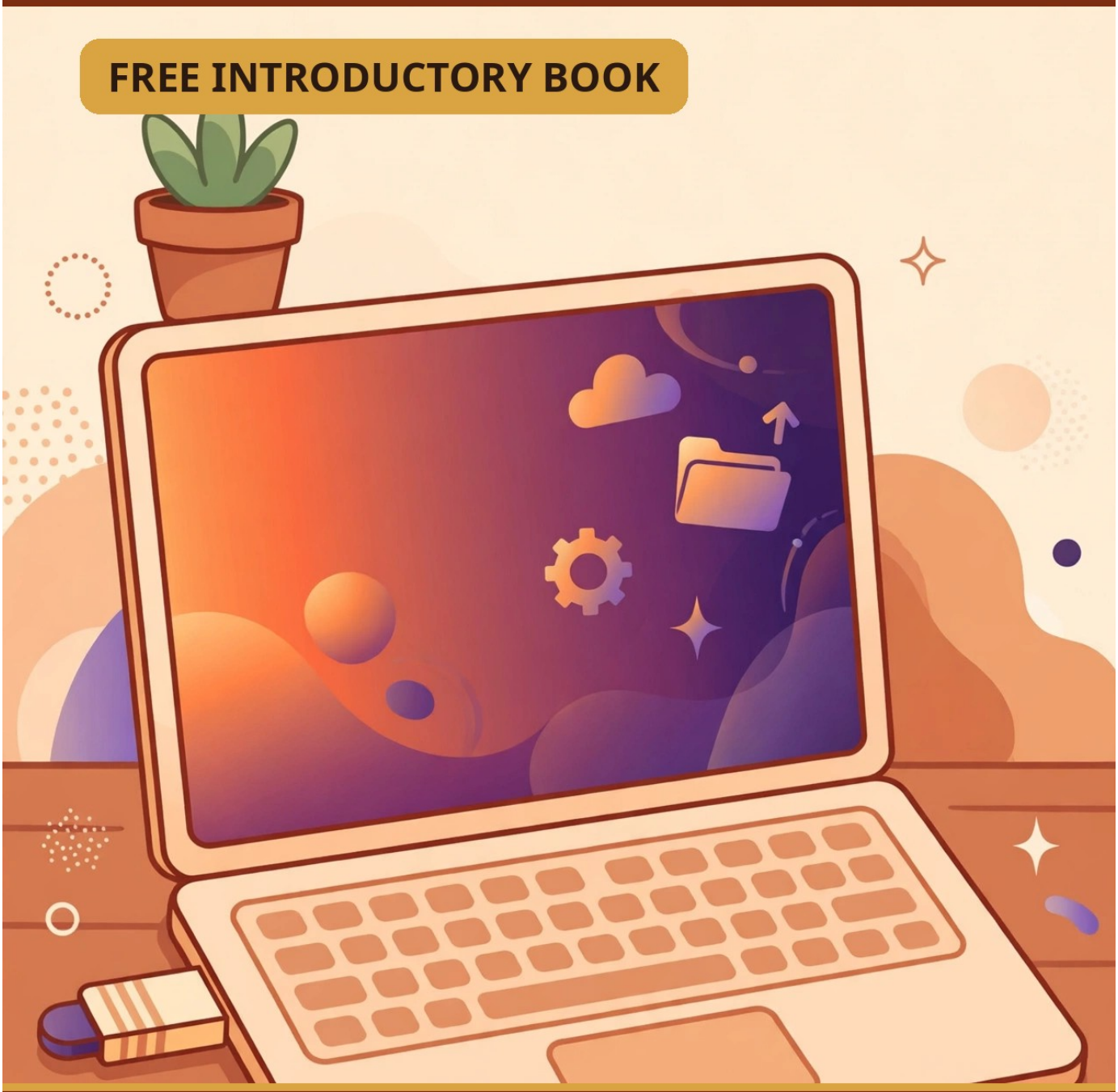
BRIAN COMPUTER INSTITUTE · BOOK SERIES

FREE INTRODUCTORY BOOK



Installing Ubuntu

A Beginner's Practical Guide — Ubuntu 24.04 LTS

Imprint

Installing Ubuntu — A Beginner's Practical Guide

A course book of the Brian Computer Institute Book Series · Ubuntu 24.04 LTS

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This guide grows out of the institute's own installation manual, prepared for its classes and published here as a book so that any student can learn the skill. Ubuntu is a trademark of Canonical Ltd.; this book is an independent teaching guide and is not published by, or endorsed by, Canonical. Windows is a trademark of Microsoft. Follow the steps at your own pace, and always back up before you begin — the guide says so at every dangerous step, because it matters every time.

The illustrations in this book are original artwork created for the institute. They are illustrations, not photographs of real people, real machines, or real screens.

About the institute. Brian Computer Online Institute (BRICOI) is an online institute for computing studies based in Yaoundé, Cameroon. Its classes, books, and learning materials are published at bricoi.48hourrfprescue.com.

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Introduction — The Skill of Installing

Welcome to *Installing Ubuntu — A Beginner's Practical Guide*.

Installing an operating system is one of the first true skills of the computing craft. It is the moment a bare machine becomes *your* machine — and the moment a student stops merely using computers and starts commanding them. Ubuntu is the operating system you will meet again and again in computing studies: free, legal to download and share, and the system running most of the world's servers. Learning to install it carefully, without losing anything, is what this guide teaches.

Nothing here is skipped and nothing is assumed. Work through the chapters in order the first time. Afterwards, each chapter stands on its own when you need it again.

What this guide covers:

1. **Before you begin** — what Ubuntu is, which version to take (Ubuntu 24.04 LTS), what a computer needs, and the golden rule: back up first.
2. **Method 1 — Install from a USB drive** — the main road: download the Ubuntu ISO image, verify it, make a bootable USB stick, boot from it, try Ubuntu, then install it step by step.
3. **Method 2 — Downloading from the internet** — getting Ubuntu directly online, Desktop or Server, the truth about the old "mini installer," and installing Ubuntu inside Windows with WSL (Windows Subsystem for Linux).
4. **Method 3 — Ubuntu on a computer that has Windows** — installing *alongside* Windows (dual boot), and the replace-Windows option, with clear warnings about what each one does.
5. **By computer type** — newer UEFI machines and older BIOS machines, low-power and older computers (lighter flavours), and what to do when a machine will not boot from USB.
6. **After installing** — first updates, drivers, Wi-Fi, installing software, and a short troubleshooting list.



A student, a laptop, and a USB stick: everything this guide needs. Illustration.

> **Warning — the one rule above all others.** Installing an operating system can erase a whole disk if you choose the wrong option. Before any install — on any machine, by any method in this guide — **back up everything you cannot afford to lose**. The guide says this again at every dangerous step, because it matters every time.

Chapter 1 — Before You Begin

What Ubuntu is

Ubuntu is a free operating system built on Linux — the same family of software that runs most of the world's servers, and the system you will use throughout your computing studies for programming, networks and systems work. It is made by a company called Canonical and a worldwide community, it costs nothing, and it is completely legal to download, install and share.

An operating system is the software that runs the computer itself — the thing Windows is on most machines you have met. Installing Ubuntu means putting this other system on a machine: beside Windows, instead of Windows, or inside Windows (Method 2's WSL road). This guide covers all three.

Which version to take: Ubuntu 24.04 LTS

Take **Ubuntu 24.04 LTS**. *LTS* means **Long Term Support**: this version receives updates and security fixes for five years (until 2029), so what you learn on it stays true for your whole degree. Newer short-term versions exist, but they are supported for only nine months — they are for experimenting, not for a student's main machine.

Take the **Desktop** image (Method 2 explains the Desktop and Server difference in full). The file you will download is called an **ISO image** — one big file (about 6 GB) that holds the whole installer.

What a computer needs

Part	Ubuntu 24.04 LTS needs	Comfortable
Processor	64-bit (amd64), dual-core, 2 GHz or better	Any modern 64-bit processor
Memory (RAM)	4 GB	8 GB or more
Free disk space	25 GB	50 GB or more
USB stick (for Method 1 and 3)	8 GB or larger	16 GB
Internet	Helpful during install; needed for updates	—

Two honest notes. First, Ubuntu 24.04 is **64-bit only** — a very old 32-bit machine cannot run it (Chapter 5 names lighter options for old machines). Second, these are

the maker's own published requirements; a machine below them may still crawl through the installer, but it will not be a machine you enjoy studying on.

Back up first — always

1. Copy every file you cannot afford to lose — documents, photos, school work — onto something that is *not* the disk you are about to touch: an external drive, another computer, or a cloud account.
2. Check the copy opens. A backup you have never opened is a hope, not a backup.
3. If the machine has Windows and you plan to keep Windows (Method 3), also find or write down your Windows product key if the machine ever had one on a sticker, and your BitLocker recovery key if BitLocker is on (Microsoft account → Devices → BitLocker recovery keys). Method 3 explains why.
4. Plug the computer into power. Never install an operating system on a battery that might die halfway.

> **Note.**

Words used in this guide. *ISO image* — the single downloadable file holding the installer. *Boot* — start the computer from a chosen device (hard disk, or USB stick). *BIOS / UEFI* — the small built-in program that starts the computer before any operating system; UEFI is the modern kind, BIOS the older. *Partition* — a section of a disk that the computer treats as its own space. *Dual boot* — two operating systems on one machine; you choose at startup.

Check Your Understanding — Chapter 1

1. Why does this guide choose Ubuntu 24.04 LTS rather than the newest short-term version?
2. Your computer has 2 GB of RAM and a 32-bit processor. Can it run Ubuntu 24.04 LTS? Why or why not?
3. Name the four things to do before any installation begins.

Chapter 2 — Method 1: Install from a USB Drive

This is the main road, and the one worth learning first: nearly every real installation you will ever do starts this way. Five stages: download, verify, make the stick, boot from it, install.

Stage 1 — Download the Ubuntu ISO image

1. Go to **ubuntu.com** and open **Download → Desktop** (the address is ubuntu.com/download/desktop).
2. Choose **Ubuntu 24.04 LTS** and click Download. One file arrives, named like ubuntu-24.04-desktop-amd64.iso — about 6 GB, so on a slow connection, start it and be patient.
3. Download **only** from ubuntu.com or its official mirrors. An ISO from anywhere else can be damaged — or worse, altered. Stage 2 — Verify the download

A download can be silently damaged. Ubuntu publishes a checksum — a fingerprint of the true file — so you can prove your copy is exact.

1. On the Ubuntu download page (or at releases.ubuntu.com/24.04), open the file SHA256SUMS and find the line for your ISO. It holds a long string of letters and numbers: the expected fingerprint.
2. On **Windows**, open Command Prompt in the folder holding the ISO and run: certutil -hashfile ubuntu-24.04-desktop-amd64.iso SHA256
3. On **Linux**, run: sha256sum ubuntu-24.04-desktop-amd64.iso
4. Compare the result with the published fingerprint, character for character. They must match exactly. If they do not, delete the file and download again — never install from an ISO that failed its check. Stage 3 — Create a bootable USB stick

> **Warning.**

Warning: making the stick **erases everything on the USB stick**. Use a stick with nothing on it that you need.

On Windows, with Rufus (free, from rufus.ie):

1. Plug in the USB stick (8 GB or larger) and open Rufus.
2. Under *Device*, choose your USB stick — check the name and size twice, so you never write to the wrong drive.
3. Under *Boot selection*, click SELECT and choose the Ubuntu ISO.
4. *Partition scheme*: choose **GPT** for a modern UEFI machine, **MBR** for an old BIOS machine (the computer types page tells you how to know which yours is).

5. Click START. If Rufus asks "ISO mode or DD mode", choose the recommended ISO mode. Wait until it says READY, then close Rufus and eject the stick properly.

With balenaEtcher (free, from etcher.balena.io — works on Windows, macOS and Linux):

1. Open Etcher and click *Flash from file* — choose the Ubuntu ISO.
2. Click *Select target* — choose your USB stick, checking the size carefully.
3. Click *Flash!* and wait for it to finish and validate. Etcher checks its own work as it goes. Stage 4 — Boot from the USB stick
4. Plug the stick into the computer you are installing on, and restart it (or switch it on).
5. Immediately tap the machine's **boot menu key** — press it again and again as the machine wakes, until a menu of devices appears. Common keys: F12 (Dell, Lenovo, Acer, Gigabyte), F9 (HP), F8 or Esc (ASUS), F11 (MSI), Esc or F10 (Samsung). If no menu comes, try F2 or Del to enter the BIOS/UEFI settings and set the USB stick first in the boot order. Your maker's support page names your exact key.
6. In the boot menu, choose the USB stick. On a UEFI machine it may appear as "UEFI: <stick name>" — choose that one.
7. **Secure Boot note:** Ubuntu is signed for Secure Boot and normally boots with it switched on — you do not need to turn Secure Boot off. If the machine still refuses the stick, the computer types page lists what to check.
8. A menu appears (GRUB). Choose **Try or Install Ubuntu** and press Enter. Stage 5 — Try Ubuntu, then install
9. Ubuntu starts from the stick. First choose **Try Ubuntu**. The full desktop runs — slowly, because it is running from USB — and *nothing on your hard disk has changed*. Look around. Check the screen, sound, keyboard and Wi-Fi. This is your free inspection.
10. When you are ready, double-click **Install Ubuntu 24.04 LTS** on the desktop (or choose Install at the first screen instead of Try).
11. **Language:** choose your language, then Continue.
12. **Accessibility:** leave as it is unless you need an option there.
13. **Keyboard layout:** choose your keyboard (for example English (US), or French if your keys are French), and test it in the box provided.
14. **Internet:** connect to your Wi-Fi network if you can — the installer can then fetch updates as it works. No connection? You can still install; update later.
15. **Installation type of setup:** choose *Interactive installation*.
16. **Applications:** choose *Default installation* for the essentials, or the fuller selection if the disk has room (it adds the office suite and more). Tick *Download updates while*

installing and *Install third-party software for graphics and Wi-Fi hardware* if they are offered — the second one saves trouble on many laptops.

17. **Disk setup — the careful screen.** Here the installer asks where Ubuntu should live. If this machine is Ubuntu's alone, the choice is *Erase disk and install Ubuntu* — and it means exactly what it says: **everything on the disk is deleted**. If the machine has Windows you want to keep, STOP and follow Method 3 instead, which is written for exactly that. Read the screen slowly; there is no hurry anywhere in this lesson, and least of all here.
18. **Time zone:** choose your city (Yaoundé is under Africa/Douala) or let the map find it.
19. **Your details:** your name, a name for the computer, your username (small letters, no spaces), and a password you will remember — you will type it often; it is the key to administering the machine. Choose whether to log in automatically or require the password; requiring it is the safer habit.
20. Review the summary, click **Install**, and wait. Copying takes from about ten minutes to an hour depending on the machine.
21. When it finishes, click **Restart now**. The machine will tell you to **remove the USB stick** and press Enter. Do exactly that — if the stick stays in, the machine may boot the installer again.
22. Ubuntu starts from the hard disk. Log in with your password. You have installed Ubuntu — now go to After installing for the first updates and checks.

Check Your Understanding — Chapter 2

1. What are the five stages of Method 1?
2. Why verify the download before making the USB stick?
3. What does 'Try Ubuntu' let you do, and why is it wise to use it before installing?

Chapter 3 — Method 2: Downloading from the Internet

Every method in this guide begins with a download, but this method is about the roads where Ubuntu comes to you *directly* — and about knowing exactly what you are downloading.

The official download, and nothing else

Ubuntu lives at **ubuntu.com**. The download pages are ubuntu.com/download/desktop and ubuntu.com/download/server, and the archive of every release is at releases.ubuntu.com. These are the only doors this lesson uses. Search results and video descriptions are full of look-alike download sites; some are merely annoying and some are dangerous. The habit of a careful technician is simple: **the maker's own site, or nothing.**

Desktop or Server?

	Ubuntu Desktop	Ubuntu Server
For	Your own computer — study, programming, daily use	Machines that serve others — websites, files, networks
Screen	Full graphical desktop	Text only, by default — no desktop unless you add one
Take it if	You are learning, and installing on a laptop or desktop	You are setting up a server, or practising server work

For your studies, take **Desktop**. You will meet Server later, in its own time, and much of it will already feel familiar.

The truth about the "mini installer"

Old guides speak of a tiny *mini.iso* — a network installer that downloaded everything as it installed. Be clear about its state today: **Ubuntu retired the mini.iso years ago; there is no mini.iso for 24.04.** What exists now:

- A **netboot** package (a tarball at releases.ubuntu.com) that starts an install over the network — real, but an advanced tool for technicians setting up many machines, not a beginner's road.
- The **Server installer's minimal installation** — install Server and choose the minimised option, and the machine fetches only what it needs. This is the practical "small download, fetch the rest" road that replaced the mini installer.

- And on a Windows computer, **WSL** — below — which downloads Ubuntu from the Microsoft Store and installs it in minutes, without any USB stick at all.

So: if a tutorial tells you to download a mini.iso for Ubuntu 24.04, the tutorial is out of date. Now you know more than it does.

Installing Ubuntu inside Windows: WSL

WSL (Windows Subsystem for Linux) is Microsoft's own system for running Linux inside Windows. Ubuntu installed this way is a real Ubuntu — its terminal, its tools, its package system — living inside your Windows machine. It is the fastest way to start learning Linux commands on a Windows computer, and for much programming study it is enough. Its honest limit: it is not a full separate installation — there is no Ubuntu desktop of its own by default (though graphical Linux apps can run), and Windows stays in charge of the machine. For the full system, use Method 1 or 3.

What you need: Windows 11, or Windows 10 version 2004 or later (build 19041 or later). Check yours at Settings → System → About.

1. Open **PowerShell as Administrator**: right-click the Start button → Terminal (Admin) or Windows PowerShell (Admin) → Yes.
2. Run: wsl --install This switches on the Windows features WSL needs and downloads and installs Ubuntu (the default distribution) in one go.
3. To name the version yourself, run instead: wsl --install -d Ubuntu-24.04 (To see every distribution on offer: wsl --list --online.)
4. **Restart Windows** when it asks.
5. After the restart, Ubuntu opens by itself and finishes setting up. It asks for a **UNIX username and password** — choose them and remember the password; you will type it whenever you use sudo. Nothing shows on screen as you type the password — that is normal; it is still being received.
6. You are in Ubuntu. Prove it: lsb_release -a It answers with Ubuntu 24.04. Then update it: sudo apt update && sudo apt upgrade
7. From now on, open Ubuntu any time from the Start menu, or by typing ubuntu or wsl in a terminal.

The Microsoft Store road (the same thing, by clicks): open the Microsoft Store, search **Ubuntu 24.04 LTS**, click Get, then Launch, and do step 5–6 above. If WSL was never switched on, the Store app will tell you and point you to the wsl --install command — do that first, restart, then launch.

> **Note.**

If wsl --install fails with a message about virtualization: the machine's virtualization switch is off in its BIOS/UEFI settings. Restart, enter the settings (usually

F2 or Del at startup), find *Virtualization Technology* (Intel VT-x or AMD-V) and enable it, save and exit, then try again. The computer types page explains BIOS/UEFI settings in more depth.

Check Your Understanding — Chapter 3

1. From which website alone should the Ubuntu ISO be downloaded?
2. What is WSL, and on what kind of computer is it the right road?
3. What is the honest truth this chapter tells about the old 'mini installer'?

Chapter 4 — Method 3: Ubuntu on a Computer That Has Windows

Most student machines already run Windows, and most students cannot simply throw Windows away — family, school software, or a course may still need it. This method gives one machine **both** systems. It also describes the other choice — replacing Windows entirely — with its warning stated plainly.

First, prepare Windows (do not skip this)

1. **Back up.** The whole of the Before you begin backup — files copied off this disk and checked. Dual boot is safe when it is prepared and dangerous when it is rushed; the difference is mostly this step.
2. **Make free space.** In Windows, open **Disk Management** (right-click Start → Disk Management). Right-click the Windows partition (usually C:) → **Shrink Volume**. Shrink it by at least 25,000 MB (25 GB); 50,000 MB or more is better if the disk allows. The space becomes *Unallocated* — leave it exactly like that. Do not create a new partition in it; the Ubuntu installer will use the free space itself.
3. **Turn off Fast Startup.** Control Panel → Power Options → *Choose what the power buttons do* → *Change settings that are currently unavailable* → untick *Turn on fast startup* → Save. Fast Startup leaves the Windows disk half-asleep, and Ubuntu must not touch a sleeping disk.
4. **BitLocker:** if your Windows drive is encrypted with BitLocker (Settings → Privacy & security → Device encryption, or Control Panel → BitLocker), save its recovery key somewhere safe before you begin. Ubuntu's installer may refuse the alongside option while BitLocker is on, and tell you to turn it off in Windows first — if it does, that is the correct road: turn it off in Windows, let Windows finish decrypting, then return here.
5. Plug into power. Install alongside Windows (dual boot)
6. Make your bootable USB stick and boot from it — Method 1, Stages 1–4 — and start the installer (Stage 5, steps 1–8: language, keyboard, internet, setup choices).
7. At the **Disk setup** screen, choose **Install Ubuntu alongside Windows Boot Manager**. This option appears only because the installer found both Windows and your free space — if it is missing, go back and check the preparation steps above, especially the shrink.
8. The installer shows a slider: how much of the free space Ubuntu takes and how much stays free. Give Ubuntu at least 25 GB. Check the picture carefully — it is showing you your real disk.

9. Continue with time zone and your details, exactly as in Method 1, Stage 5, steps 10–11.
10. Click **Install** and wait. When it finishes, restart and remove the USB stick when told, and press Enter.
11. **The new startup:** before either system loads, a menu appears (it is called GRUB). It lists *Ubuntu* and *Windows Boot Manager*. Use the arrow keys and Enter to choose. Do nothing, and Ubuntu starts by itself after a few seconds. That menu, every startup, is dual boot working as it should.

> **Note.**

One small dual-boot oddity, so it never worries you: Windows keeps the clock as local time and Ubuntu as UTC, so after using one system the other may show the time a few hours off until it next syncs. It harms nothing. If it annoys you, in Ubuntu run timedatectl set-local-rtc 1 once, and the two will agree.

The other option: replace Windows entirely

> **Warning.**

Warning — read this twice. At the Disk setup screen, *Erase disk and install Ubuntu* **deletes Windows and every file, program and photo on the entire disk**, and gives the whole disk to Ubuntu. There is no undo and no recovery. Choose it only when the machine is truly Ubuntu's alone and your backup — checked, opened, safe on another device — holds everything you need from the Windows years.

If that is genuinely your case, the road is Method 1 exactly: choose *Erase disk and install Ubuntu* at the disk screen and continue. When such a machine restarts, there is no menu — Ubuntu simply starts, because it is the only system there.

And if you are hesitating between the two — hesitate toward dual boot. You can always erase later, in five calm minutes. You can never un-erase.

Check Your Understanding — Chapter 4

1. What is dual boot, and what do you choose at startup?
2. Why does this chapter tell you to shrink the Windows partition from inside Windows first?
3. The replace-Windows option does one irreversible thing. What is it?

Chapter 5 — By Computer Type

Not every machine wakes up the same way. This chapter names the differences that matter, so the machine in front of you never surprises you.

Newer machines: UEFI

Almost every computer made since about 2012 starts by **UEFI** — the modern starter program. Its signs: a settings screen you can click with a mouse, a *Secure Boot* option, and fast startup. To check in Windows: open **System Information** and read *BIOS Mode* — it will say UEFI.

- In Rufus, choose the **GPT** partition scheme for these machines.
- Boot the stick as *UEFI: <stick name>* in the boot menu.
- Leave **Secure Boot on** — Ubuntu is signed for it. One exception: if you later install a driver that is not signed (some NVIDIA and Wi-Fi drivers), Ubuntu will ask you to enrol a key (a "MOK") at the next restart — a blue screen with a short menu. Choose *Enroll MOK*, enter the password you set during the driver install, and continue. It is Ubuntu's own ceremony, not an error. Older machines: BIOS

Older machines start by the legacy **BIOS**: a keyboard-only settings screen, no Secure Boot anywhere. In System Information, BIOS Mode says *Legacy*.

- In Rufus, choose the **MBR** partition scheme.
- There is no boot menu on some of these machines — enter the BIOS settings (F2, Del, or F1) and put USB first in the boot order, then save and exit.
- Give an old machine time. An installer that takes five minutes to appear on a new laptop may take twenty on a machine from another decade. Slowness is not failure. Low-power and older computers: lighter flavours

Ubuntu's standard desktop is beautiful and hungry. For a machine with 2–4 GB of memory, or a processor from long ago, Ubuntu's official **flavours** carry the same Ubuntu underneath with a lighter desktop on top:

** **

Flavour	Desktop	Honest word
Xubuntu	Xfce	Light and complete; the usual first choice for an older laptop. Comfortable from about 2 GB of memory upward.
Lubuntu	LXQt	The lightest of the family; made for reviving genuinely

		old and weak machines.

Both are official (listed at ubuntu.com/flavours), both are installed by exactly Method 1 — only the ISO differs — and both run the same Ubuntu software underneath, so everything you learn on them is real Ubuntu knowledge. What they cannot fix: a 32-bit-only processor. Ubuntu and its flavours are 64-bit only now; a truly 32-bit machine belongs to a different lesson and a different system.

When a machine will not boot from USB

Work this list in order; one of these is nearly always the cause:

1. **Wrong key, or too late.** Restart and tap the boot key from the very first second, again and again. Try the maker's other common key (F12, F9, Esc, F8).
2. **The stick is not in the menu.** Try a different USB port — on older machines, a USB 2.0 port (often black inside, not blue) wakes earlier than the fast ones.
3. **Fast Boot is hiding the menu.** In the BIOS/UEFI settings, disable *Fast Boot* and set USB first in the boot order.
4. **The stick itself is bad.** Test it in another computer. If it boots nowhere, remake it — and this time verify the ISO's fingerprint first (Method 1, Stage 2); a damaged ISO makes a stick that fails in confusing ways.
5. **Secure Boot is objecting.** Ubuntu is signed, so this is rare — but a machine whose Secure Boot keys were changed by a previous owner can refuse. Note exactly what the screen says before changing anything, and restore Secure Boot afterwards if you had to touch it.
6. **The machine is set to the wrong mode.** A stick made GPT/UEFI will not boot a machine forced into Legacy-only mode, and the reverse is also true. Match the stick to the machine (Rufus stage, Method 1) or set the machine's boot mode to match the stick.

Check Your Understanding — Chapter 5

1. What is the difference between UEFI and BIOS machines, in one sentence each?
2. A very old, low-power laptop crawls with Ubuntu 24.04. What does this chapter suggest instead?
3. A machine will not boot from your USB stick. Name two things to try.

Chapter 6 — After Installing

Ubuntu is on the machine. These are the first things a careful technician does, in this order.

1. Update everything
2. Connect to the internet (Wi-Fi menu, top right of the screen).
3. Open **Software Updater** when it offers, and install everything it lists. Or, in a terminal (Ctrl+Alt+T opens one): sudo apt update && sudo apt upgrade
4. Restart if it asks. A fresh system often has a new kernel waiting, and the restart is part of the update. 2. Drivers

Most hardware simply works. For the two usual exceptions — NVIDIA graphics and some Wi-Fi chips — open **Software & Updates → Additional Drivers**. If a proprietary driver is listed for your hardware, select it, apply, and restart. On a UEFI machine with Secure Boot, watch for the MOK enrolment ceremony described on the computer types page.

1. Wi-Fi

- No Wi-Fi networks listed at all? Check the machine's physical wireless switch or Fn key first — the oldest cause in the world.
- Networks listed but yours missing? Restart the router before you blame the computer.
- Wi-Fi hardware not seen at all? Plug in a network cable (or share your phone's connection by USB), run the updates and the Additional Drivers step above — most Wi-Fi chips wake up once their driver arrives. 4. Installing software

Ubuntu's shop is the **App Center** — search, click, install. The same software is available in the terminal with sudo apt install <name>. A full installation already carries a browser (Firefox), an office suite (LibreOffice) and mail (Thunderbird). Programmers usually add a code editor and the build tools:

sudo apt install build-essential git

Install software from the App Center, from apt, or from the maker's own site — the same rule as the ISO: known doors only.

1. Protect the new system

- Open **Backups** (in the applications menu) and set it to keep your home folder on an external drive or network place. You backed up before installing; stay backed up.
- Leave the firewall one command away if you want it on: sudo ufw enable.

- In Settings → Privacy, look at what is offered and choose like an owner, not a guest.

A short troubleshooting list ** **

What you see	What it usually is, and the fix
Black screen, or the machine stops, right after choosing Ubuntu	Graphics trouble on the first boot. At the GRUB menu press e, add nomodeset at the end of the line starting linux, press Ctrl+X to boot, then install the proper driver (step 2 above).
The computer boots straight into Windows; no menu	The boot order puts Windows first. Enter BIOS/UEFI settings and put ubuntu first in the boot order — or use the boot menu key and choose Ubuntu there.
The installer never offered "alongside Windows"	Usually: no free space (do the Disk Management shrink, Method 3), Fast Startup still on, or BitLocker still on. Return to Method 3's preparation, in order.
The clock is wrong by some hours in one system	The dual-boot clock difference — harmless. Fix once with timedatectl set-local-rtc 1 in Ubuntu (Method 3 explains).
No sound	Check the output device in Settings → Sound (HDMI screens often steal it), then restart once after updates.
"No bootable device" after removing the stick	The install did not finish, or the boot order still points at the stick. Reinsert the stick, boot it, and check whether the installer completed; if it did, set the hard disk (or ubuntu) first in the boot order.
Everything is very slow	On a fresh install, give the updates an hour to settle. On an old machine, the honest fix is a lighter flavour — Xubuntu or Lubuntu (computer types page) — not a trick.

> **Note.**

You have finished the guide. You can now take a bare or Windows-carrying computer and put Ubuntu on it three ways, knowing what each choice does before you make it. That is a real technician's skill — and it is yours. Keep this manual; you

will open it again the first time a friend's machine refuses to boot from USB, and you will smile, because you will know the list.

Check Your Understanding — Chapter 6

1. What are the first three things to do in the first hour after installing?
2. Ubuntu boots to a black screen after you chose it at startup. What does the troubleshooting table suggest first?
3. Why should you install updates before installing your everyday software?

Your Next Steps

You can now take a bare computer, or a computer carrying Windows, and put Ubuntu on it three ways — from a USB stick, from the internet, and alongside Windows — and you know what to do in the first hour after it wakes.

Skills harden by use. If you can, practice once more on a spare or old machine, from the beginning, without hurrying: download, verify, make the stick, boot, install, update. The second time is when the steps become yours.

At Brian Computer Online Institute, this guide is the companion to the institute's computing classes, where the same installation is taught with a teacher's guidance and exercises. The companion course book, *Computing Foundations*, gives the ground this guide stands on; the workbooks *How Computers Are Made* open the machine itself. All of them live at bricoi.48hourrfprescue.com.

Welcome to the craft. Install carefully, back up always, and teach what you learn.

Answers to the Chapter Checks

Chapter 1. 1) LTS means Long Term Support: 24.04 receives updates and security fixes for five years (until 2029), while short-term versions are supported for only nine months. 2) No — Ubuntu 24.04 is 64-bit only and needs at least 4 GB of RAM; Chapter 5 names lighter flavours for such machines. 3) Back up everything you cannot afford to lose (and check the copy opens); find the Windows and BitLocker keys if Windows is staying; plug the computer into power.

Chapter 2. 1) Download, verify, make the stick, boot from it, install. 2) A download can be silently damaged or altered; the published checksum proves your copy is exact before you trust it with a whole disk. 3) It runs Ubuntu from the USB stick without touching the disk — so you can confirm the machine and Ubuntu agree with each other before anything is changed.

Chapter 3. 1) ubuntu.com (or its official mirrors) only. 2) WSL — Windows Subsystem for Linux — runs Ubuntu inside Windows; it is the right road when the computer must stay a Windows machine but you need Ubuntu's tools. 3) That Ubuntu retired the mini.iso years ago — there is no mini.iso for 24.04, and tutorials offering one are out of date. What exists now: a netboot package for technicians, the Server installer's minimal installation (the practical "small download, fetch the rest" road), and WSL on Windows.

Chapter 4. 1) Two operating systems on one machine; at startup you choose which one wakes. 2) Because Windows knows its own partition best — shrinking from inside Windows avoids corrupting it, and the installer then finds ready free space. 3) It erases the entire disk: Windows, its programs, and every file on it are gone for good.

Chapter 5. 1) UEFI is the modern built-in starter program with a settings screen and Secure Boot; BIOS is the older, plainer one. 2) A lighter official flavour such as Xubuntu or Lubuntu, installed by exactly Method 1. 3) Any two of: try another USB port or stick; check the boot menu key and press it earlier; turn off Fast Boot / check Secure Boot notes in Chapter 2; re-make the stick with the other partition scheme (GPT/MBR) for the machine's kind.

Chapter 6. 1) Connect to the internet, install all updates, and check drivers (Software & Updates → Additional Drivers). 2) Follow the table: it is usually graphics trouble on the first boot — at the GRUB menu press e, add nomodeset at the end of the line starting with "linux", boot, then install the proper driver (Software & Updates → Additional Drivers). 3) Because updates repair the system and its software sources first, so the software you add lands on a sound, current foundation.

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Computing Foundations — A Beginner's Course in How Computers Work (Course Book 1) · *Installing Ubuntu — A Beginner's Practical Guide* (free introductory book — this book) · *How Computers Are Made — Workbook One: Inside the Computer* (free introductory workbook) · *How Computers Are Made — Workbook Two: From Factory to Desk*

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