

Ubuntu Core

The embedded Linux OS for devices

- **Ultra Secure:** Advanced security features available out of the box
- **Designed for Devices:** Optimised size & modern containerized architecture
- **Reduced Time to Market:** Pre-integrating building blocks of OS, Security, OTA & apps on popular hardware
- **Thriving Ecosystem:** Include silicon, development boards & Edge Gateways

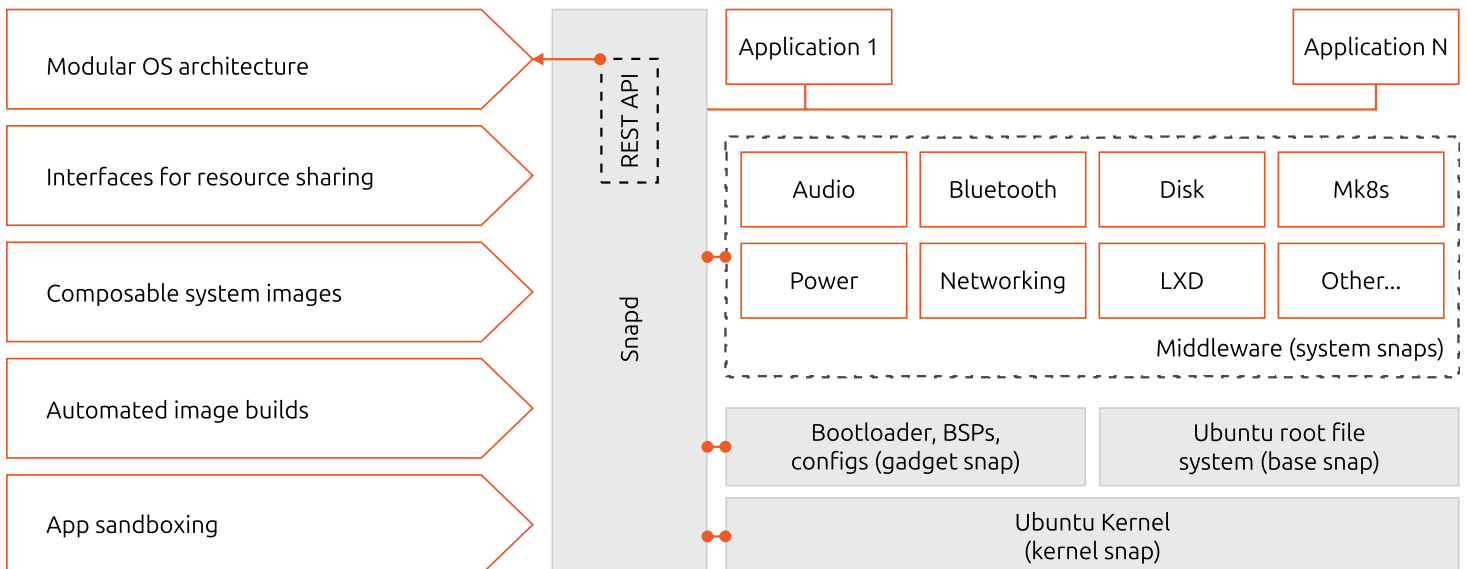
Ubuntu Core is an immutable version of Ubuntu optimized for IoT and edge embedded systems.

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 containerized 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 15 years with your Ubuntu Pro subscription.

Immutable and containerized architecture

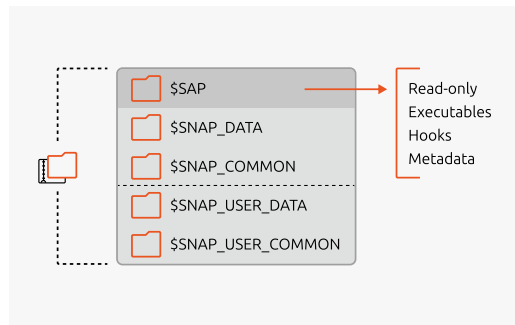


Inside Ubuntu Core

APPLICATION SNAPS	These are your applications or third-party applications running in their own sandboxes. Interfaces to other applications or to the system must be explicitly defined.
SYSTEM SNAPS	These snaps provide additional functionality like audio, graphics, networking, and virtualization services. They are managed as utility tools separate from Core development.
BASE SNAP	The base snap serves as the root file system. These snaps mirror Ubuntu LTS releases; for example, core24 is built from Ubuntu 24.04 LTS, and core26 from Ubuntu 26.04 LTS.
KERNEL SNAP	The kernel snap packages the traditional Ubuntu kernel along with its modules, firmware, and device tree files. Like the base snap, it mirrors the kernel version from the corresponding Ubuntu LTS.
GADGET SNAP	The gadget snap is responsible for defining and manipulating the system properties and device configurations. It also ships the device bootloader and its associated assets.
SNAPD	Snapsd is the system daemon that supervises all other snaps on Ubuntu Core. It exposes a REST API that makes Ubuntu Core appliances IP-addressable by default.

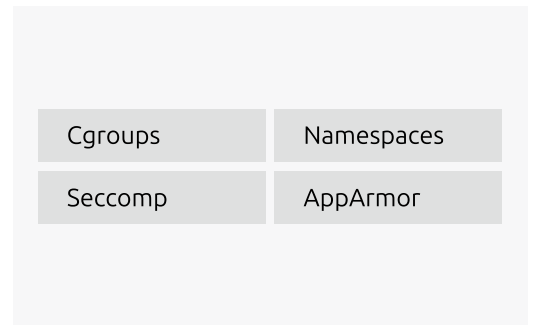
Visit our documentation to see [how these elements combine in Ubuntu Core](#).

Advanced security out of the box



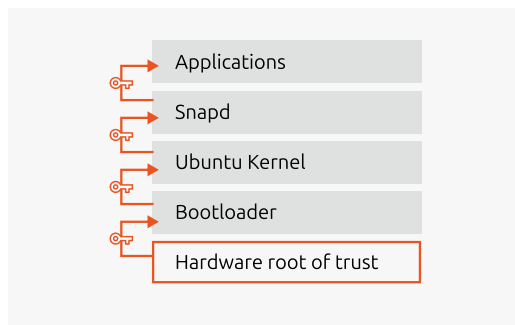
Ultra-secure containers

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



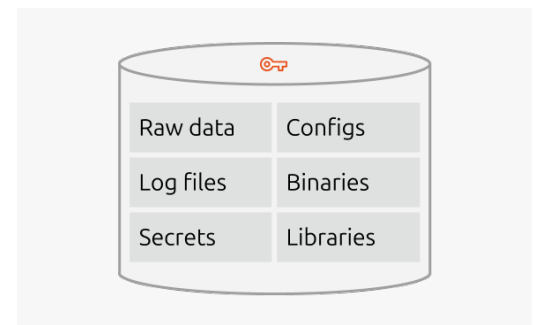
Strict confinement

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 maximum uptime

15 YEARS

Canonical releases bug fixes and security updates against emerging CVE threats every 3 weeks for up to 15 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.

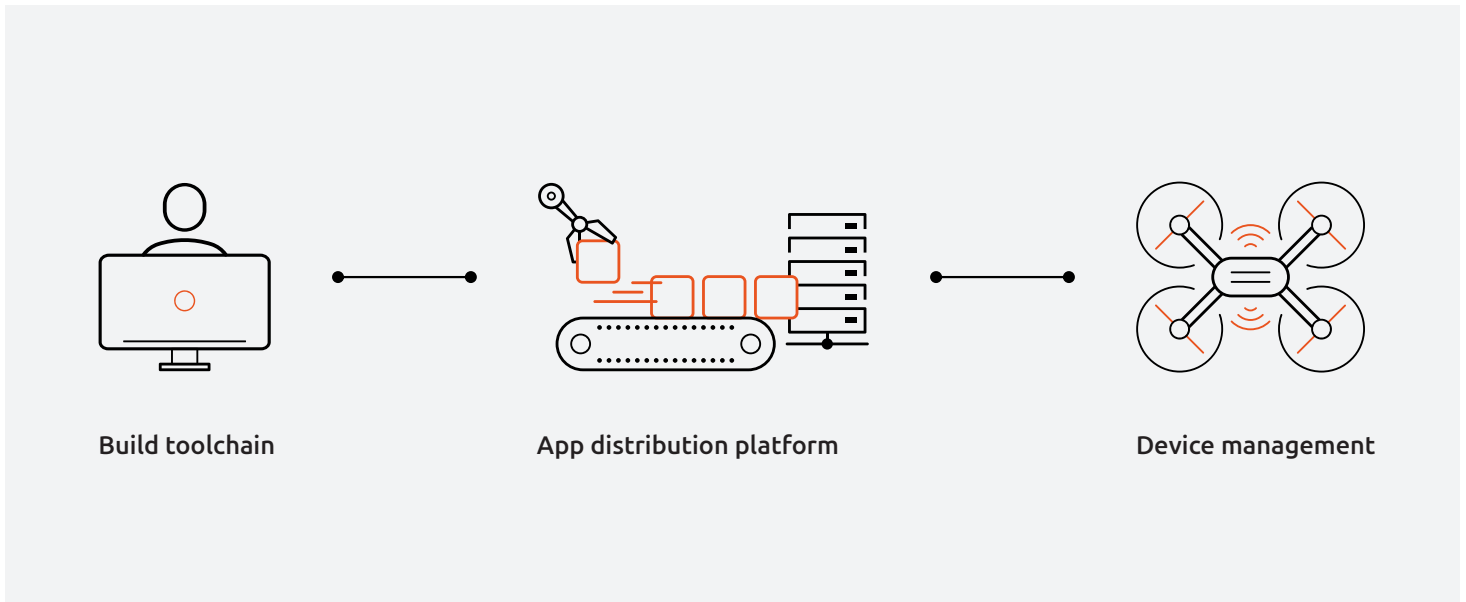
LOW-TOUCH

Ubuntu Core has a recovery system to restore devices in the field. Device operators can perform unattended maintenance actions remotely to fix devices.

CUSTOM IMAGES

Build your Ubuntu Core image for your final device, and enjoy a fully managed, secure, and long-term supported production image.

Productivity for quick time to market



Build toolchain

App distribution platform

Device management

Snapcraft

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

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

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

Key characteristics

Minimum requirements	<ul style="list-style-type: none">• 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	<ul style="list-style-type: none">• Snapd• Docker• Azure IoT Edge• AWS IoT Greengrass• LXD
Application security	<ul style="list-style-type: none">• Isolation via AppArmor and Seccomp• TPM and TrustZone support• Secure boot support• Full disk encryption
Updates	<ul style="list-style-type: none">• Automatic over the air update• Atomic updates• Roll-backs on failure
CPU support	i386 / amd64 / arm64 / riscv64
Developer tools	<ul style="list-style-type: none">• Snapcraft• Ubuntu-image
Device management	<ul style="list-style-type: none">• Landscape for flexible implementations• Compatibility with third-party device management solutions
Cloud backend	<ul style="list-style-type: none">• Private, hosted and managed IoT app store• Integration with public and private cloud service providers• Connected and air-gap environments

Build your Ubuntu Core image today

Talk to us about using Ubuntu Core for your next project and accelerate your market launch through Canonical's IoT Professional Services.



ubuntu.com/core



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