Canonical

Ubuntu Core

The embedded Linux OS for devices

Ubuntu Core is an immutable version of Ubuntu optimised for IoT and edge embedded systems.

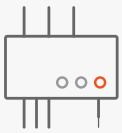
While Ubuntu Desktop is your development station, Ubuntu Core is your operating system for deploying final applications, shipping only the packages and binaries you need.

Secure by design, Ubuntu Core is a containerised OS built on snaps. With snaps, each layer of the system benefits from security, immutability, modularity and composability. Each layer is updated independently over-the-air through deltas that automatically roll-back in case of failure.

Canonical supports Ubuntu Core long-term, delivering kernel patches and bug fixes continuously for up to 12 years.

Designed for Devices

Optimised size & modern containerised architecture



Thriving Ecosystem

Include silicon, development boards & Edge Gateways

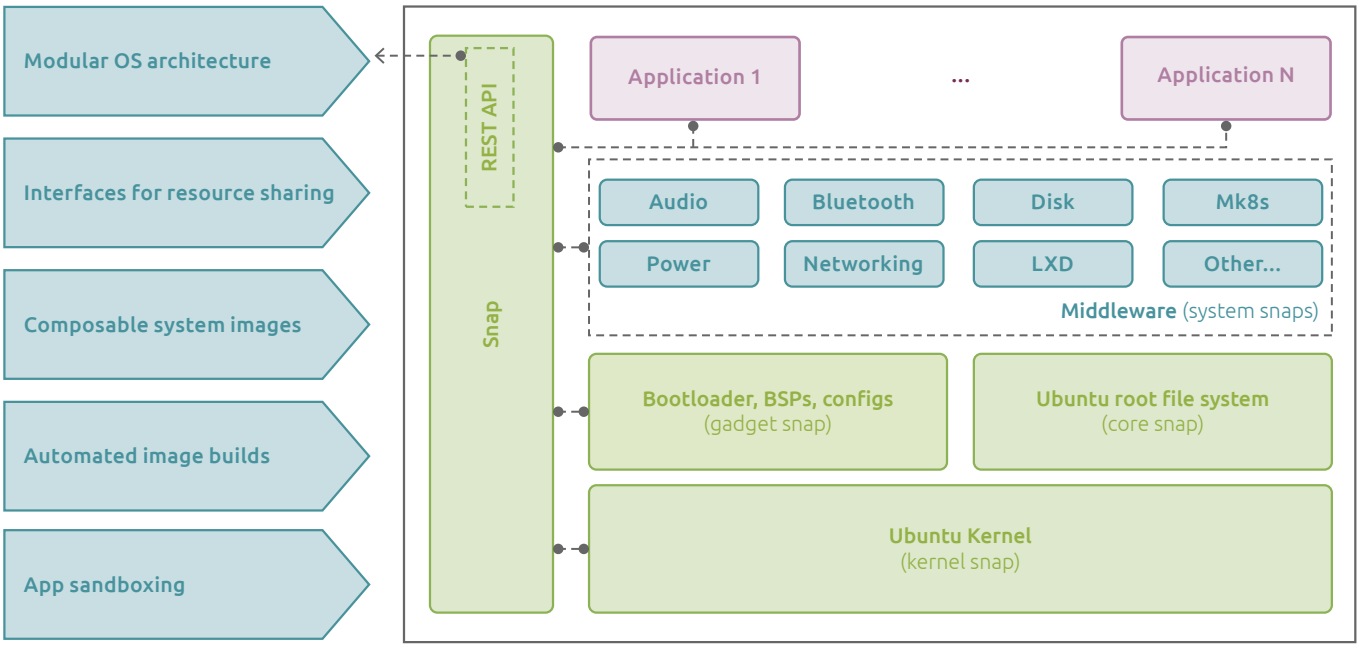
Reduced Time to Market

Pre-integrating building blocks of OS, Security, OTA & apps on popular hardware

Ultra Secure

Advanced security features available out of the box

Immutable and containerised Ubuntu for embedded Linux



Create custom Ubuntu Core images to power smart devices with these components:

Snapd

System daemon exposing a REST API that facilitates device management.

Application snaps

Software-defined functionalities of embedded devices.

System snaps

Audio, graphics, storage, networking, virtualisation and other services.

Gadget snap

Hardware-dependent boot assets and configuration files.

Core snaps

Customisable Ubuntu root file systems underlying your apps.

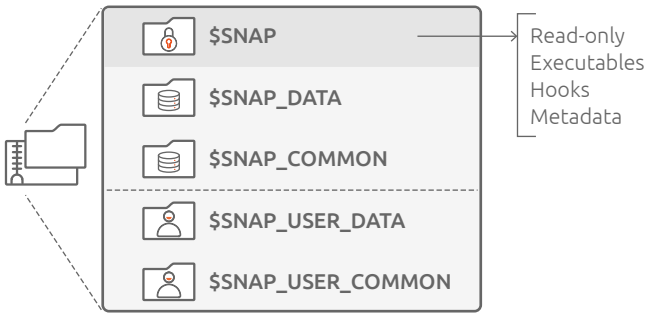
Kernel snap

Kernel image with associated modules, firmware and device tree files.

Advanced security out of the box

Ultra-secure containers

Snaps are immutable. With least privileges by default, it makes it easy to build tamper-proof devices.

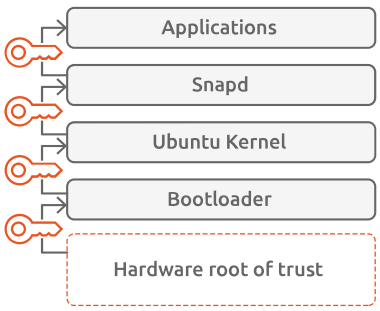


Strict confinement

Kernel-rooted mechanisms stack up to confine applications. Confinement prevents malicious software from spreading.

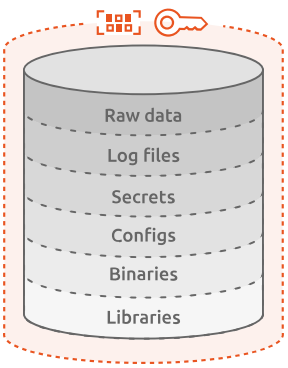
Secure boot

Ubuntu Core solely boots authenticated software. Secure boot ensures the integrity of the software on your devices.



Full disk encryption

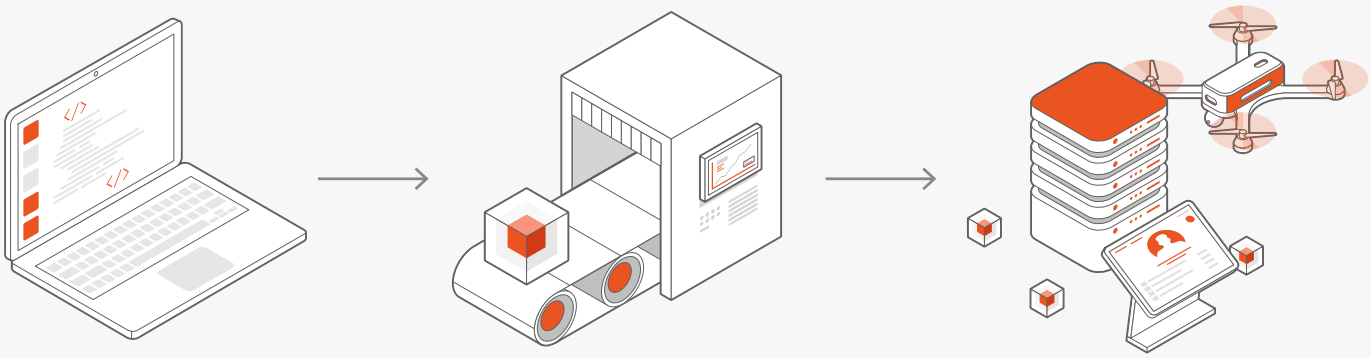
Ubuntu Core protects data integrity at rest with encryption. Encryption guarantees confidentiality and compliance.



Ultra-reliable for maximal uptime

12 years	Canonical releases bug fixes and security updates against emerging CVE threats every 3 weeks for up to 12 years. Kernel patches are applied with minimal downtime.
OTA	Update every piece of Ubuntu Core independently and over-the-air. Updates are atomic and delivered in deltas to your fleet of devices, allowing Ubuntu Core to roll-back automatically in case of failure.
Low-touch	Ubuntu Core has a recovery system to restore devices in the field. Device operators can perform unattended maintenance actions remotely to fix devices.

Productivity for quick time to market



Push new features

Build and upload to the store

Automatically released for your users

Snapcraft

Build toolchain

Snapcraft is the tool for creating Snaps. Ubuntu-image is the tool to generate bootable Ubuntu Core images. They easily integrate into your CI/CD pipeline.

Snap Store

App distribution platform

Your store is the secure repository from where you will release apps to your fleets of devices. Only authorised devices will have access to your applications.

Landscape

Device management

Landscape integration to Ubuntu Core enables secure device management. Authenticated clients can perform software management and configuration tasks remotely.

Key characteristics

Minimum requirements	Minimum 512 MB of RAM Minimum 1 GB of storage amd64, arm64 & armhf, and riscv architectures TPM 2.0 on x86, or OP-TEE on ARM for full disk encryption Supports NVME, SSD, and eMMC storage
Graphical UI stack	Ubuntu Frame
Container runtimes and orchestration	Snapd Docker Azure IoT Edge Kubernetes via Microk8s LXD
Application security	Isolation via AppArmor and Seccomp TPM and TrustZone support Secure boot support Full disk encryption
Updates	Automatic over the air update Atomic updates Roll-backs on failure
CPU support	386 / amd64 / arm64 / risv64
Developer tools	Snapcraft Ubuntu-image
Device management	Landscape for flexible implementations Compatibility with third-party device management solutions
Cloud backend	Private, hosted and managed IoT app store Integration with public and private cloud service providers Connected and air-gap environments

Learn more

Talk to us about using Ubuntu Core for your next project and help us drive you to market quickly with Canonical's IoT Professional Services.

ubuntu.com/core

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