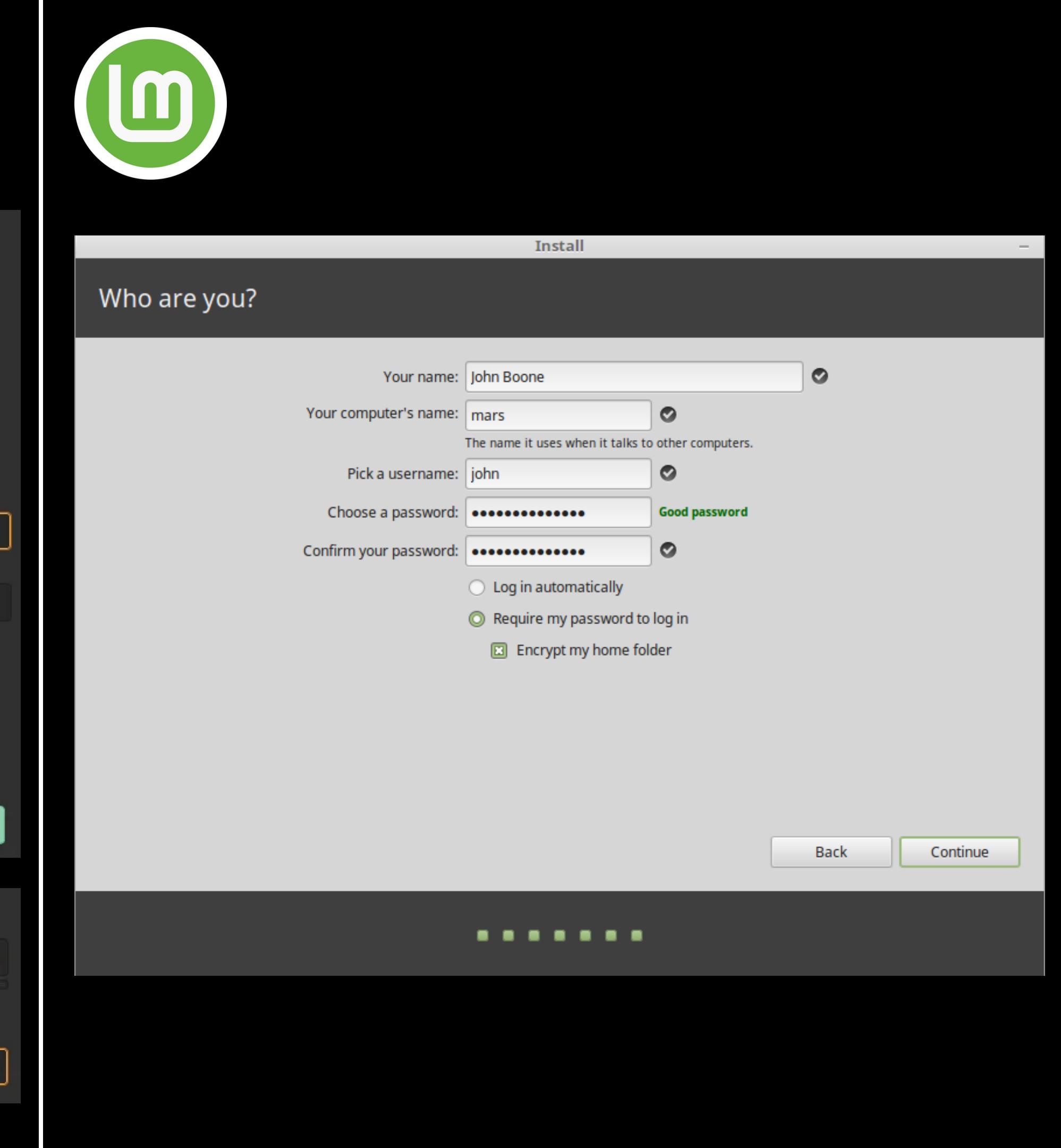
Detect Keyboard Layout

Back Continue

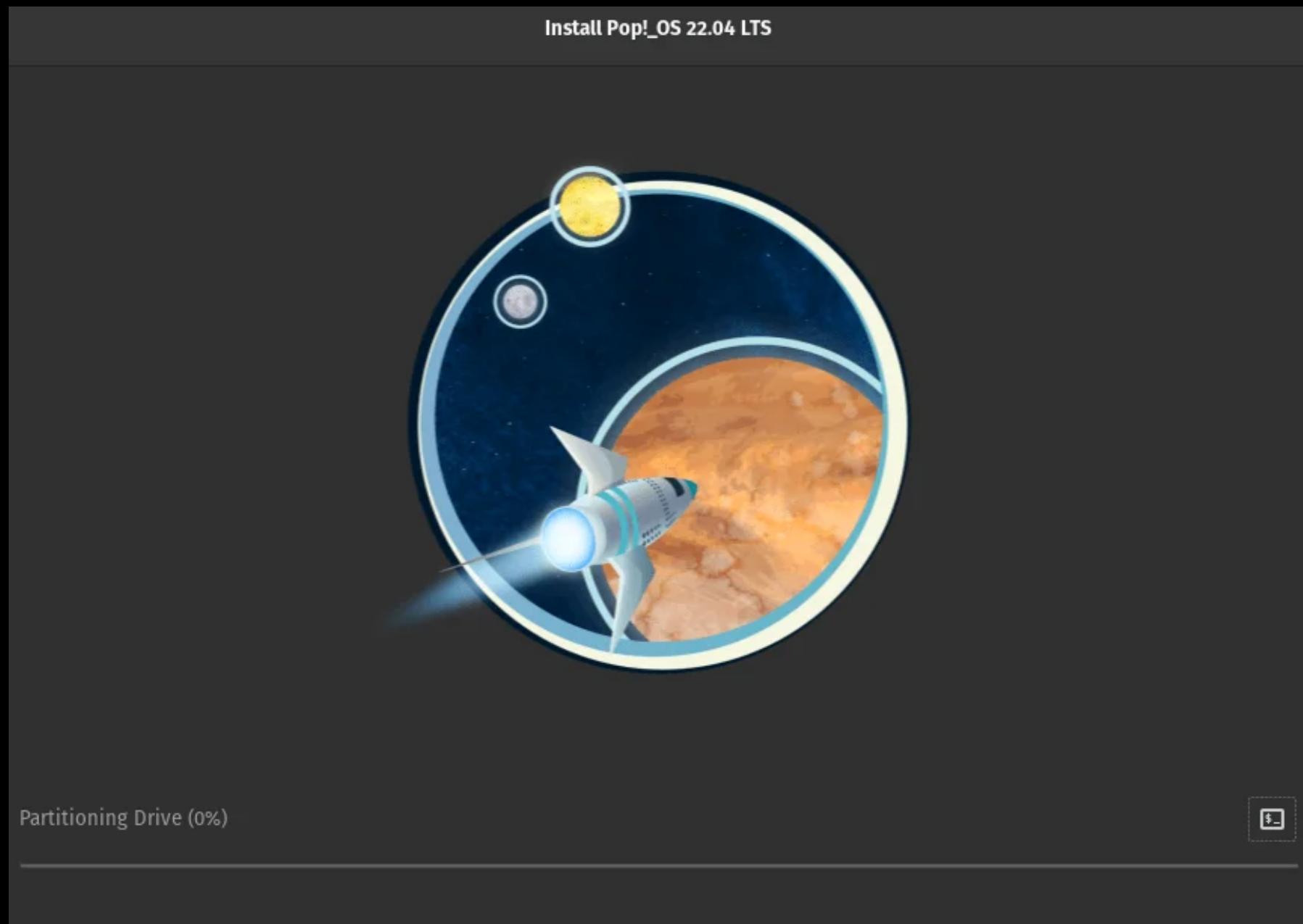
.....



The image shows two screenshots of the Ubuntu ZOE desktop environment. The top screenshot displays a 'Create User Account' window with fields for 'Full Name' (ostechnix) and 'User Name' (ostechnix). The bottom screenshot shows a 'Choose Account Password' window with fields for 'Account Password' and 'Confirm Password', both containing masked entries. A large blue circular icon with a white robot head and the text 'ZOE' is visible in the background.



The image shows a screenshot of the standard Ubuntu desktop environment. It features a green circular icon with a white lowercase 'm' in the top right corner. Below it is an 'Install' window titled 'Who are you?'. The window contains fields for 'Your name' (John Boone), 'Your computer's name' (mars), 'Pick a username' (john), and 'Choose a password' (a masked password). It also includes checkboxes for 'Log in automatically' (unchecked), 'Require my password to log in' (checked), and 'Encrypt my home folder' (checked). At the bottom are 'Back' and 'Continue' buttons, and a progress bar consisting of several green dots.





Continue Setting Up



[Restart Device](#)

[Shut Down](#)



Installation Complete



Installation has finished. You can continue testing Linux Mint now, but until you restart the computer, any changes you make or documents you save will not be preserved.

[Continue Testing](#)

[Restart Now](#)

RICING



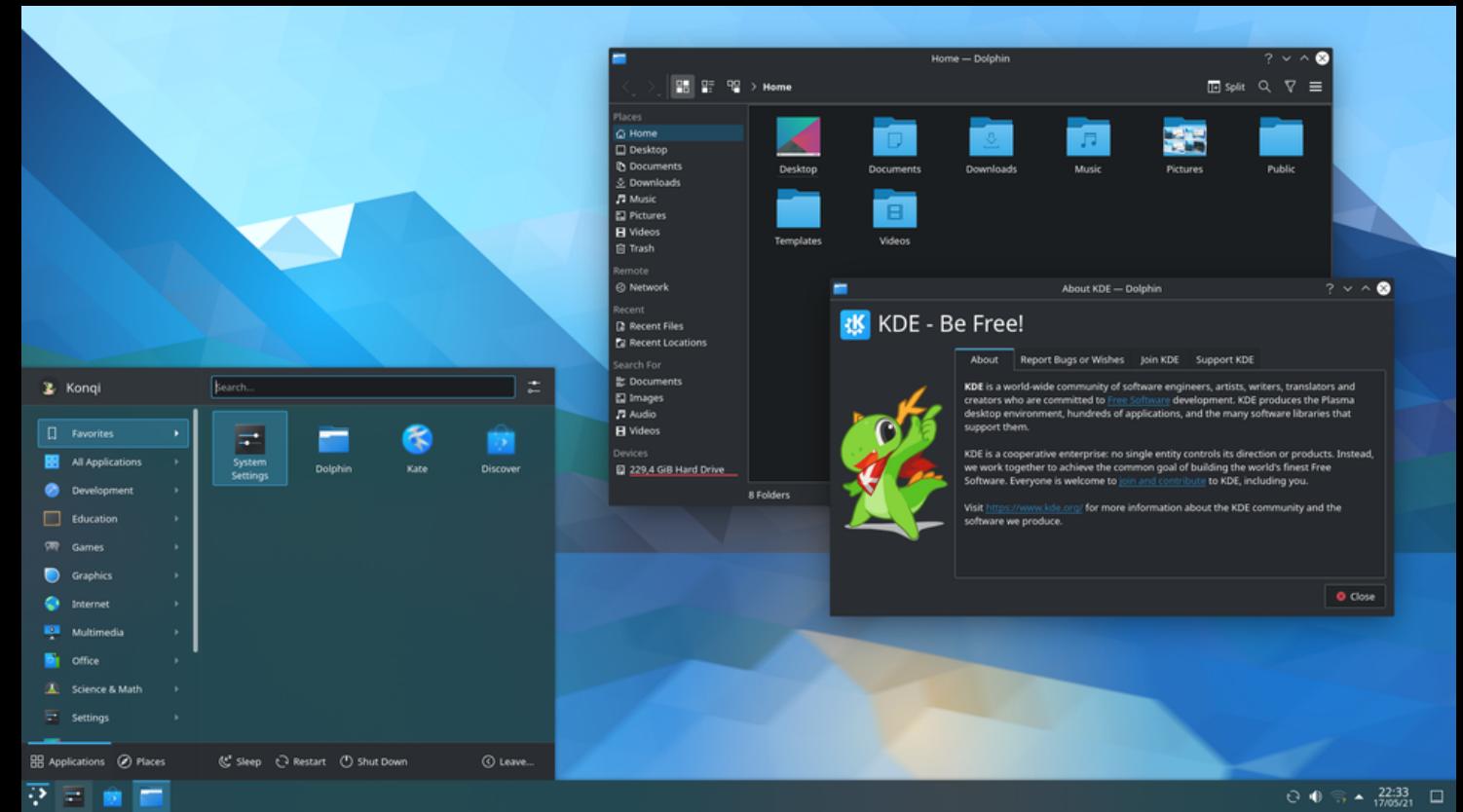
DESKTOP ENVIRONMENTS

Desktop environments change the look and feel of your desktop, and they can also add new features and functionality. They are **highly customizable**, allowing users to change the look and feel of their desktop to their liking. This includes changing the desktop theme, icons, fonts, and more

GNOME



KDE



KERNEL

MODE

KERNEL MODE



- **Kernel:** a software program which is used to access hardware components of a computer system. Kernel works as a middleware software for hardware and application software/user programs.
- In kernel mode, you can access system resources directly. It is not possible to run all processes in the kernel mode because if a process fails the entire operating system might fail.
- e.g. File management system calls read, write, create, delete, open, and close files.

USER

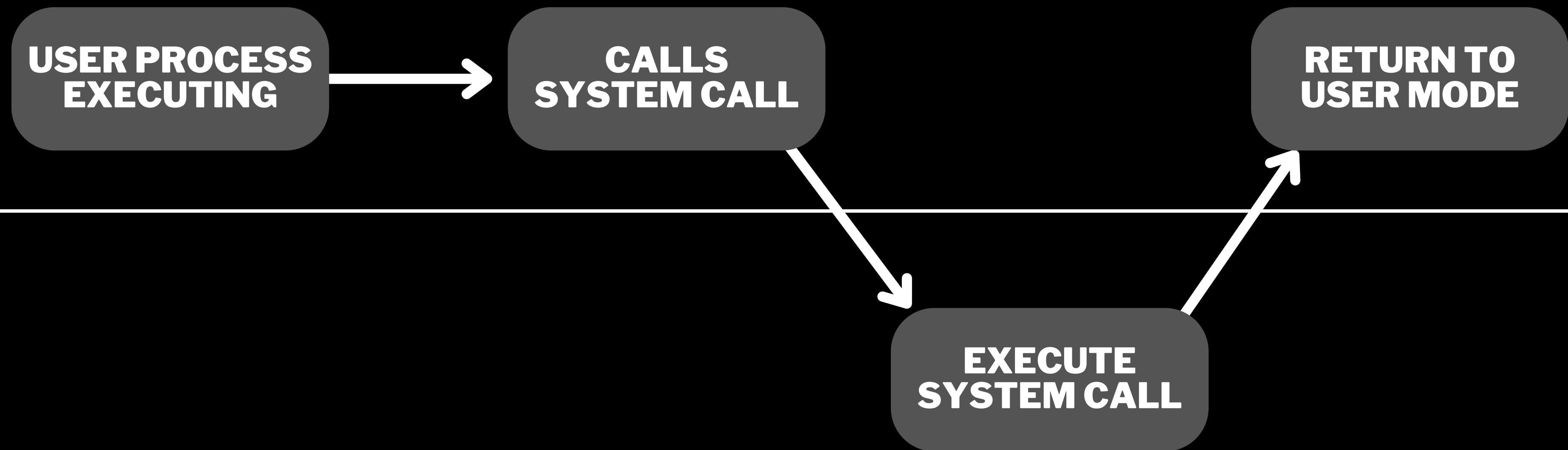
MODE

USER MODE



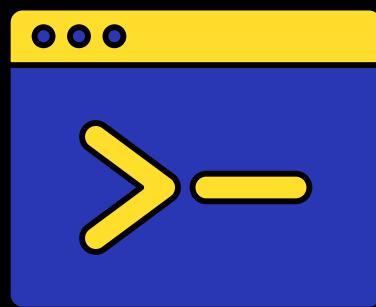
- The system is in **user mode** when the operating system is running a user application such as handling a text editor.
- User mode programs are less privileged and are not allowed to access the system resources directly. If it needs access, a **system call** must be made.
- In user mode, processes get their own address space and cannot access the address space which belongs to the kernel. So the failure of one process will not affect the whole operating system.

USER MODE



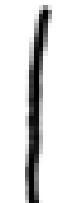
KERNEL MODE

Ubuntu: ~\$ sudo



WHAT IS SUDO?

MAKE ME A SANDWICH.



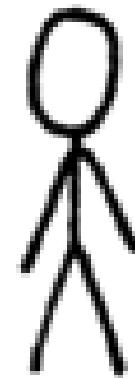
SUDO MAKE ME
A SANDWICH.

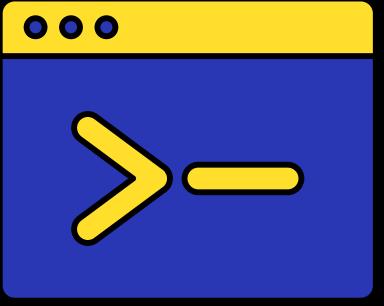


WHAT? MAKE
IT YOURSELF.



OKAY.

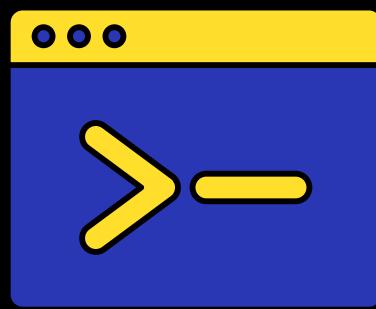




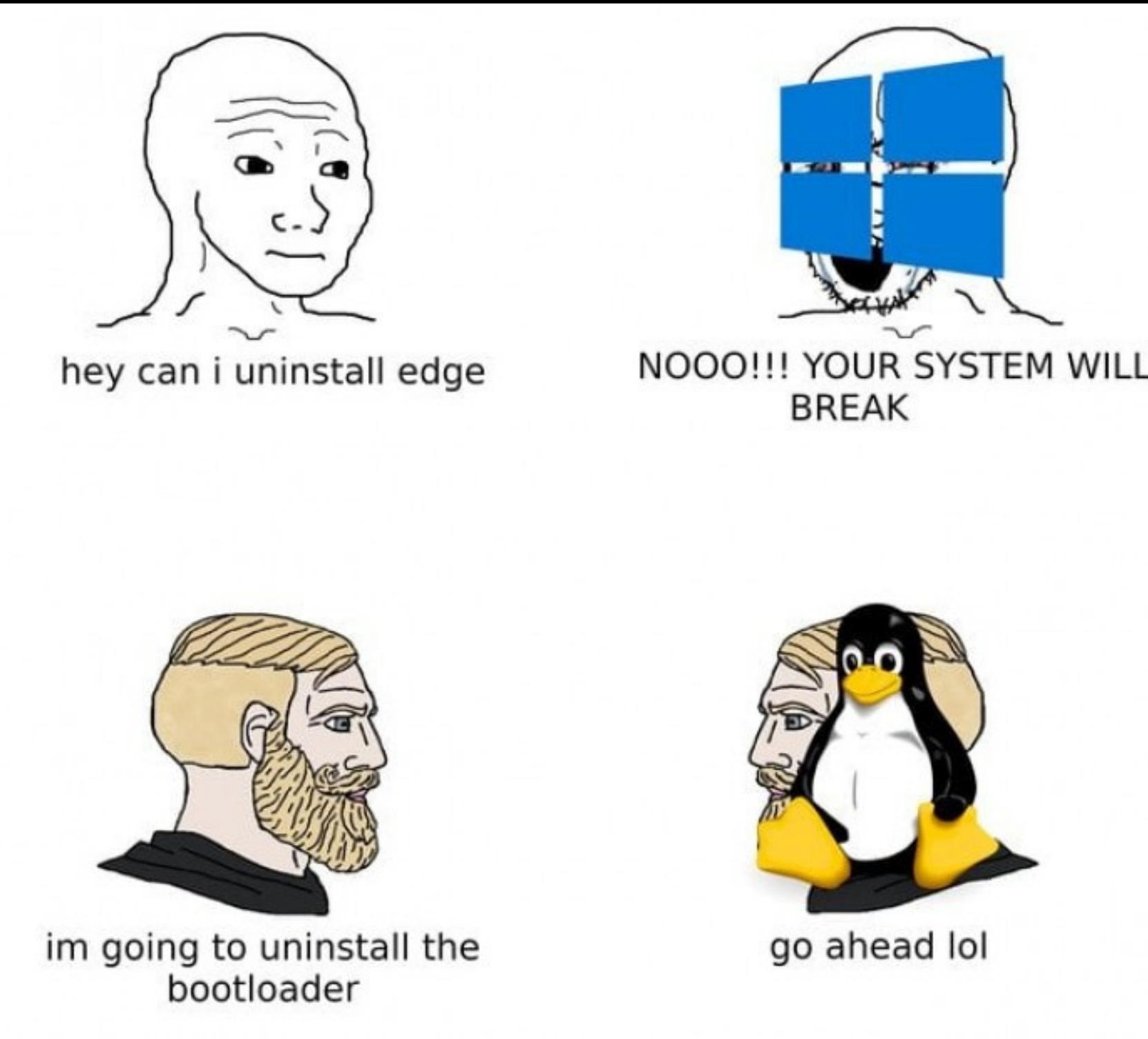
WHAT IS SUDO?

X

- By default, most linux distros have the user interact as a non-privileged user for security reasons. e.g. normally a user cannot do things like installing system-wide programs on a system
- "**sudo**" solves this problem by granting temporary access to run a command as the "**superuser**" or "**root**" user; which has complete control over the system
- Its like "run as administrator" on windows, ***but on steroids***. One should use this with care and not spam it everywhere.



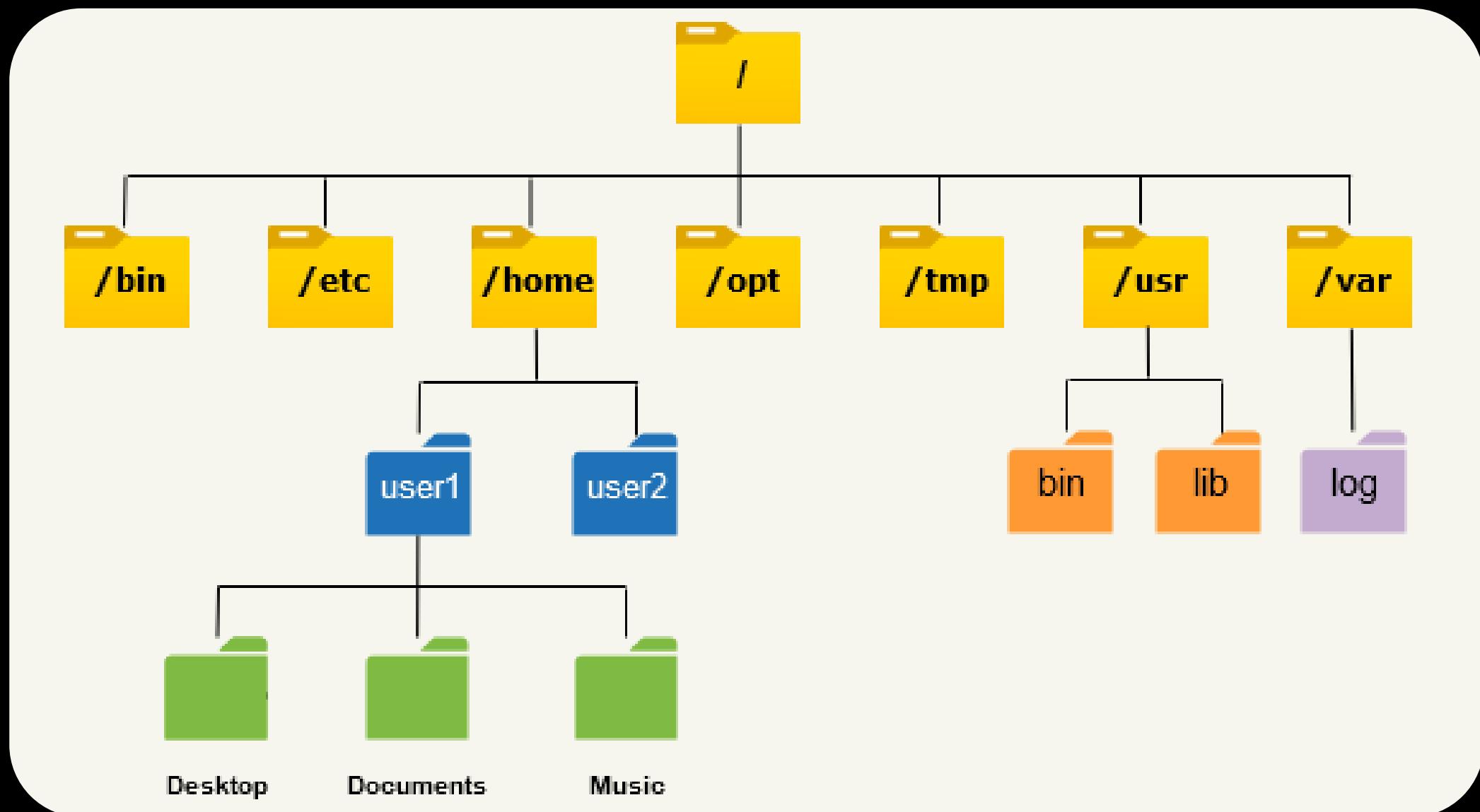
WHAT IS SUDO?



FILE

SYSTEM

FILE SYSTEM



- **home** - Contains user home directories, which store user files such as documents, pictures, and music
- **root** - user account that has the highest access rights on the system (similar to the C:\ drive in Windows but with much more capabilities)
- **usr** - Contains user-related files, including libraries, games, and applications

PACKAGE

MANAGERS

WHAT'S A PACKAGE?

X

- A package is usually could be a GUI application, command line tool or even a software library
- A package is essentially an archive file containing the binary executable, configuration file and sometimes information about the dependencies.
- In older days, software used to installed from its source code. You would refer to a README file and install every component seperately. You will have to compile the software along with handling all the dependencies **manually**.

WHAT'S A PACKAGE?

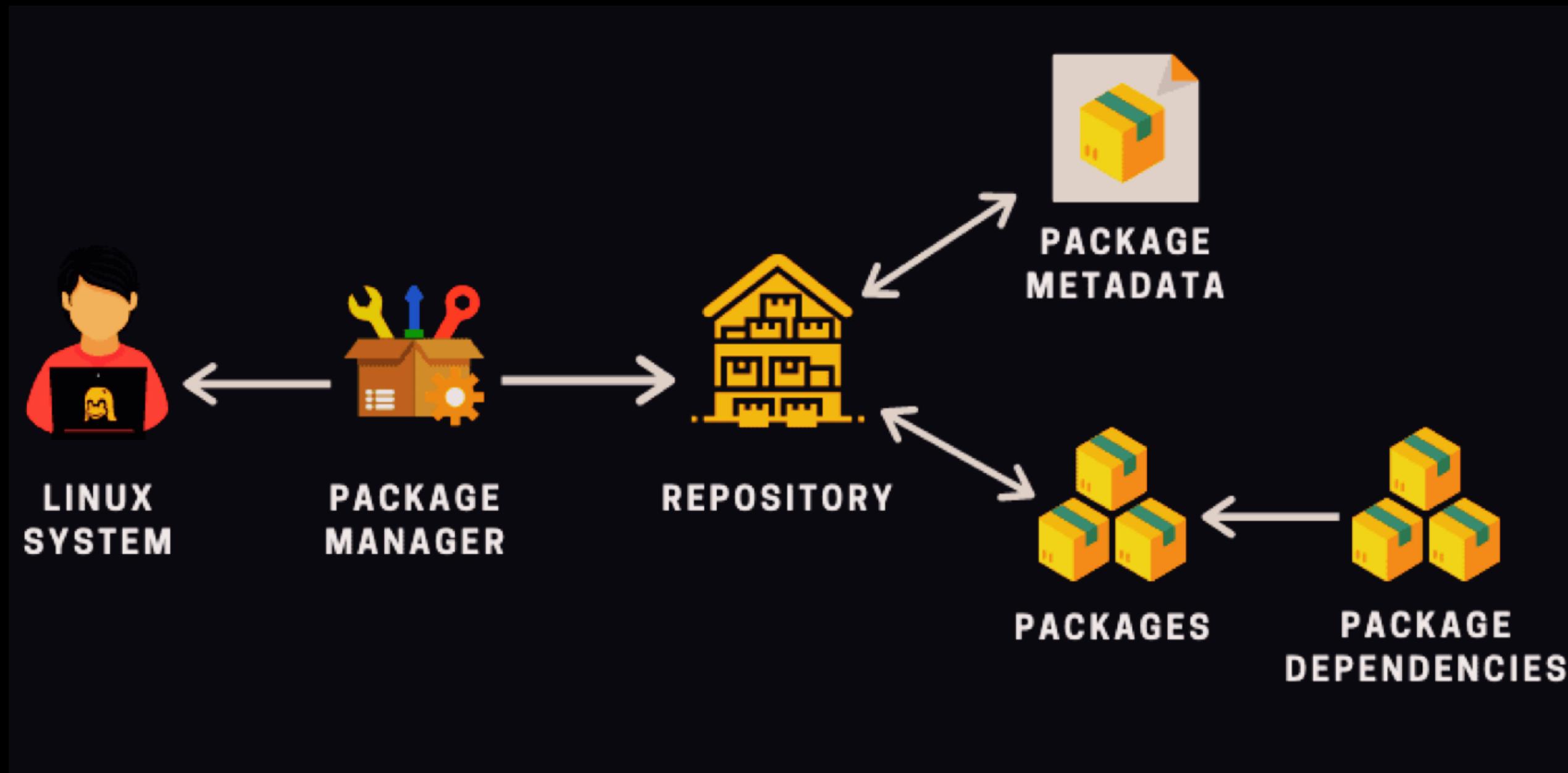
X

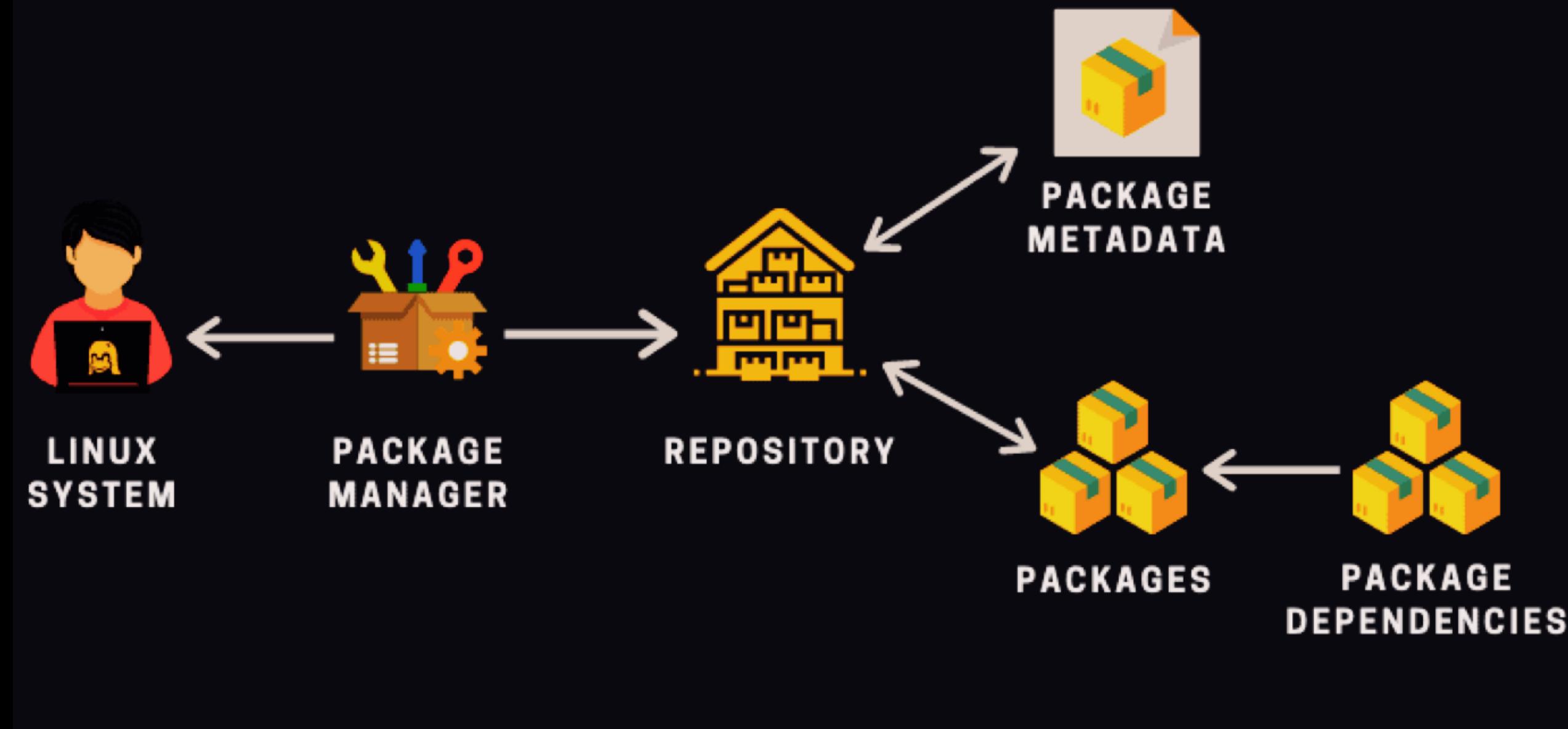
- To get rid of this complexity, Linux distributions created their own packaging format to provide users ready-to-use binary files (precompiled software) for installing software.

Baking a cake vs Buying a cake

- To use the packaging systems, you need a **package manager**.

PACKAGE MANAGERS





When you run the installation command of your package, the package manager refers to the cache. If it finds the package information in the cache, it connects to the appropriate repository via internet and downloads the package first before installing on your system.

EXAMPLES OF PACKAGE MANAGERS

APT

- APT (Advanced Package Tool) is the most popular package manager for Debian-based Linux distributions such as Ubuntu and Mint.
- It is a powerful command-line package management tool which can install, remove, and build packages. It also provides tools for searching, managing, and querying information about packages.
- Packages are taken from online repositories, or they can be installed from local media.

EXAMPLES OF PACKAGE MANAGERS

APT

Operation	Command
installing a package	<code>sudo apt install <package name></code>
removing a package	<code>sudo apt remove <package name></code>
upgrading all packages	<code>sudo apt update && sudo apt upgrade</code>
search for a package	<code>sudo apt search <query></code>

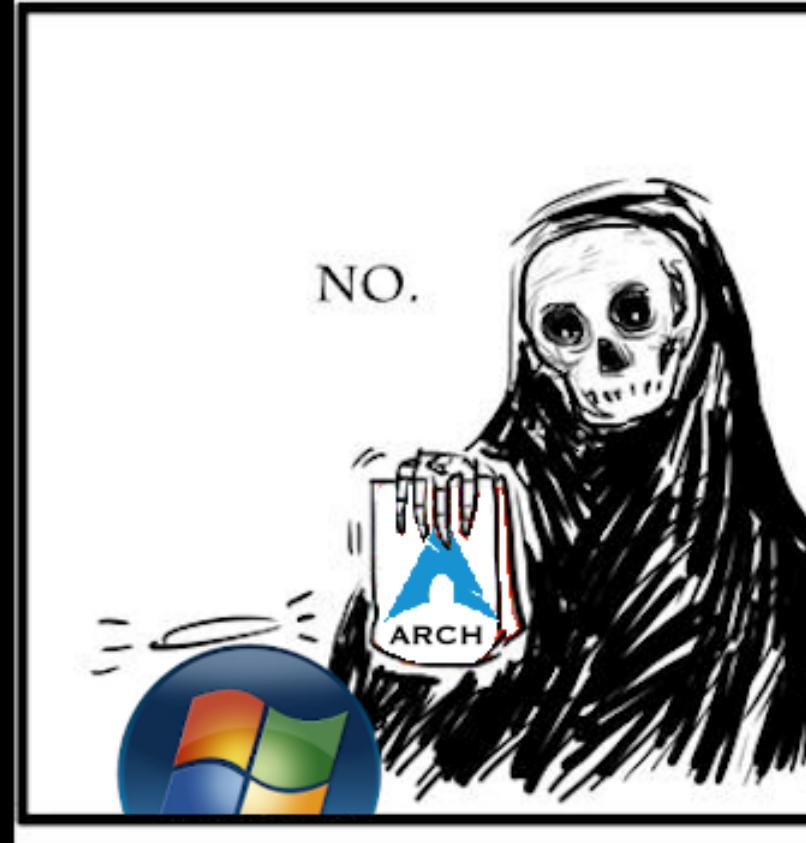
IT IS TIME TO GO.



Was I a good O.S. ?



NO.



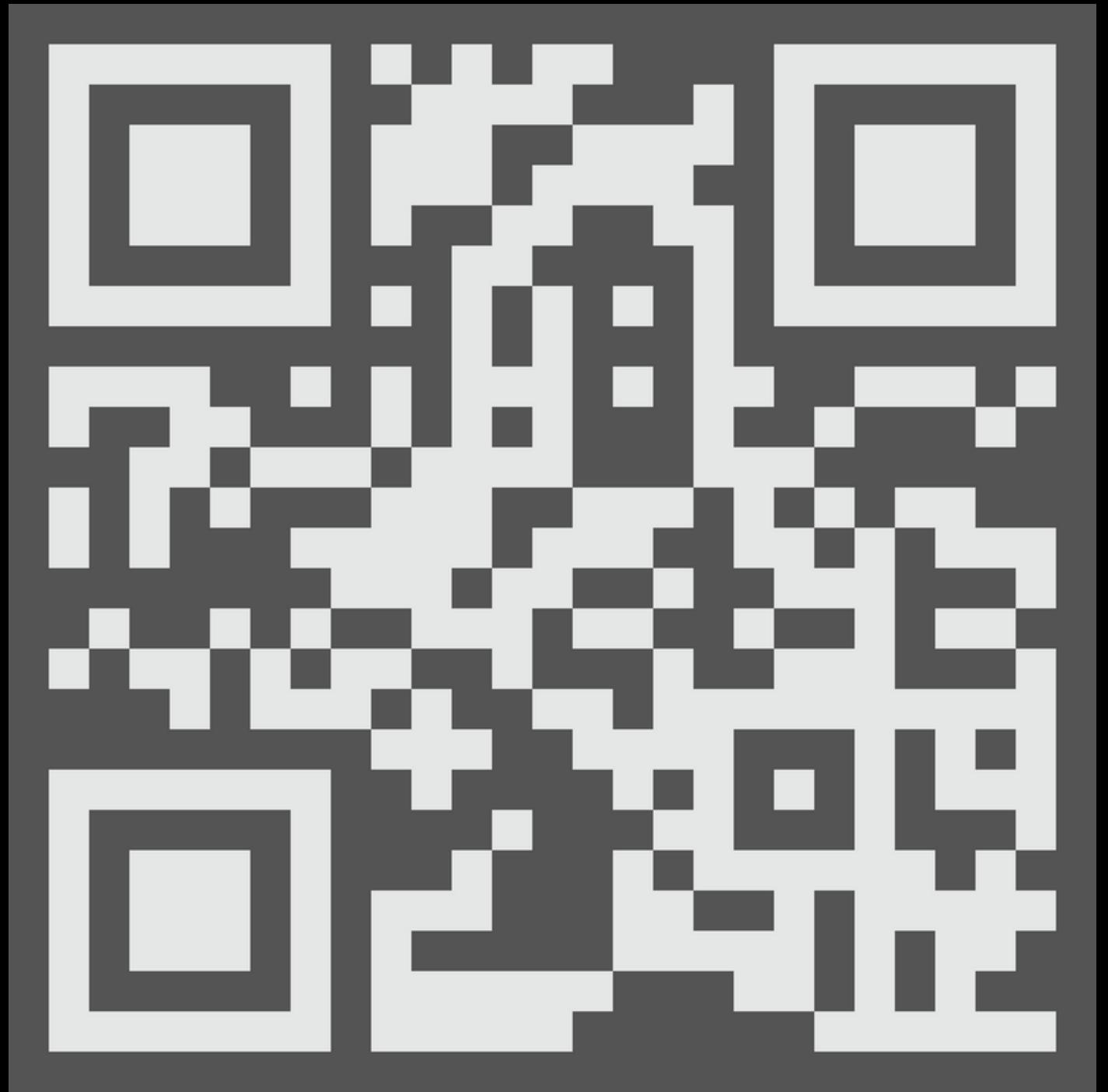
A GOOD LINUX USER



SETTING UP

DC++





<https://bit.ly/dc-setup>:

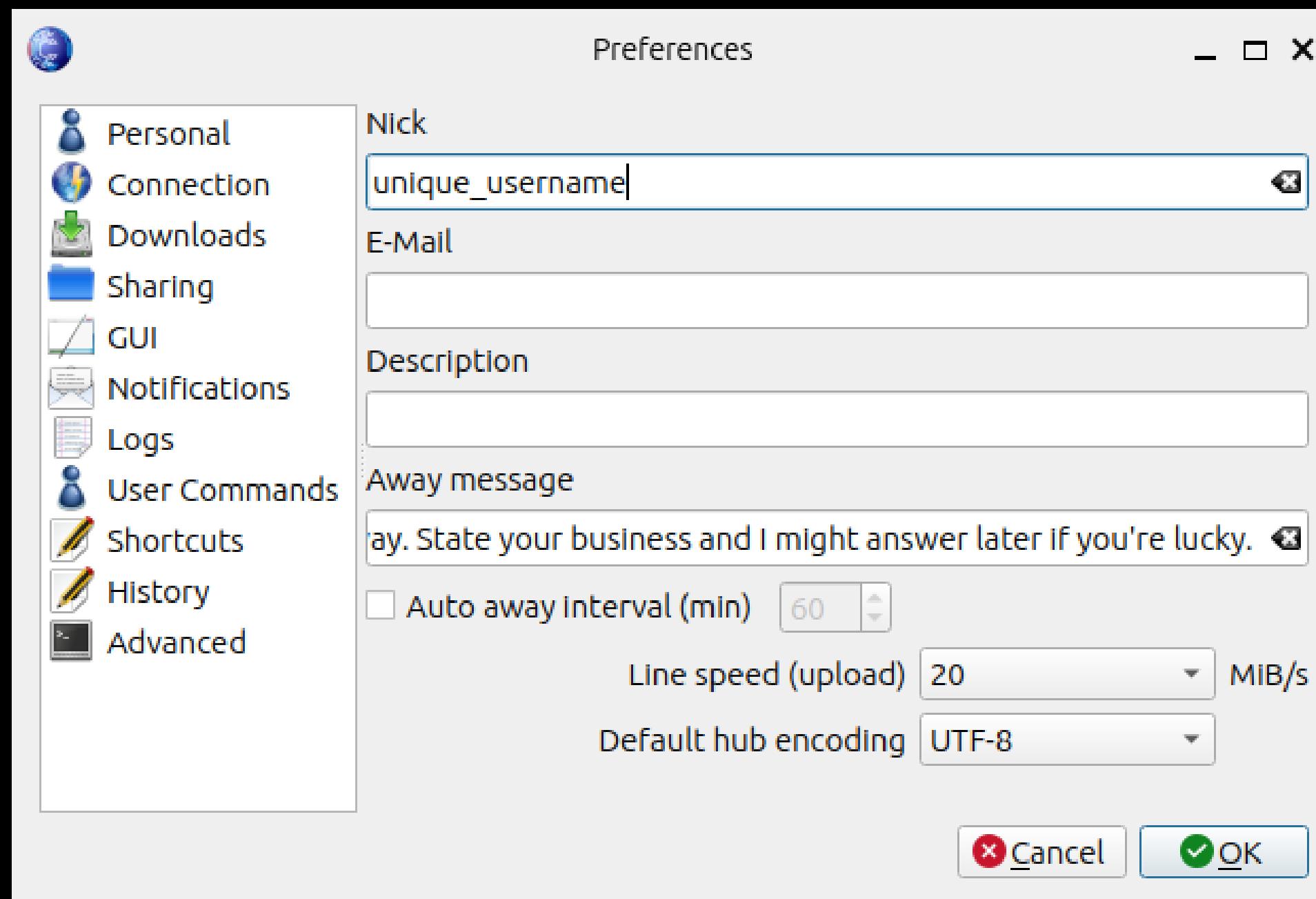
1. INSTALLING THE CLIENT



```
sudo apt install eiskaltdcpp
```

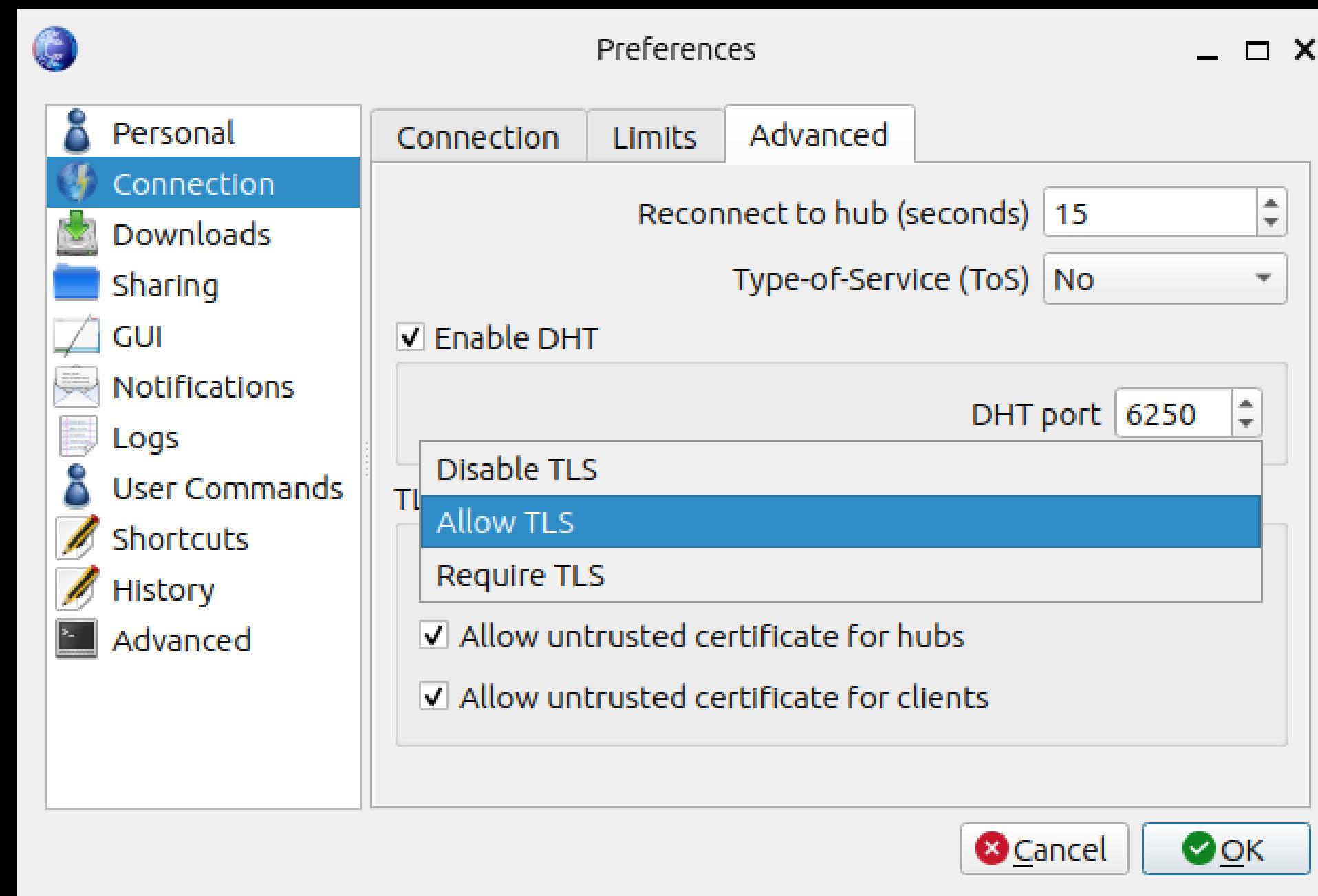
2. CONFIGURING THE CLIENT

- i) Ctrl + O > Preferences
- ii) Personal > Set a unique Nick



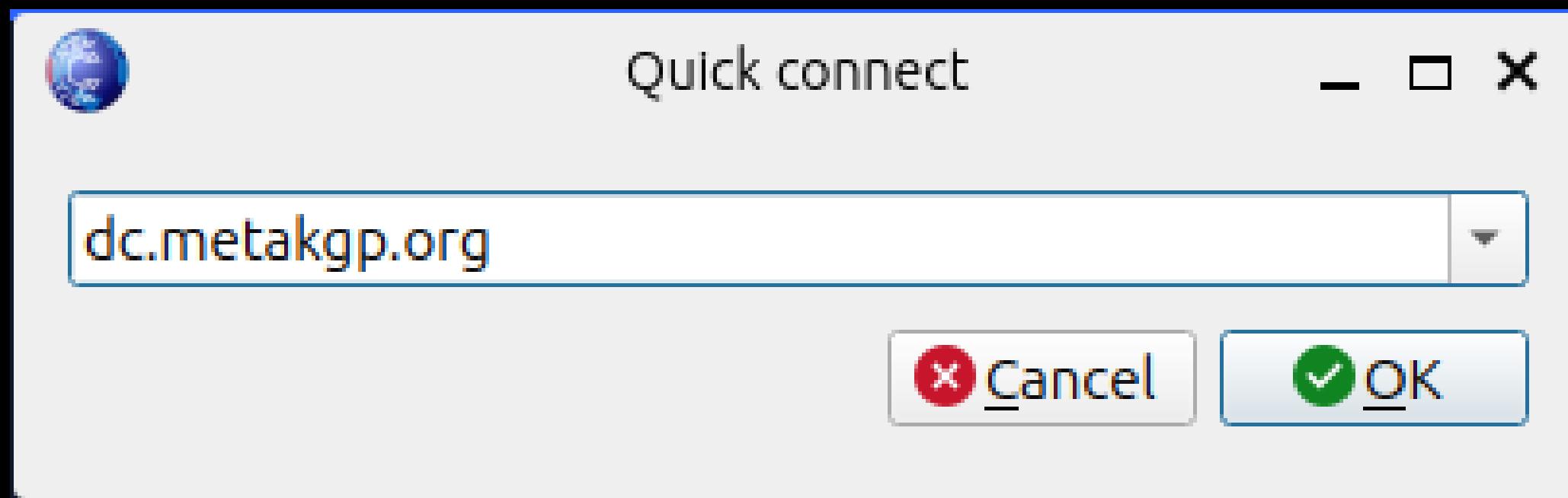
2. CONFIGURING THE CLIENT

iii) Connection > Advanced >
TLS Settings > Allow TLS



2. CONFIGURING THE CLIENT

- iv) Ctrl + N > Quick Connect
- v) Enter domain for MetaHub





DOUBTS?



WE WANT YOUR FEEDBACK



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