Linux Fundamentals

What you need to know

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Key Topics:

- Linux Overview
- Why should I care ?
- Shell
- GUI vs Shell
- Commands
- Before I use section
- Fun exercise
- How to get Linux ?

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What is Linux?

Linux is:

- An **open source kernel (Based on UNIX)** created by Linus Torvalds and was released in 1991.
  - Free, *reliable*, fast and easy to use are just some words commonly associated with the Linux kernel.

IMPORTANT : "Linux" is the kernel itself, not the operating system as a whole.

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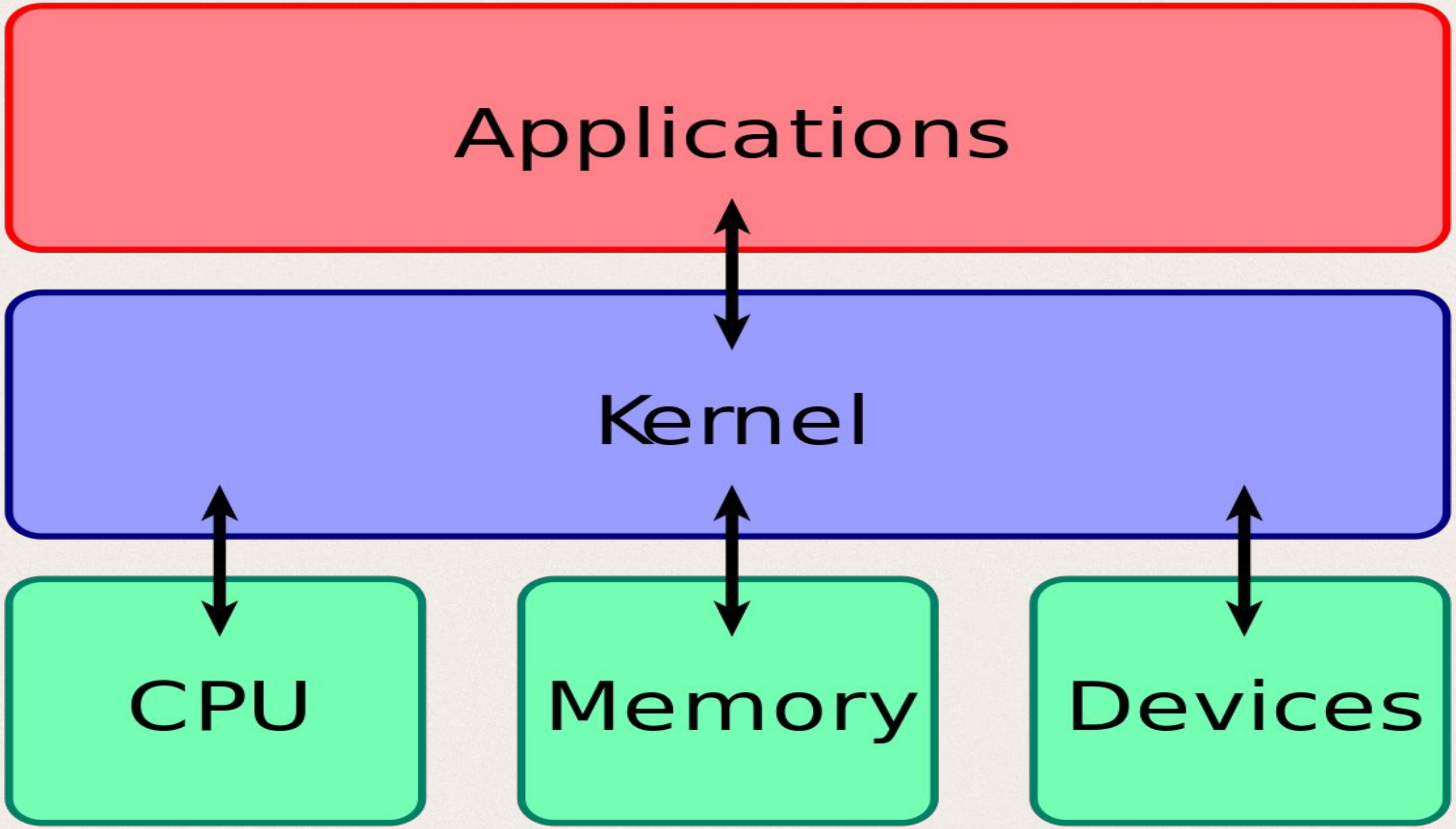

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Why should I care?

It’s used everywhere!

It’s free.

Examples:

- Servers
- Mainframes
- **Computers**
- Embedded Systems

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What OS's use Linux?

Lots...

Arch Linux, CentOS, Debian, Raspbian, Fedora, Ubuntu and OpenSuse.

Since all of these **distro's** use the Linux kernel...

Everything you learn here today is applicable to any of these.

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Shell

What is a shell?

In simple terms, It’s a programmers way of directly interacting with the operating system.

The shell takes commands from us (the user) and passes them to the operating system to perform

GUI vs Shell

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Commands

man [command]

ls [options] [file]

cd [directory]

touch [filename.filetype]

cat [filename]

vim/nano/gedit(subl) [filename]

mkdir/rm("dir"(-r)) [directoryName]

cp [source(file/directory)] [destination(directory)]

echo [string]

which [executeableName]

chmod [oct|oct|oct] [file/directory]

chown [userName] [file/directory]

sudo apt

https://explainshell.com/

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Before you use:

- Linux won’t fight you when you try to break it -> sudo rm -rf /*
- Some distros come bare boned and allow the user to build the distro to their liking
- Linux comes pre packed with all your programming needs, the Yoda for the aspiring programmer
- The terminal makes you look like you’re in a movie scene hacking the pentagon

^ it doesn’t really but I still pretend

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Exercise time !!

- Connor made this fun exercise, it still doesn’t make up for using an extra n for his name.
- Log into Linux on a computer and get ready to use the force of the terminal.

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New to Linux exercise:

- This exercise will be a nice time to use them new commands you’ve just learned

- We are going to make a new directory called ‘LinuxTalk’, make a file inside that directory called ‘firstfile.txt, add text to the file and print the files contents to our screen. All from within the terminal !

- Higher difficulty exercise to follow !

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More eventful exercise

Sign into Redbrick:

ssh ‘yourUserName’@redbrick.dcu.ie

cp /home/committe/mulreac/talks/file.txt ~/file.txt

How do I get/use Linux ?

- Download your desired distro.
- You now have options:

1. Join the dark side and nuke your HDD and let Linux run wild.
2. Use a VM on your existing OS
3. Dual boot, use your pre-installed OS and linux side by side

We will be running an event shortly covering all of the above.

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Thank You !

Your Linux powers have doubled (hopefully)

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Commands

man [command]

ls [options] [file]

cd [directory]

touch [filename.filetype]

cat [filename]

vim/nano/gedit(subl) [filename]

mkdir

rmdir [directoryName]

cp [source(file/directory)] [destination(directory)]

echo [string]

which [executeableName]

chmod [oct|oct|oct] [file/directory]

chown [userName] [file/directory]

sudo apt

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InstallFest

- Welcome to the Redbrick (or deadbrick for the halloween spirit) Helpdesk talk/Installfest

- At the end of this everyone will have a working install of Ubuntu 18.04 on their machine whether it be a VM or a dual boot

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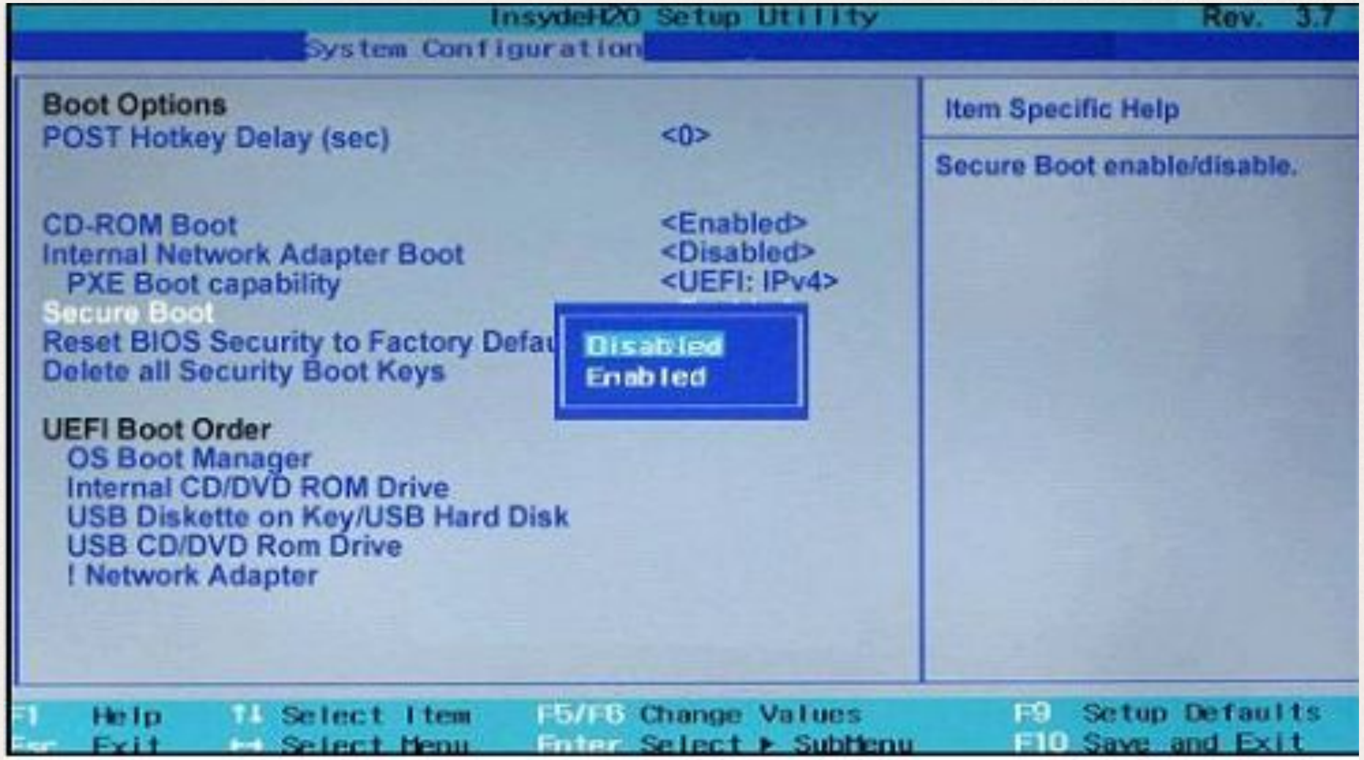
Straight to the point

- Firstly we need to ensure secure boot is turned off in your BIOS
- Turn your laptop off
- Continuously press F2, F10 OR F12 as your machine turns on and you will be brought to the BIOS screen
- Navigate to system configuration and from there ensure that secure boot is disabled.
- Secure boot will prevent us booting from our USB so its essential it is disabled.
- Example on next slide.



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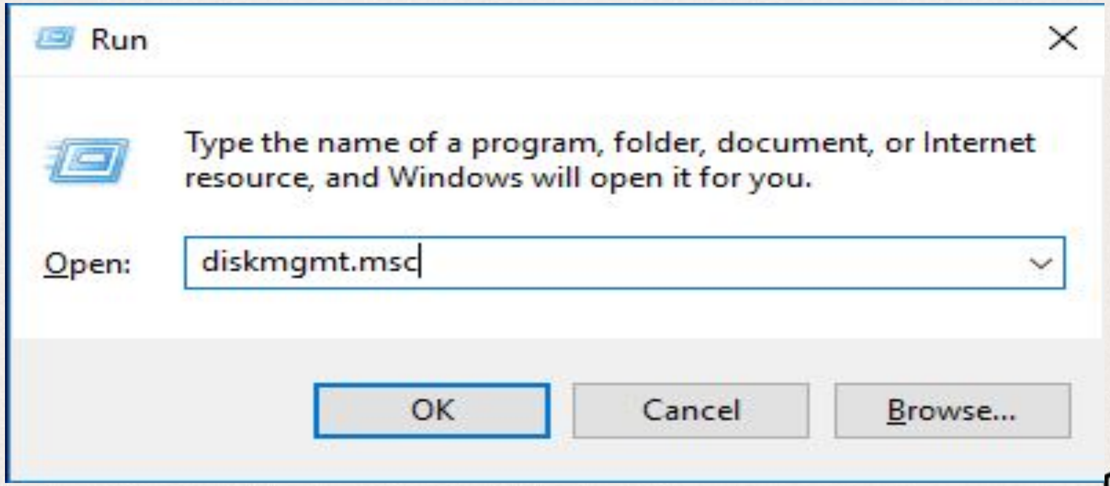
Disable Fast Start-up

- Next we will disable fast start-up
- Search for and open “Power Options” in the start menu
- On the right hand side, select “Additional Power Settings”
- Select “Choose what the power buttons do”
- Select “Change settings that are currently unavailable”
- Under shutdown settings, ensure “Fast Startup is not ticked”

Partitioning

- Next we need to allocate HDD space to install our Distro onto
- Press Win (windows logo on your keyboard) and r (Win + r)
- A run dialog will be opened into which you will type (without the quotes) “diskmgmt.msc” and press enter



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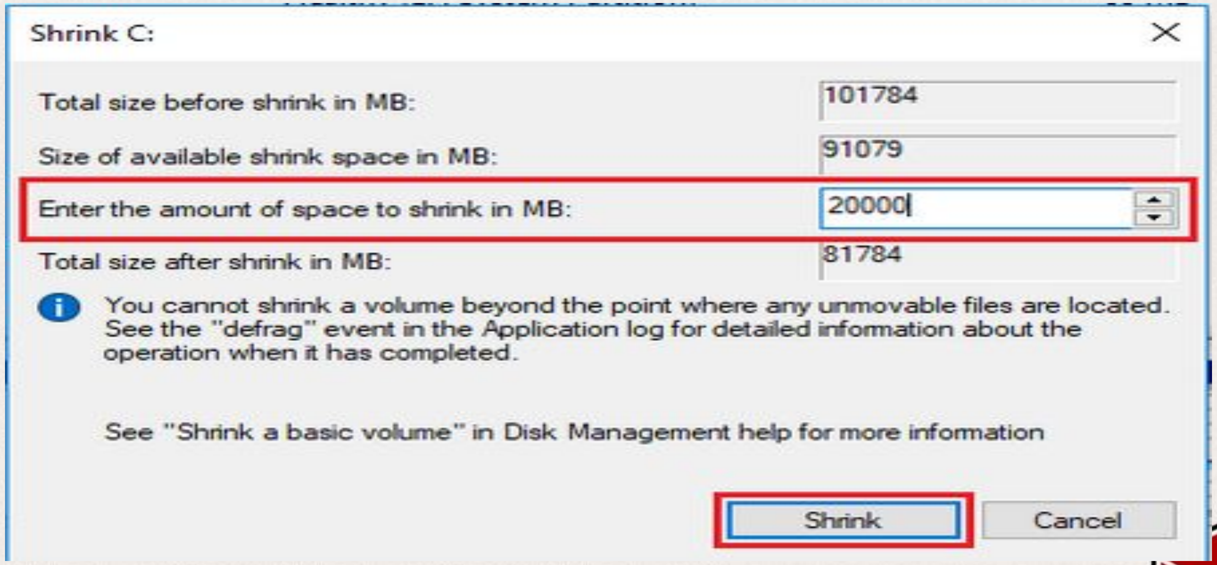
Partition continued

- Right-click on your "(C:)" partition and select "Shrink Volume"
- We will allocate 30gb to our new install as this allows for freedom to install programmes if needs be



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Booting from our USB

- The next step requires patience
- Determine what key you need to press to change the boot order of your machine on start up. (usually F2, F10 OR F12)(Google search should be fruitful).
- Once you have determined this, power off your machine and insert the USB
- Power the machine back on and continously press the needed key. When the options appear select USB. We will be walking around to help with this step.

The install

- Once the boot order will has been selected you will be greeted with the below screen. Wait !! Let others catch up if needs be.

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Easy Sailing

- Obviously we want to install Ubuntu on our system, so select the install Ubuntu option.

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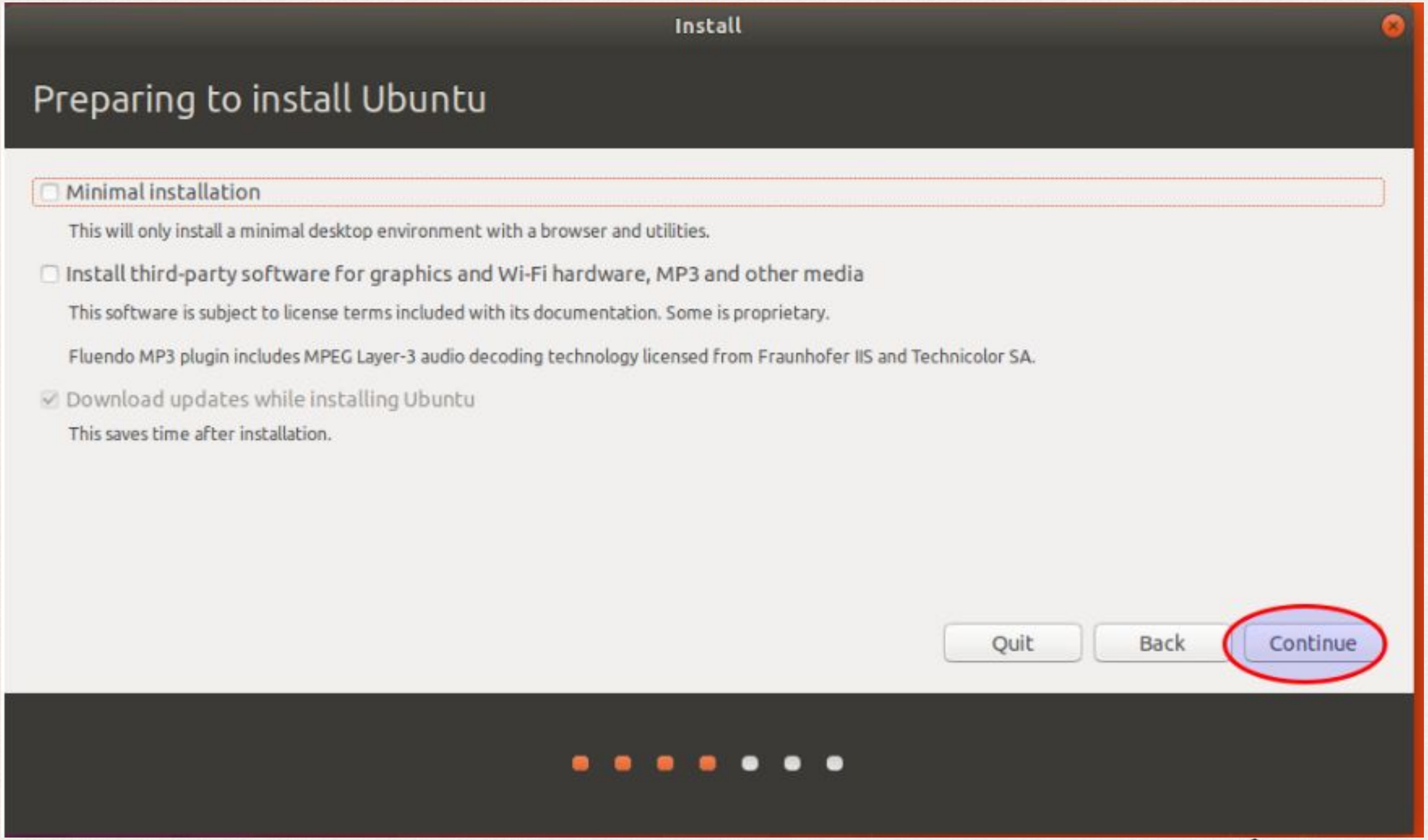
Continued

- After selecting install, choose your language preference and time zone.
- Select your keyboard layout also.
- Wait at the “Preparing to install Ubuntu” screen.



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Installing

- Select "Install third-party…"
- After you have selected this wait on the following screen.

- Select “Install alongside Windows Bootloader”
- You will then be asked onto what partition you wish to install, wait here and we will go around and make sure Ubuntu installs in the correct place. If you continue(without us) be extremely careful as you could overwrite your entire Windows install

Install- Nearing end

- From here on in follow on screen instructions, we will be walking around to help but your install is practically complete.

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