



Ubuntu Core 20

Build secure smart things

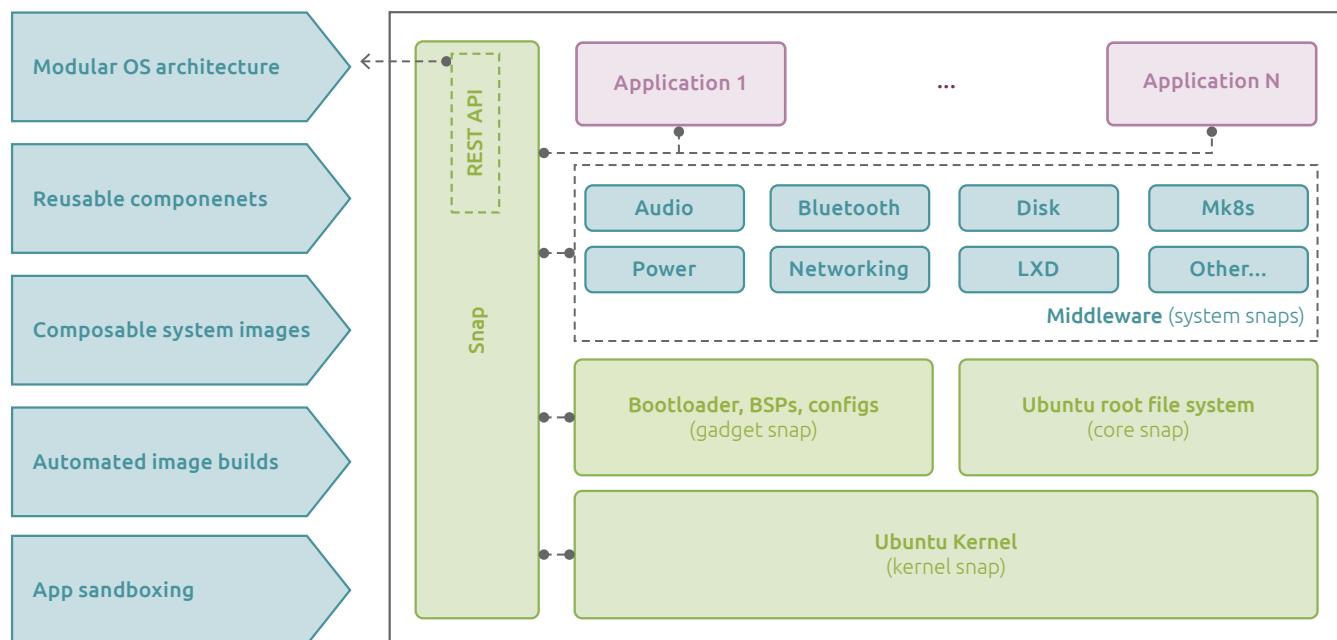
Ubuntu Core is a version of Ubuntu optimised for IoT-native embedded systems. While Ubuntu delivers the latest and greatest open source software for general purpose computing, Ubuntu Core carries only packages and binaries you choose for your single-purpose appliance.



Ubuntu Core is a container OS built on snaps. With snaps, embedded systems benefit from security, immutability, as well as modularity and composability. Software is updated over-the-air through deltas that can automatically roll-back in case of failure.

Canonical supports Ubuntu Core long-term, delivering kernel patches and bug fixes continuously for up to 10 years.

Containerised Ubuntu for embedded Linux



Below are the components which you can use and reuse for composing custom Ubuntu Core images to power smart devices.

Snapd

System daemon exposing a REST API that facilitates device management.

Application snaps

Software-defined functionalities of embedded devices.

System snaps

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

Gadget snap

Containerised hardware-dependant boot assets and configuration files.

Core snaps

Custom or standard Ubuntu root file systems underlying your apps.

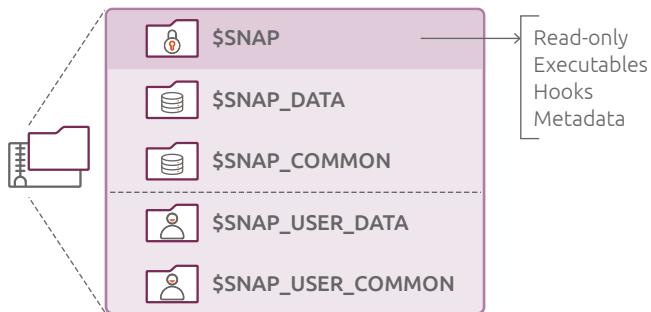
Kernel snap

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

Advanced security out of the box

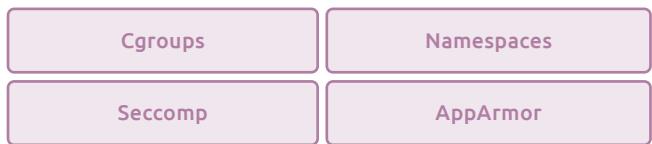
Ultra-secure containers

Snaps are immutable with least privileges by default, which make it easy to build tamper-proof devices.



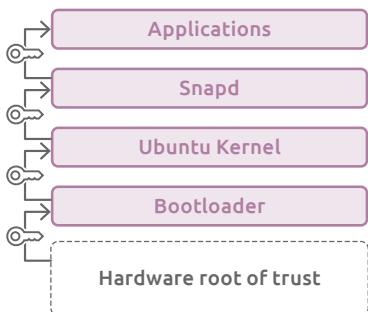
Strict confinement

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



Secure boot

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



Full disk encryption

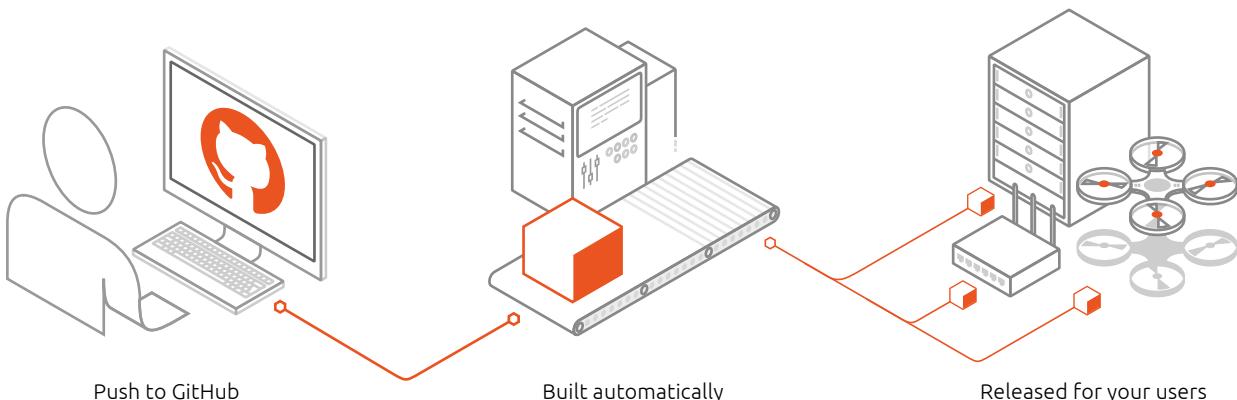
Ubuntu Core protects data integrity at rest with encryption. Encryption guarantees confidentiality and compliance.



Ultra-reliable for maximal uptime

10 years	Canonical releases bug fixes and security updates against emerging CVE threats every 3 weeks for up to 10 years. Kernel patches applied with minimal downtime.
OTA	Update software on your fleet of devices over-the-air. Ubuntu Core rolls-back updates automatically in case of failure. Software updates are atomic and delivered in deltas.
Low-touch	Ubuntu Core comes with a device recovery system to restore devices distributed in the field. Device operators are able to perform unattended maintenance actions to fix faulty devices.

Productivity for quick time to market



IoT app stores



Get an IoT app store for your devices. IoT app stores are private, hosted, and managed cloud backends. Your app store is the secure repository from where you will release apps to fleets of devices.

Device management



Ubuntu Core exposes a built-in REST API for secure device management. Authenticated clients can perform software management and configuration tasks on their Ubuntu Core devices remotely.

Cloud-native toolchain



Snapcraft is the developer tool for embedding apps to Ubuntu Core. Snapcraft easily integrates into your CI/CD pipeline for automated IoT software management.

Key characteristics

Minimum requirements	500 Mhz single core processor 256 MB RAM 512 MB Storage
Graphical UI stack	Wayland/Mir
Container runtimes and orchestration	Snapd Docker, AWS Greengrass, Azure IoT Edge Kubernetes via Microk8s LXD     
Application security	Isolation via AppArmor and Seccomp TPM support Secure boot support Full disk encryption
Updates	Automatic over the air update Atomic updates Roll-backs on failure
CPU support	32 bit / 64 bit, x86 / ARM
Developer tools	Snapcraft
Device management	REST API for flexible implementations Compatibility with third-party device management solutions
Cloud backend	Private, hosted and managed IoT app store Integration with public cloud service providers