

# balenaOS

## [Return to Operating Systems](#)

**BalenaOS** is an operating system optimized for running [Docker](#) containers on embedded devices, with an emphasis on reliability over long periods of operation, as well as a productive developer workflow inspired by the lessons learned while building balena.

The core insight behind balenaOS is that Linux containers offer, for the first time, a practical path to using virtualization on embedded devices. VMs and hypervisors have lead to huge leaps in productivity and automation for cloud deployments, but their abstraction of hardware, as well as their resource overhead and lack of hardware support, means that they are not suitable for embedded scenarios. With OS-level virtualization, as implemented for Linux containers, both those objections are lifted for Linux devices, of which there are many in the [Internet of Things](#).

BalenaOS is an operating system built for easy portability to multiple device types (via the Yocto framework and optimized for Linux containers, and Docker in particular. There are many decisions, large and small, we have made to enable that vision, which are present throughout our architecture.

The first version of balenaOS was developed as part of the balena platform, and has run on thousands of embedded devices on balena, deployed in many different contexts for several years. balenaOS v2 represents the combination of the learnings we extracted over those years, as well as our determination to make balenaOS a first-class open source project, able to run as an independent operating system, for any context where embedded devices and containers intersect.

Source: <https://www.balena.io/docs/reference/OS/overview/2.x/>

| Datasheet              |                      |
|------------------------|----------------------|
| Developer              | Balena               |
| Written in             | JavaScript, HTML, GO |
| OS family              | Yocto Linux-based    |
| Working state          | current              |
| Source model           | Open source          |
| Initial release        |                      |
| Latest release         |                      |
| Available in           |                      |
| Platforms              |                      |
| Kernel type            |                      |
| Default user interface |                      |
| License                |                      |

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