



The Journey from Docker Desktop to +100K Devices running on Containers

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The Computer for the 21st Century

Specialized elements of hardware and software, connected by wires, radio waves and infrared, will be so ubiquitous that no one will notice their presence

by Mark Weiser

The most profound technologies are those that disappear. They weave themselves into the fabric of everyday life until they are indistinguishable from it.

Consider writing, perhaps the first information technology. The ability to

is approachable only through complex jargon that has nothing to do with the tasks for which people use computers. The state of the art is perhaps analogous to the period when scribes had to know as much about making ink or baking clay as they did about writing.

The idea of integrating computers seamlessly into the world at large runs counter to a number of present-day trends. "Ubiquitous computing" in this context does not mean just computers that can be carried to the beach, jungle or airport. Even the most powerful

[Content](#)

09 November 2013 / Last updated: 25 Mar 2019

Installing Docker on the Raspberry Pi

[Setup:](#)[Download needed files](#)[Install Arch Linux on SD card](#)[SSH Into the Raspberry Pi](#)[Resize the Root Partition](#)[Update the install:](#)[Create a swap file](#)[Install a new kernel on the RPi.](#)[Installing dependencies:](#)[Install docker](#)[Make the base image](#)[Build docker 0.6.6 using docker 0.6.4](#)[Updates](#)

11/11/2013

Docker on Raspberry Pi



Execution time:



Difficulty:



Cost:

Deprecated: We've since released balena.io as a full service allowing you to easily run and update docker containers on multiple architectures. See <https://balena.io/> for more details.

At balena.io, our goal is to simplify development for the Internet of Things. One challenge we've faced is deploying applications to devices. It's okay when you have just one or two devices, but once a deployment scales larger, this becomes a major issue.

In July we discovered [Docker](#), a tool that vastly simplifies the deployment of applications across variety of environments. However Docker didn't yet support or run on the [Raspberry Pi](#).

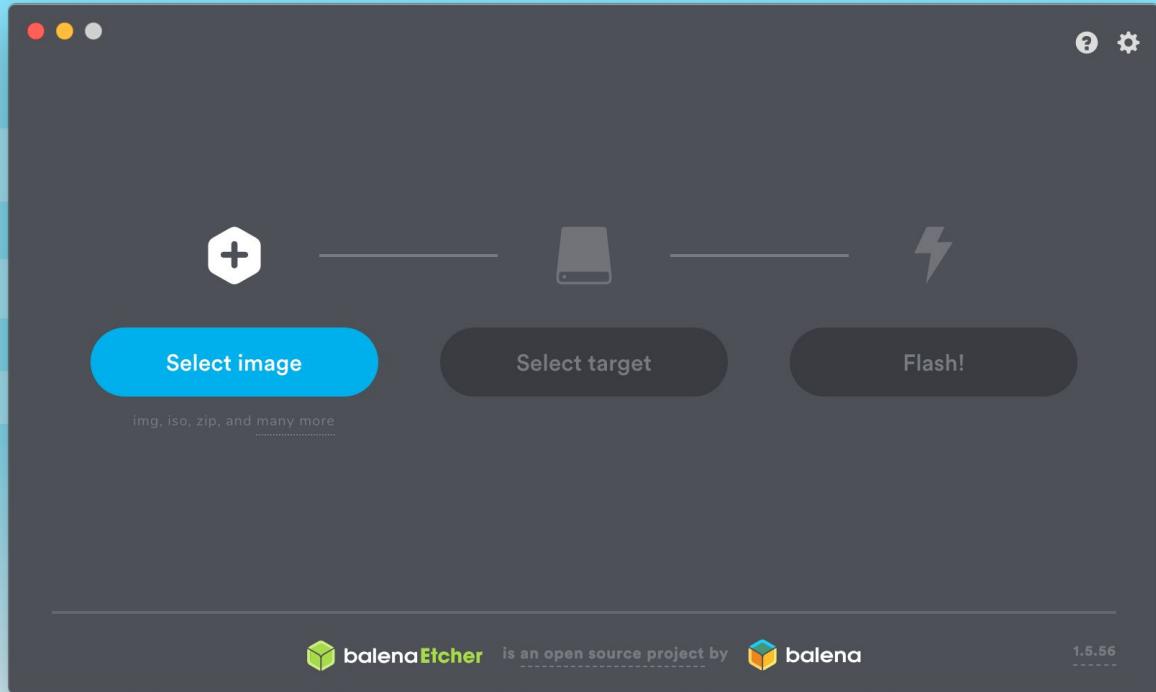
We wanted to change that.

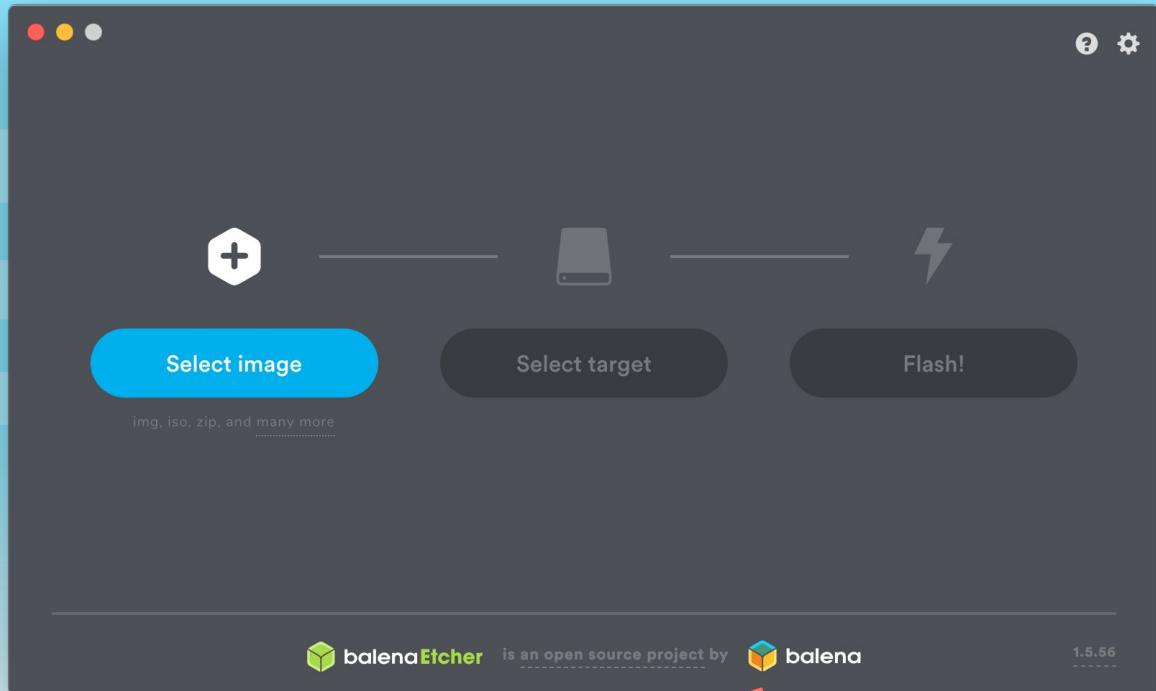
[Ken Cochrane](#) had made some [progress on this](#). As of the 21st of October, we decided to allocate our full resources to completing the task. By the 2nd of November, we reported back to the community that we were [almost there](#).

Today, November 10th, we've made a break-through: *Docker is fully running on the Raspberry Pi.*

Who is balena ?







Let's start!



Kerberos Agent | Kerberos.io

https://kerberos.io/product/agent/

Home Products Docs & Guides About & Contact

User settings Logout

Latest Activity

March 5 3 events

- 17.34 – 17.36 (1:57) Pedestrian
- 15.01 – 15.01 (0:10) Add tags or notes...
- 14.45 – 14.47 (2:12) Add tags or notes...

March 4 2 events

Event detection Storage

Live feed March 5, 17:39 Show detection region Heatmap

Warning Your disk is almost full. Please remove some images.

Free and Open

Proudly Open Source and free for everyone

Perfect for Home

Easy solution to manage and monitor your camera

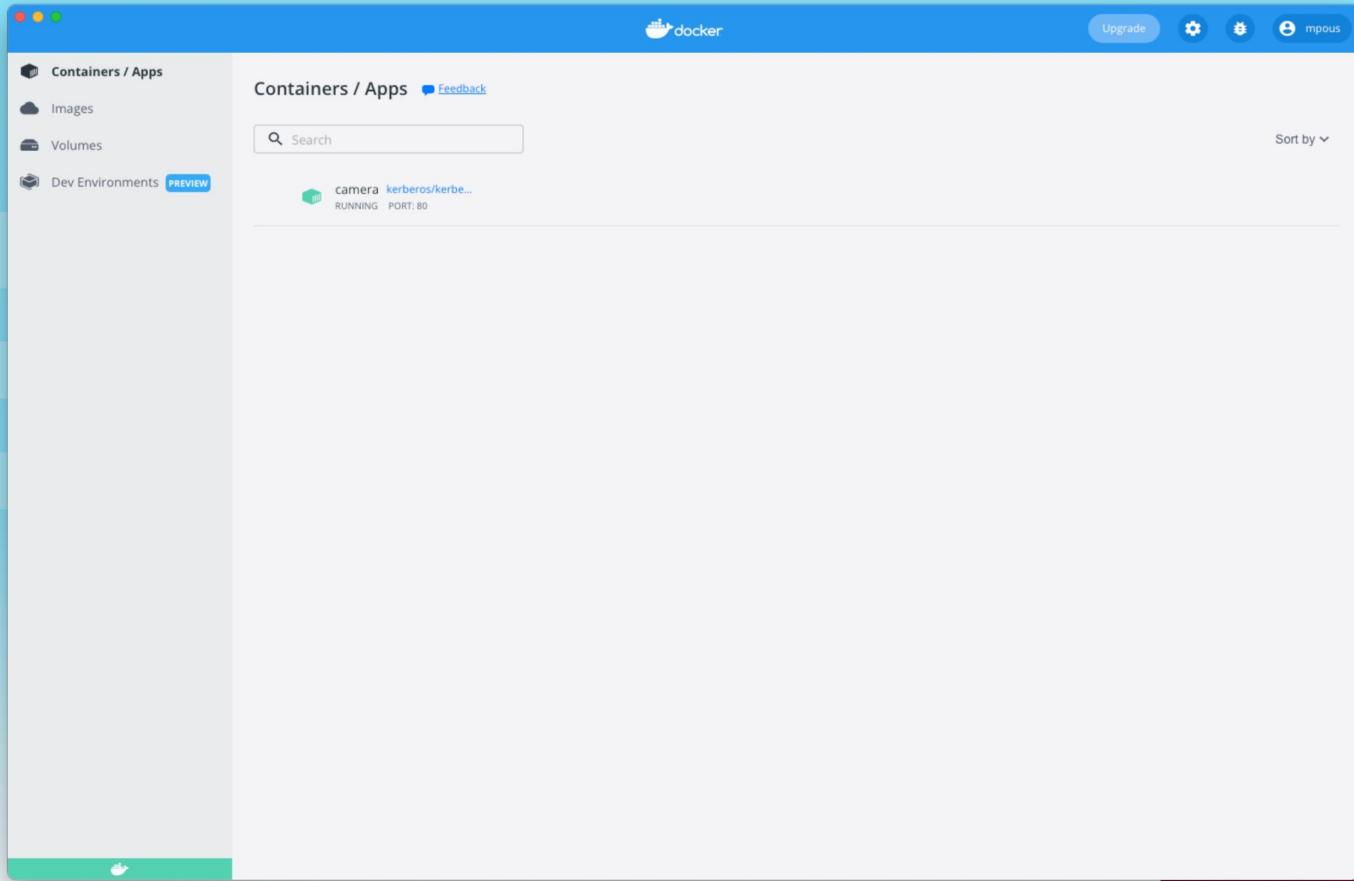
Thriving community

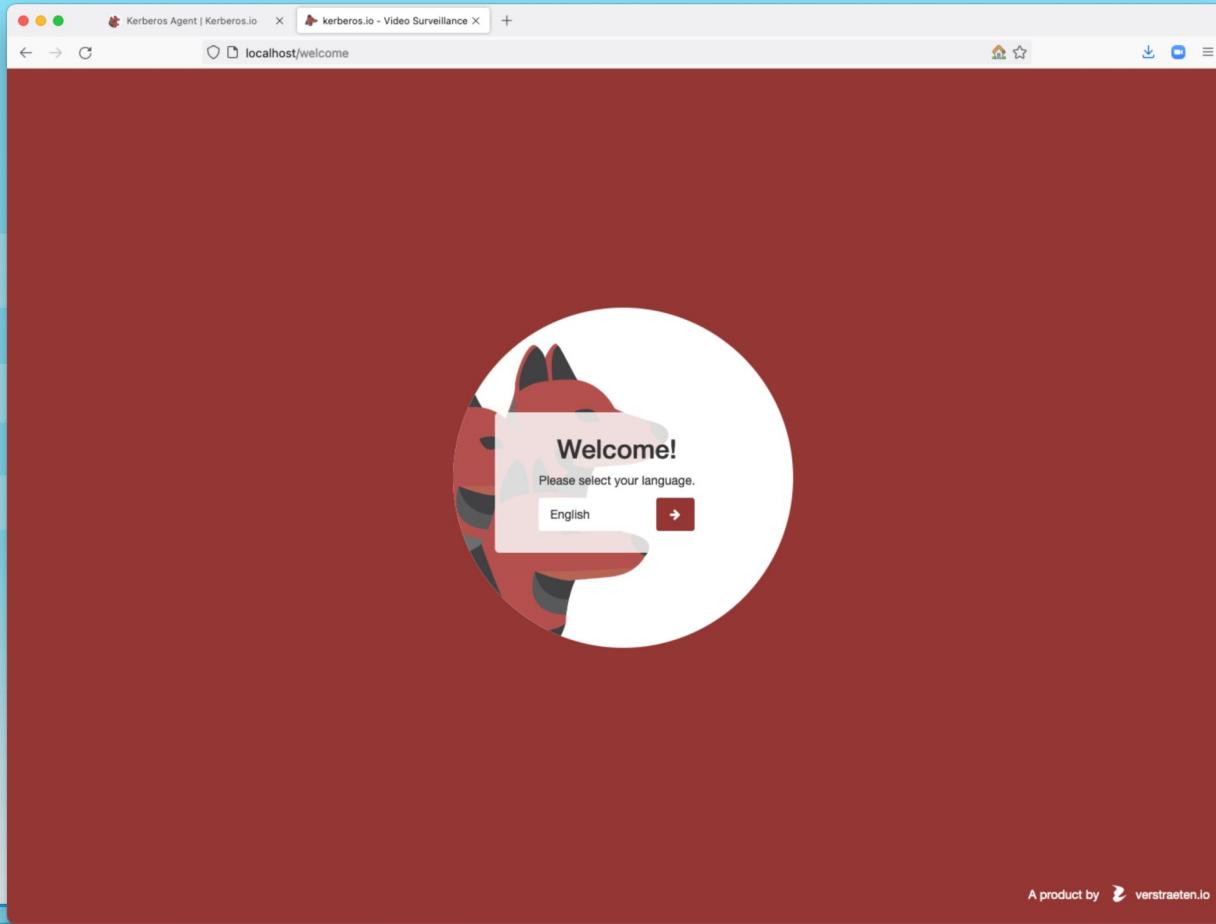
Join us in shaping the future of Kerberos Agent

```
-zsh
marcpous@Marc-macbook ~ % docker run --name camera -p 80:80 -p 8889:8889 -d kerberos/kerberos
Unable to find image 'kerberos/kerberos:latest' locally
latest: Pulling from kerberos/kerberos
36d925ed8e30: Pull complete
2cbf262f841d: Pull complete
40162a776e42: Pull complete
8befadb12fd6: Pull complete
2d826bef3413: Pull complete
4d52ee9fa342: Pull complete
5f3530884996: Pull complete
24f869ab41fe: Pull complete
5c10ca4eb449: Pull complete
407644032e85: Pull complete
5c6c15118c15: Pull complete
881065c09346: Pull complete
ec5d4b03cff: Pull complete
b63328642b93: Pull complete
70379d3b8843: Pull complete
82c8c1d6df2b: Pull complete
28541f10c265: Pull complete
2671cef074ff: Pull complete
1a755aae621c: Pull complete
5e8cdad9a68e: Pull complete
dae007fc3f10: Pull complete
37cddef71968: Pull complete
Digest: sha256:dba902db8d1ba63dbd7b6ce3653c8b4e6ba482d47a0c72d3f0d0d823e44ce68e
Status: Downloaded newer image for kerberos/kerberos:latest
2ad3eeb088c81a0e23d81dc1f2cd201a996e1af2a7b28d36b0176a4a45e620de
marcpous@Marc-macbook ~ %
```



1.0 kB↓ 2.0 kB↑ | ④ 18/4, 2:47 PM



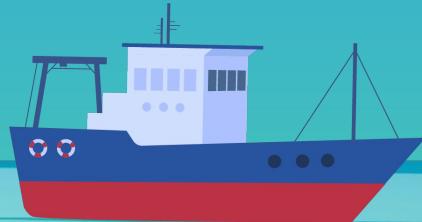


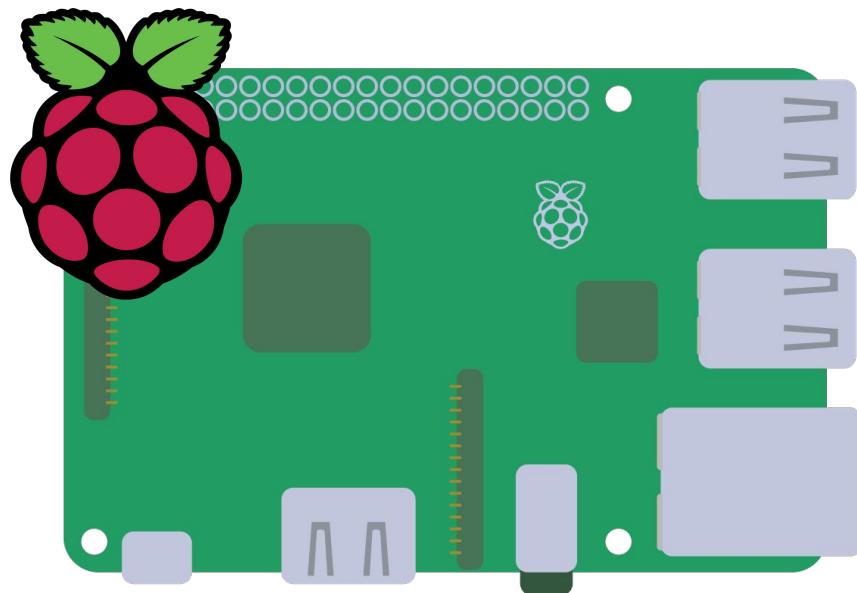
Now, how do I build 500 of these?

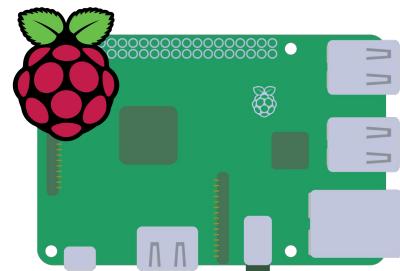
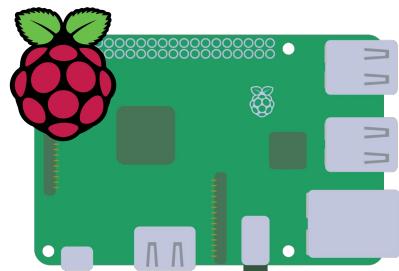
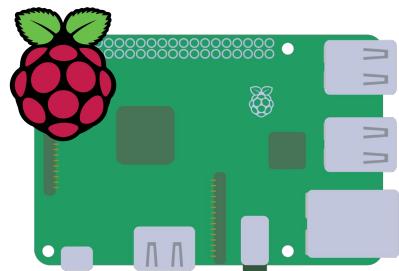
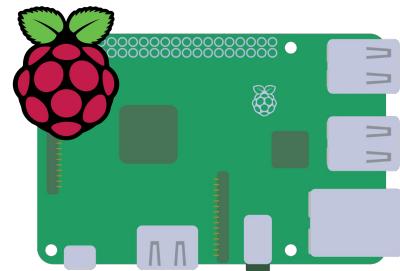
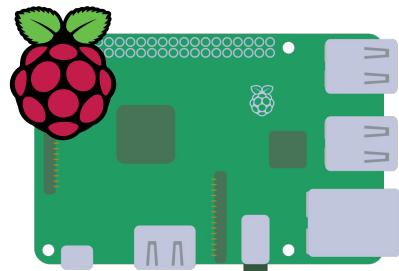
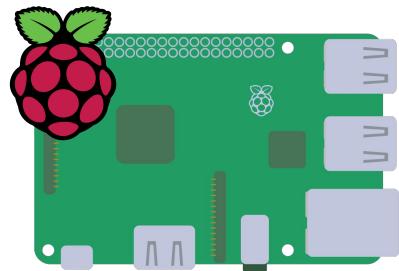
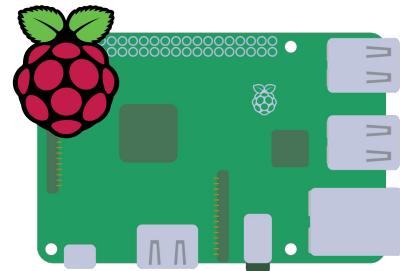
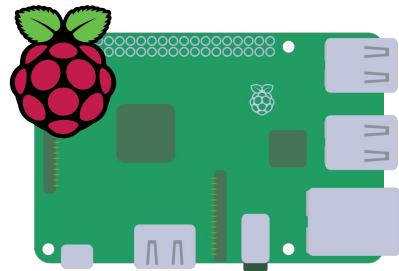
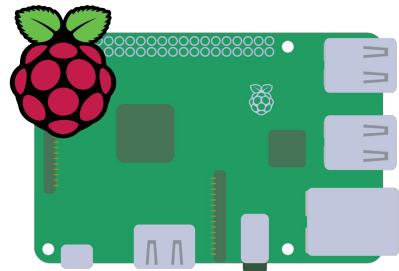


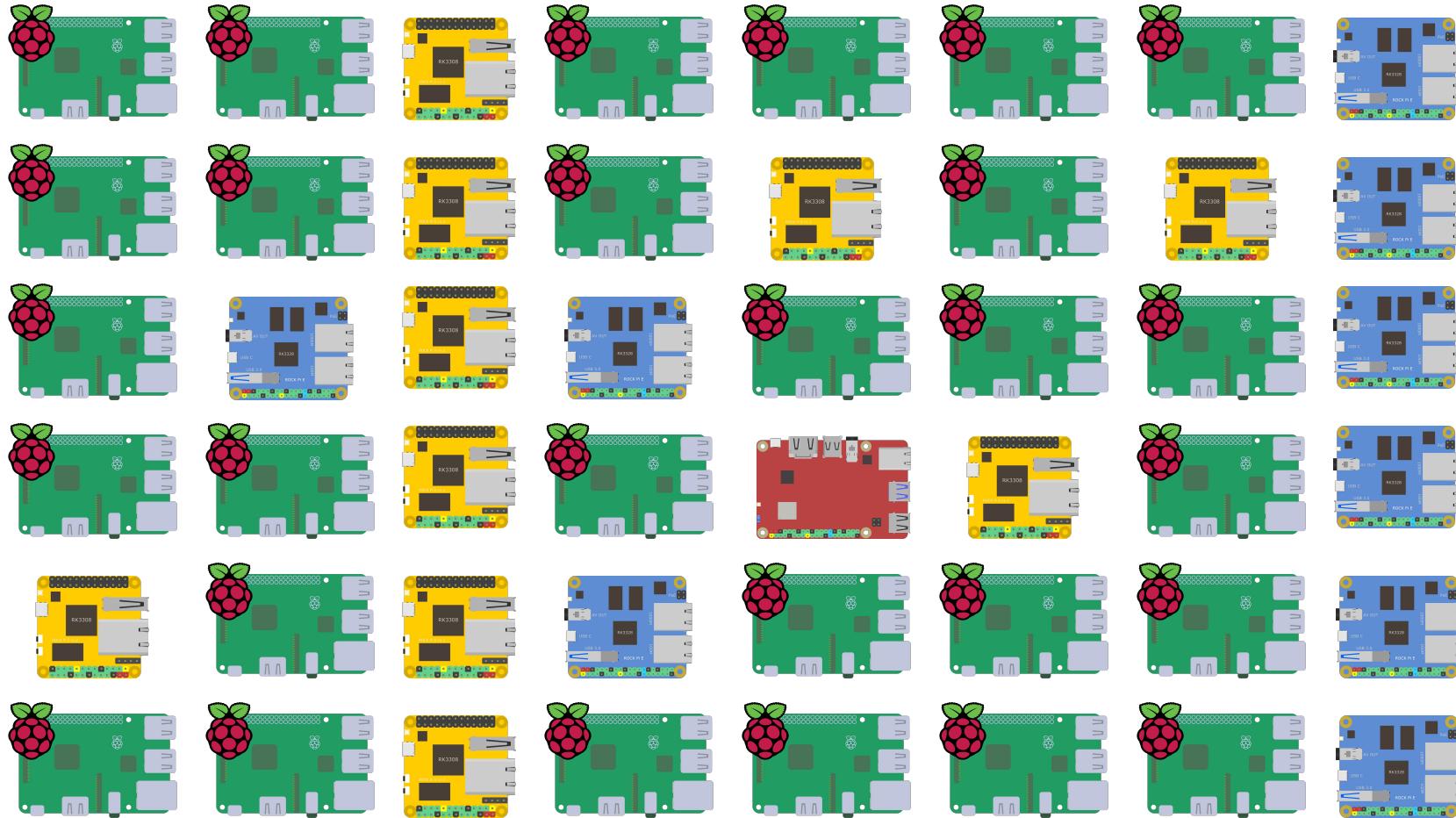
Problems now . . .

- Hard to get the stream from the camera.
- Hard to simulate the GPIO.
- I don't want to hammer my laptop into the wall.
- Expensive to scale...





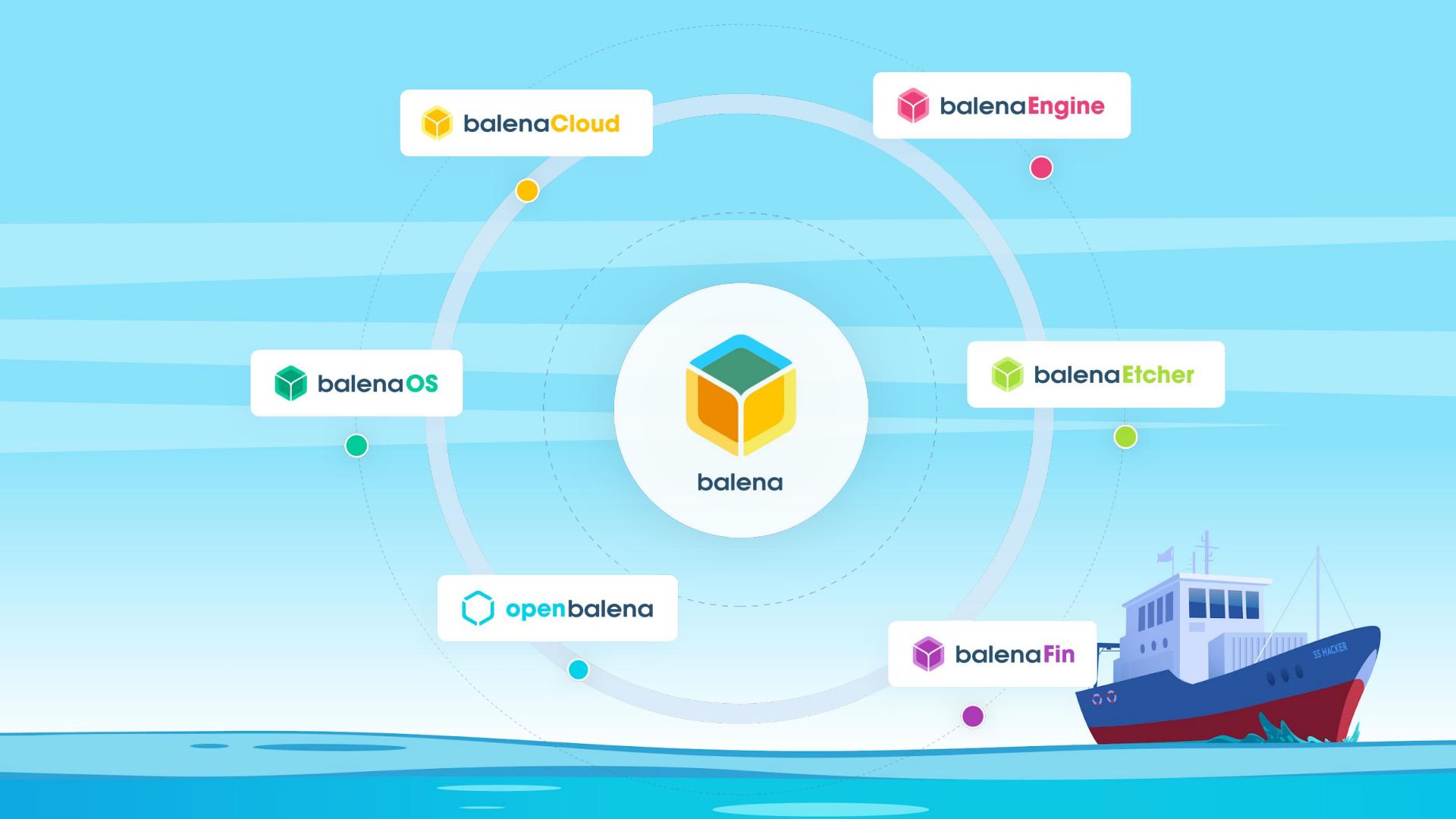


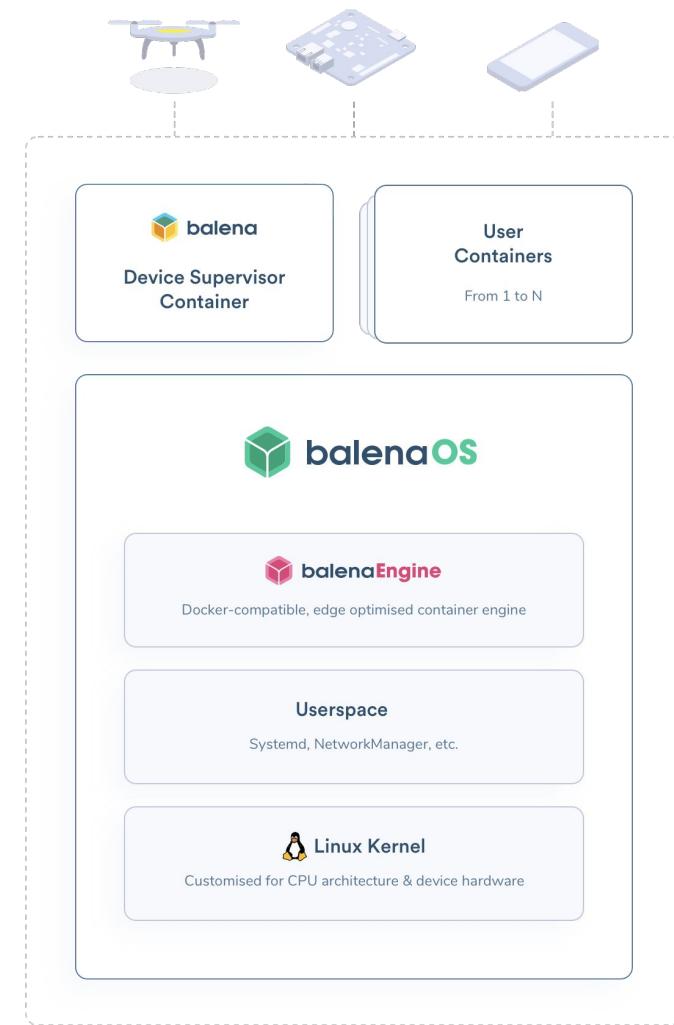


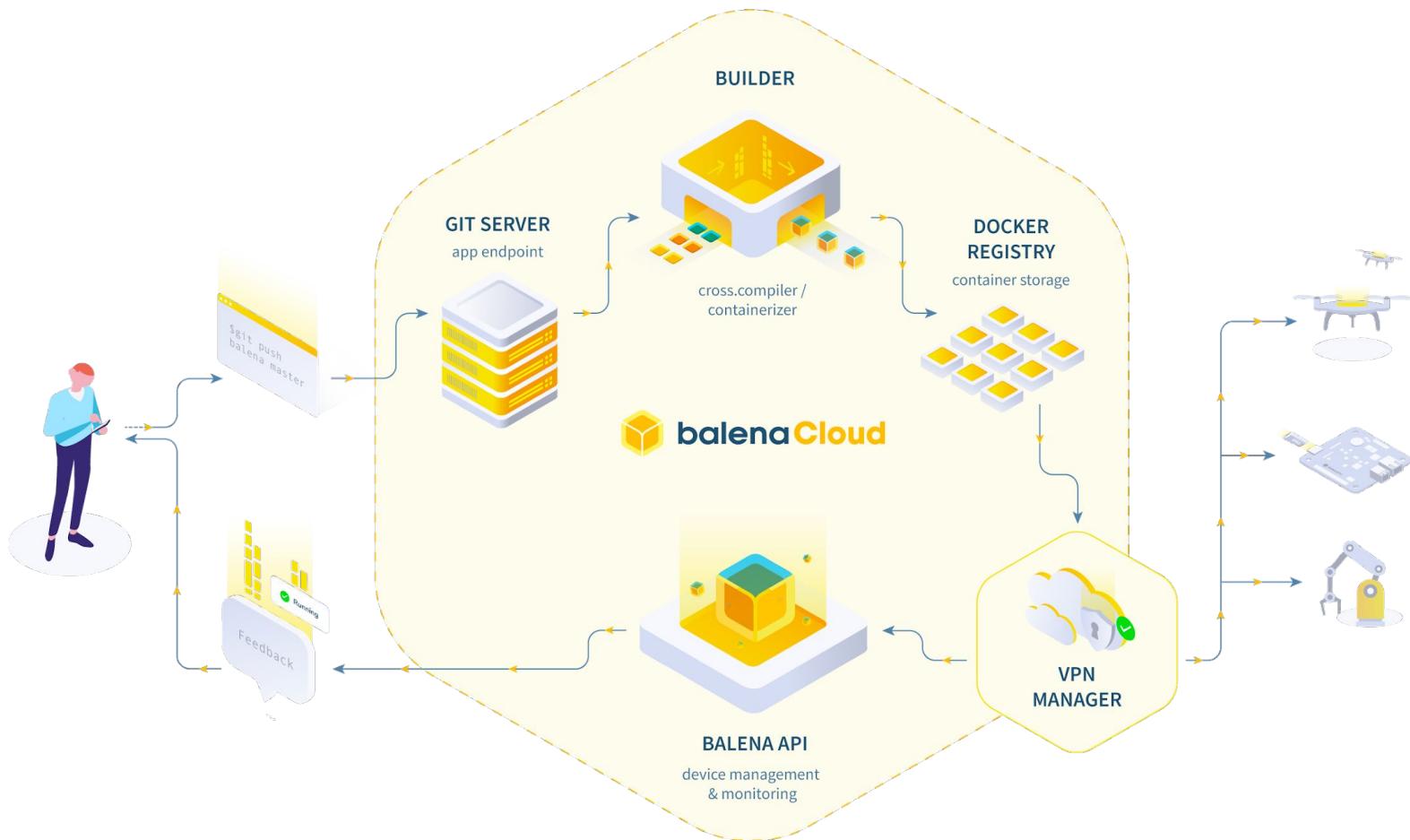




Deploy with balena







Build it with me!



kerberos-io/kerberos-balena · GitHub

https://github.com/kerberos-io/kerberos-balena

Search or jump to... Pull requests Issues Marketplace Explore

kerberos-io / kerberos-balena Public

Code Issues 3 Pull requests Actions Projects Wiki Security Insights

master 1 branch 0 tags Go to file Add file Code About

cedricve Update Dockerfile.amd64 c975dc7 on 7 Oct 2021 21 commits

kerberos Update Dockerfile.amd64 6 months ago

README.md Use svg deploy with balena button 17 months ago

balena.yml Update balena.yml 9 months ago

docker-compose.yml deploy with balena 2 years ago

kerberosio-logo.png Add files via upload 9 months ago

README.md

Kerberos.io on balenaCloud

Deploy with balena

Run Kerberos Open Source on Balena Cloud with just a few clicks.

kerberos.io

docker balena videosurveillance

Readme 27 stars 2 watching 12 forks

Releases No releases published

Packages No packages published

Contributors 6

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mpous/kerberos-balena: Run Kerberos on balena

https://github.com/mpous/kerberos-balena/tree/master

Search or jump to... Pull requests Issues Marketplace Explore

mpous / **kerberos-balena** Public forked from [kerberos-io/kerberos-balena](#)

Code Pull requests Actions Projects Wiki Security Insights Settings

master 3 branches 0 tags Go to file Add file Code About

This branch is 2 commits ahead of [kerberos-io/kerberos-balena:master](#). Contribute Fetch upstream

mpous Update README.md 4a144ec 21 seconds ago 23 commits

kerberos Update Dockerfile.amd64 6 months ago

README.md Update README.md 21 seconds ago

balena.yml Update balena.yml 9 months ago

docker-compose.yml deploy with balena 2 years ago

kerberosio-logo.png Add files via upload 9 months ago

README.md

Kerberos.io running on balena

In this project, we will deploy Kerberos on balena to set up a security camera system. Since it uses open source software and balena, it's much more private than other cloud-focused solutions, too. None of your videos are being stored anywhere other than your edge device.

Deploy with balena

Pin Watch Fork 12 Star 0

Run Kerberos Open Source on Balena Cloud with just a few clicks.

kerberos.io

Readme 0 stars 1 watching 12 forks

Releases No releases published Create a new release

Packages No packages published Publish your first package

<https://github.com/mpous/kerberos-balena>

balena dashboard | DockerCon X +

https://dashboard.balena-cloud.com/fleets/1925502/summary

Getting Started Docs Forums Status Marc Pous

DockerCon2022

Devices 2

Releases 1

Build in progress

Add device Actions Search entries... Add filter Views

Name	Status	Device type	Last seen	UUID	OS version	OS variant	Supervisor version	IP address	Public address
precise-forest	✓ Online	Raspberry Pi 4 (using 64bit OS)	Online (for 3 hours)	f4e4e48	balenaOS 2022.1.1	Development	12.11.0	192.168.1.45	122.161.48.127
green-cherry	✓ Online	Raspberry Pi 4 (using 64bit OS)	Online (for 20 minutes)	1bb86ca	balenaOS 2.95.8	Development	12.11.38	192.168.1.38	79.153.115.189

v12.0.3

Need help

balena dashboard | DockerCon X +

https://dashboard.balena-cloud.com/fleets/1925502/devices

Getting Started Docs Forums Status Marc Pous

Add new device

Select device type 

Raspberry Pi 4 (using 64bit OS)

Select OS type 

balenaOS

Select version

v2.95.8 (recommended)

Show outdated versions

Select edition

Development  Recommended for first time users
Development images should be used when you are developing an application and want to use the fast local mode workflow. This variant should never be used in production.

Production
Production images are ready for production deployments, but don't offer easy access for local development.

Network Connection

Ethernet only

Wifi + Ethernet

Wifi SSID

Wifi Passphrase

+ Advanced

Flash

Instructions

- 1 Use the form on the left to configure and download balenaOS for your new device.
- 2 Write the OS file you downloaded to your SD card. We recommend using Etcher.
- 3 Insert the freshly burnt SD card into the Raspberry Pi 4.
- 4 Connect your Raspberry Pi 4 to the internet, then power it up.
- 5 Your device should appear in your fleet in the dashboard within a few minutes. Have fun!

For more details please refer to our [Getting Started Guide](#).

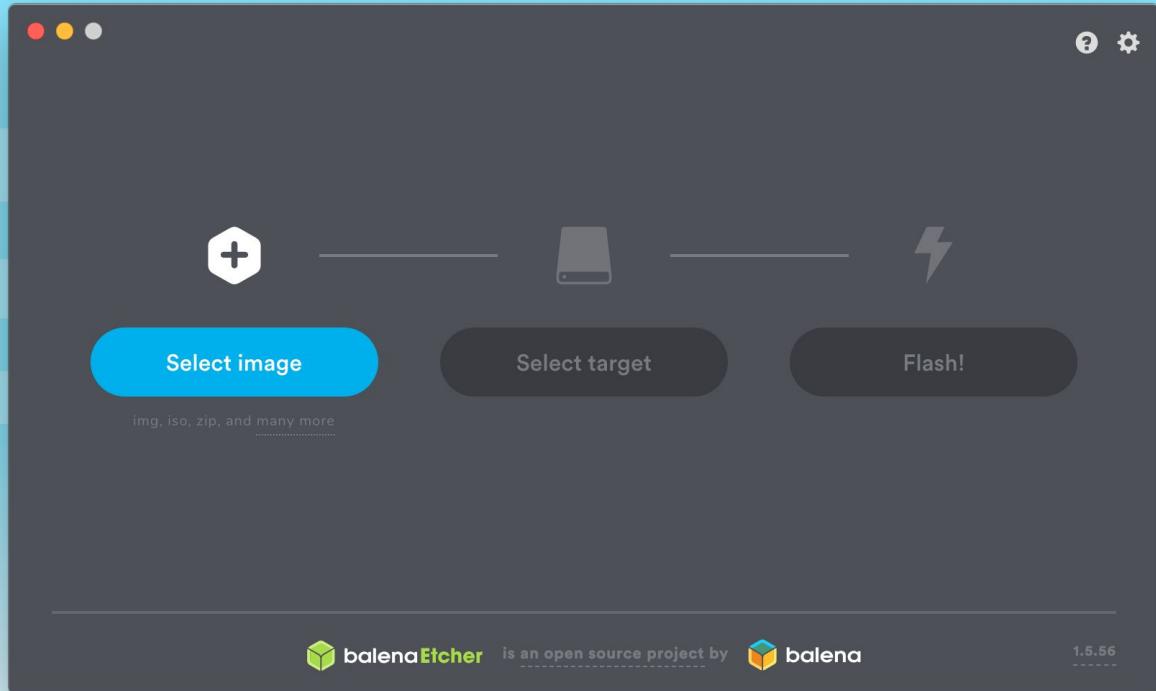
Views

Public address

161.48.127 c1902t

153.115.189 c1902t

Need help?



balena dashboard | Fleets X +

https://dashboard.balena-cloud.com/devices/1bb86ca3046888619f7c669c90c2a8248/summary

Getting Started Docs Forums Status Marc Pous

balenaCloud

Organizations Marc Pous Fleets DockerCon2022 Devices green-cherry

Summary Device Variables Device Configuration Actions Diagnostics Location

green-cherry

STATUS Updating UUID 1bb86ca TYPE Raspberry Pi 4 (using 64bit OS)

Reboot Restart services

ONLINE FOR 22 minutes HOST OS VERSION balenaOS 2.95.8 SUPERVISOR VERSION 12.11.38

CURRENT RELEASE Factory build TARGET RELEASE c190263

LOCAL IP ADDRESS 192.168.1.38 PUBLIC IP ADDRESS 79.153.115.189 MAC ADDRESS DC:A6:32:66:CD:77 DE:A8:06:02:A8:33

TAGS (0) No tags configured yet

NOTES Add device notes...

SERVICES

Service	Status	Release
main	Downloading 4%	c190263

CPU ~78% Temperature ~51C Memory 240 MB/3.8 GB Storage 88 MB/13.8 GB

Logs UTC Timestamps

Search entries... Add filter Views

```
SUPERVISOR_DELTA: "1", "SUPERVISOR_DELTA_VERSION": "3"
18.04.22 11:48:35 (+0000) Creating network 'default'
18.04.22 15:05:45 (+0000) Supervisor starting
18.04.22 15:27:17 (+0000) Creating volume 'config'
18.04.22 15:27:17 (+0000) Creating volume 'capture'
18.04.22 15:27:17 (+0000) Creating volume 'logs'
18.04.22 15:27:17 (+0000) Creating volume 'web'
18.04.22 15:27:17 (+0000) Downloading image 'registry2.balena-cloud.com/v2/f9ccdb072a9c37d94fa887cd9824c23b@sha256:bb953b9e9cdf67800af0d0be89a25cb384f0ad78c31bf393138804331af33d13'
```

Terminal Select a target Start terminal session

v12.0.3

balena dashboard | green-cherry X +

https://dashboard.balena-cloud.com/devices/1bb86ca3046888619f7c669c90c2a8248/summary

Getting Started Docs Forums Status Marc Pous

green-cherry

STATUS: Online

UUID: 1bb86ca

TYPE: Raspberry Pi 4 (using 64bit OS)

ONLINE FOR: 25 minutes

HOST OS VERSION: balenaOS 2.95.8 (development)

SUPERVISOR VERSION: 12.11.38

CURRENT RELEASE: c190263 (✓)

TARGET RELEASE: c190263

LOCAL IP ADDRESS: 192.168.1.38

PUBLIC IP ADDRESS: 79.153.115.189

MAC ADDRESS: DC:A6:32:66:CD:77
DE:A8:06:02:A8:33

PUBLIC DEVICE URL: [Toggle](#)

TAGS (0) [Edit](#)

No tags configured yet

NOTES: Add device notes...

SERVICES

Service	Status	Release
main	Running	c190263

Reboot [Restart services](#) [Help](#) [More](#)

CPU: ~78% Temperature: ~44C Memory: 326 MB/3.8 GB Storage: 569 MB/13.8 GB

Logs

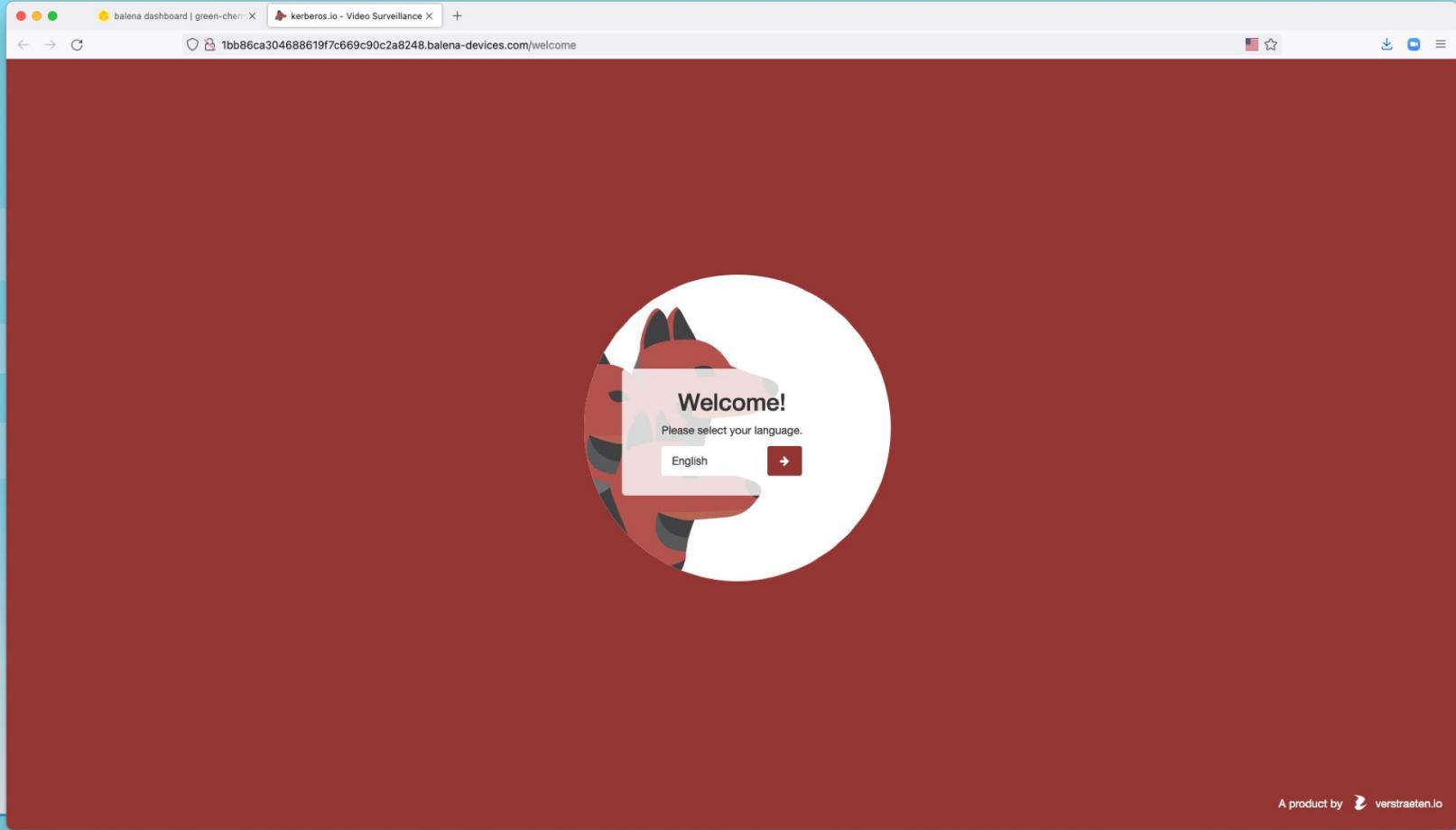
Search entries... Add filter Views UTC Timestamps

```
18.04.22 15:29:55 (+0000) [main] 2022-04-18 15:29:55,565 INFO supervisord started with pid 28
18.04.22 15:29:56 (+0000) [main] 2022-04-18 15:29:56,572 INFO spawned: 'nginx' with pid 31
18.04.22 15:29:56 (+0000) [main] 2022-04-18 15:29:56,578 INFO spawned: 'machinery' with pid 3
2
18.04.22 15:29:57 (+0000) [main] 2022-04-18 15:29:57,651 INFO success: nginx entered RUNNING
state, process has stayed up for > than 1 seconds (startsecs)
18.04.22 15:29:57 (+0000) [main] 2022-04-18 15:29:57,652 INFO success: machinery entered RUNN
ING state, process has stayed up for > than 1 seconds (startsecs)
```

Terminal

Select a target Start terminal session

Need help



balena dashboard | green-chem X Kerberos.io

1bb86ca304688619f7c669c90c2a8248.balena-devices.com/settings

KERBEROS.IO

Watch your activity from anywhere in the world with Kerberos Cloud. Get started for only 1.99€/month!

Machinery

General settings

frontdoor

Europe/Brussels 4:02:00

Camera

USB camera

Surveillance

Motion

Storage

Cloud

Web

Heatmap

No data available

Press update to confirm your configuration.

Update

USB camera

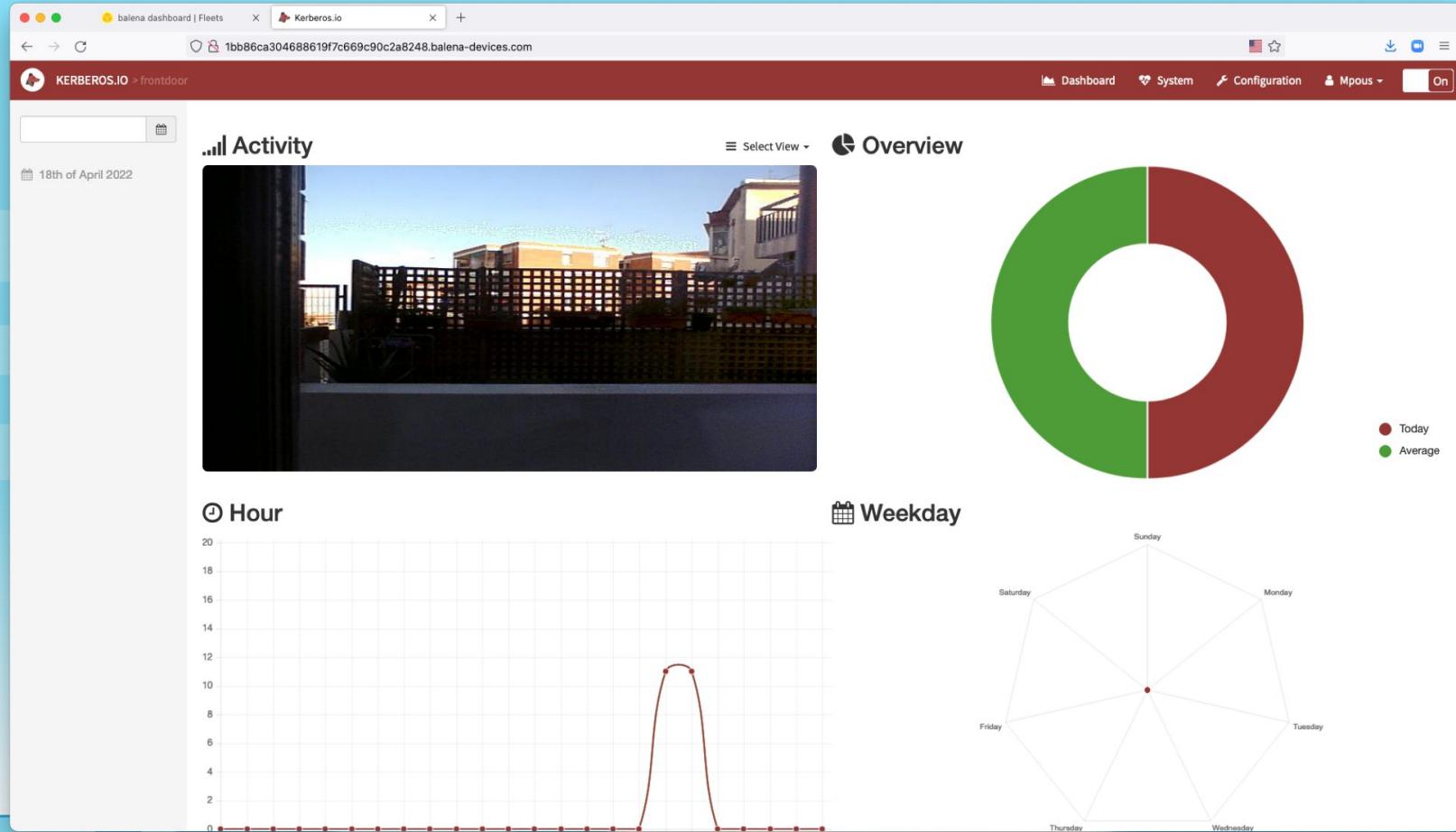
640 x 480

DELAY IN SECONDS

LIVE STREAM FRAMES/SEC

CANCEL CONFIRM AND SELECT





Let's add another container!



odyslam/NetdataBlock: A balena block to monitor your device with Netdata

https://github.com/odyslam/NetdataBlock

Search or jump to... Pull requests Issues Marketplace Explore

odyslam / NetdataBlock Public

Code Issues Pull requests Actions Projects Wiki Security Insights

main 1 branch 0 tags Go to file Add file Code About

odyslam Update balena.yml c630c27 on 10 Jun 2021 11 commits

netdata	initial commit	10 months ago
LICENSE	Initial commit	10 months ago
README.md	Update README.md	10 months ago
balena.yml	Update balena.yml	10 months ago
deploy.svg	Add deploy	10 months ago
docker-compose.yaml	initial commit	10 months ago
logo.png	add logo png	10 months ago
logo.svg	initial commit	10 months ago

Readme GPL-3.0 License Code of conduct 4 stars 3 watching 2 forks

Releases No releases published

Packages No packages published

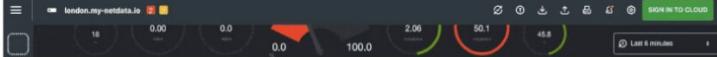
Languages Shell 83.9% Dockerfile 16.1%

Deploy with balena

NetdataBlock

A balena block to monitor your device with [netdata/netdata](#).

Features



```
marcpous@Marc-macbook kerberos % git clone git@github.com:mpous/kerberos-balena.git
Cloning into 'kerberos-balena'...
remote: Enumerating objects: 55, done.
remote: Counting objects: 100% (55/55), done.
remote: Compressing objects: 100% (51/51), done.
remote: Total 55 (delta 15), reused 13 (delta 2), pack-reused 0
Receiving objects: 100% (55/55), 33.48 KiB | 210.00 KiB/s, done.
Resolving deltas: 100% (15/15), done.
marcpous@Marc-macbook kerberos %
```

3.1 kB↓ 9.2 kB↑ | ⏳ 18/4, 7:11 PM

```
marcpous@Marc-macbook kerberos-balena % git clone git@github.com:odyslam/NetdataBlock.git
Cloning into 'NetdataBlock'...
remote: Enumerating objects: 39, done.
remote: Counting objects: 100% (39/39), done.
remote: Compressing objects: 100% (34/34), done.
remote: Total 39 (delta 16), reused 21 (delta 5), pack-reused 0
Receiving objects: 100% (39/39), 28.06 KiB | 388.00 KiB/s, done.
Resolving deltas: 100% (16/16), done.
marcpous@Marc-macbook kerberos-balena % ls -la
total 56
drwxr-xr-x  9 marcpous  staff   288 18 abr 19:15 .
drwxr-xr-x  3 marcpous  staff    96 18 abr 19:10 ..
drwxr-xr-x 12 marcpous  staff   384 18 abr 19:12 .git
drwxr-xr-x 11 marcpous  staff   352 18 abr 19:15 NetdataBlock
-rw-r--r--  1 marcpous  staff   164 18 abr 19:10 README.md
-rw-r--r--  1 marcpous  staff   973 18 abr 19:10 balena.yml
-rw-r--r--  1 marcpous  staff   683 18 abr 19:12 docker-compose.yml
drwxr-xr-x  5 marcpous  staff   160 18 abr 19:10 kerberos
-rw-r--r--  1 marcpous  staff 12902 18 abr 19:10 kerberosio-logo.png
marcpous@Marc-macbook kerberos-balena %
```



The screenshot shows a code editor interface with a dark theme, displaying a `docker-compose.yml` file. The file defines two services: `Kerberos` and `netdata`. The `Kerberos` service uses the `kerberos/kerberos` image, runs a bash command, and has a privileged container. It maps volumes for configuration, capture, logs, and web content. It also includes labels for various Balena features. The `netdata` service uses a custom build, runs a netdata binary, and has ports exposed on 19999. It includes cap_add: SYS_PTRACE, security_opt: apparmor:unconfined, and specific labels. Both services map volumes for netdata configuration and cache.

```
version: '2.1'
networks: {}
volumes:
  config: {}
  capture: {}
  logs: {}
  web: {}
  netdatacache: {}
  netdatalib: {}

services:
  Kerberos:
    image: kerberos/kerberos
    command: ["bash", "/run.sh"]
    build: ./kerberos
    privileged: true
    tty: true
    restart: always
    network_mode: host
    volumes:
      - 'config:/etc/opt/kerberosio/config'
      - 'capture:/etc/opt/kerberosio/capture'
      - 'logs:/etc/opt/kerberosio/logs'
      - 'web:/var/www/web/config'
    labels:
      io.balena.features.kernel-modules: '1'
      io.balena.features.firmware: '1'
      io.balena.features.dbus: '1'
      io.balena.features.supervisor-api: '1'
      io.balena.features.resin-api: '1'
      io.balena.features.balena-socket: '1'

  netdata:
    build: ./netdata
    privileged: true
    ports:
      - '19999:19999'
    cap_add:
      - SYS_PTRACE
    security_opt:
      - apparmor:unconfined
    labels:
      io.balena.features.balena-socket: 1
      io.balena.features.procfs: 1
      io.balena.features.supervisor-api: 1
      io.balena.features.sysfs: 1
    volumes:
      - netdatalib:/var/lib/netdata
      - netdatacache:/var/cache/netdata
```

balena dashboard | green-cherry X Kerberos.io

https://dashboard.balena-cloud.com/devices/1bb86ca304688619fc669c90c2a8248/summary

Getting Started Docs Forums Status Marc Pous

green-cherry

STATUS: Online

UUID: 1bb86ca304688619fc669c90c2a8248

TYPE: R

ONLINE FOR: 2 minutes

HOST OS VERSION: balenaOS 2.95.8 (development)

SUPERVISOR: 12.11

CURRENT RELEASE: 7883344

TARGET RELEASE: 7883344

LOCAL IP ADDRESS: 192.168.1.38

PUBLIC IP ADDRESS: 79.153.115.189

MAC ADDRESS: DC:A6:... 3A:6B:C4:21:17:9C

PUBLIC DEVICE URL: [View](#)

TAGS (0) No tags configured yet

NOTES: Add device notes...

SERVICES

Service	Status	Release	Actions
kerberos	Running	7883344	View Edit Delete Logs
netdata	Running	7883344	View Edit Delete Logs

Reboot

Rewind

Restart services

Move device

Pin to release

Update balenaOS

Update supervisor

Enable local mode

Grant support access

Manage tags

Deactivate device

Change device type

Purge data

CPU ~18% Temperature ~49C Memory 538 MB/3.8 GB Storage 1.8 GB/13.8 GB

Logs UTC Timestamps

Search entries... Add filter Views

18.04.22 21:28:59 (+0000) netdata 2022-04-18 21:28:59: netdata ERROR : PLUGIN[proc] : Cannot refresh ntu for interface eth1 by reading '(null)'. Stop updating it. (errno 2, No such file or directory)

18.04.22 21:29:00 (+0000) netdata 2022-04-18 21:29:00: netdata ERROR : PLUGIN[proc] : Cannot refresh ntu for interface eth1 by reading '(null)'. Stop updating it. (errno 2, No such file or directory)

18.04.22 21:29:01 (+0000) netdata 2022-04-18 21:29:01: netdata ERROR : PLUGIN[proc] : Cannot refresh ntu for interface eth1 by reading '(null)'. Stop updating it. (errno 2, No such file or directory)

Terminal Select a target Start terminal session

Need help

balena dashboard | green-cherry X Kerberos.io https://dashboard.balena-cloud.com/devices/tbb86ca304688619f7c669c90c2a8248/summary

Getting Started Docs Forums Status Marc Pous

Organizations Marc Pous Fleets DockerCon2022 Devices green-cherry

green-cherry

STATUS: Online (local mode) UUID: 1bb86ca TYPE: Raspberry Pi 4 (using 64bit OS)

ONLINE FOR: 2 minutes HOST OS VERSION: balenaOS 2.95.8 SUPERVISOR VERSION: 12.11.38

CURRENT RELEASE: Development TARGET RELEASE: Development

LOCAL IP ADDRESS: 192.168.1.38 PUBLIC IP ADDRESS: 79.153.115.189 MAC ADDRESS: DC:A6:32:66:CD:77
3A:6B:C4:21:17:9C

TAGS (0): No tags configured yet

NOTES: Add device notes...

SERVICES: Service information is not available when your device is running in local mode.

Reboot Restart services

CPU ~18% Temperature -49C Memory 538 MB/3.8 GB Storage 1.8 GB/13.8 GB /dev/mmcblk0p6

Logs UTC Timestamps

Search entries... Add filter Views

Logs are not available when your device is running in local mode.

Terminal

Select a target Start terminal session

v12.0.4 Need help

```
node
marcpous@Marc-macbook kerberos-balena % sudo balena scan
Password:
Scanning for local balenaOS devices... Reporting scan results
-
host:      d53ac53.local
address:   192.168.1.40
osVariant: production
-
host:      9a23b69.local
address:   192.168.1.47
osVariant: production
-
host:      1bb86ca.local
address:   192.168.1.38
osVariant: development
dockerInfo:
Containers:      1
ContainersRunning: 1
ContainersPaused:  0
ContainersStopped: 0
Images:          4
Driver:           overlay2
SystemTime:       2022-04-18T21:29:33.996896519Z
KernelVersion:    5.10.83-v8
OperatingSystem:  balenaOS 2.95.8
Architecture:     aarch64
dockerVersion:
Version:         20.10.12
ApiVersion:       1.41
marcpous@Marc-macbook kerberos-balena % balena push 1bb86ca.local

Update available 13.1.11 → 13.4.0
https://github.com/balena-io/balena-clι/blob/master/INSTALL.md
```

[Info] Starting build on device 192.168.1.38
[Build] [netdata] Step 1/12 : FROM netdata/netdata
[Build] [kerberos] Step 1/4 : FROM kerberos/kerberos@sha256:243e9a405d4dc18e5c87d0e9f702f1abf367d56196a5f75344cb0efdeeb16272

B 7.2 kB↓ 9.2 kB↑ | ⏴ 18/4, 11:30 PM



balena dashboard | green-cherry X Kerberos.io X

https://dashboard.balena-cloud.com/devices/1bb86ca304688619f7c669c90c2a8248/summary

Getting Started Docs Forums Status Marc Pous v

green-cherry

STATUS Online (local mode) **UUID** 1bb86ca

ONLINE FOR 2 minutes **HOST OS VERSION** balenaOS 2.95.8

CURRENT RELEASE Development **TARGET RELEASE** Development

LOCAL IP ADDRESS 192.168.1.38 **PUBLIC IP ADDRESS** 79.153.115.189

TAGS (0) No tags configured yet

NOTES Add device notes...

SERVICES

Service information is not available when your device is running.

node

```
[Logs] [2022-04-18 23:30:39] [netdata] 2022-04-18 21:30:39: python.d INFO: plugin[main] : hddtemp[localhost] : check failed
[Logs] [2022-04-18 23:30:39] [netdata] 2022-04-18 21:30:39: python.d ERROR: hddtemp[localhost] : Failed to connect to "127.0.0.1", port 7634, error: [Errno 111] Connection refused
[Logs] [2022-04-18 23:30:39] [netdata] 2022-04-18 21:30:39: python.d INFO: plugin[main] : hddtemp[localhost] : check failed
[Logs] [2022-04-18 23:30:39] [netdata] 2022-04-18 21:30:39: python.d ERROR: hddtemp[localhost] : Failed to connect to "::1", port 7634, error: [Errno 99] Address not available
[Logs] [2022-04-18 23:30:39] [netdata] 2022-04-18 21:30:39: python.d INFO: plugin[main] : hddtemp[localhost] : check failed
[Logs] [2022-04-18 23:30:39] [netdata] 2022-04-18 21:30:39: python.d ERROR: httpcheck[httpcheck] : URL is not defined or type is not <str>
[Logs] [2022-04-18 23:30:39] [netdata] 2022-04-18 21:30:39: python.d INFO: plugin[main] : httpcheck[httpcheck] : check failed
[Logs] [2022-04-18 23:30:39] [netdata] 2022-04-18 21:30:39: python.d ERROR: icecast[localhost] : Url: http://localhost:8443/status-json.xsl. Error: HTTPConnectionPool(host='localhost', port=8443): Max retries exceeded with url: /status-json.xsl (Caused by NewConnectionError('<urllib3.connection.HTTPConnection object at 0x7f99c6c790>: Failed to establish a new connection: [Errno 111] Connection refused'))
[Logs] [2022-04-18 23:30:39] [netdata] 2022-04-18 21:30:39: python.d INFO: plugin[main] : icecast[localhost] : check failed
[Logs] [2022-04-18 23:30:39] [netdata] 2022-04-18 21:30:39: python.d ERROR: icecast[localhost] : Url: http://127.0.0.1:8443/status-json.xsl. Error: HTTPConnectionPool(host='127.0.0.1', port=8443): Max retries exceeded with url: /status-json.xsl (Caused by NewConnectionError('<urllib3.connection.HTTPConnection object at 0x7f99c6e550>: Failed to establish a new connection: [Errno 111] Connection refused'))
[Logs] [2022-04-18 23:30:39] [netdata] 2022-04-18 21:30:39: python.d INFO: plugin[main] : ipfs[localhost] : check failed
[Logs] [2022-04-18 23:30:39] [netdata] 2022-04-18 21:30:39: python.d ERROR: ipfs[localhost] : Url: http://localhost:5001/api/v0/stat/s/bw. Error: HTTPConnectionPool(host='localhost', port=5001): Max retries exceeded with url: /api/v0/stats/bw (Caused by NewConnectionError('<urllib3.connection.HTTPConnection object at 0x7f99c777f0>: Failed to establish a new connection: [Errno 111] Connection refused'))
[Logs] [2022-04-18 23:30:39] [netdata] 2022-04-18 21:30:39: python.d INFO: plugin[main] : ipfs[localhost] : check failed
[Logs] [2022-04-18 23:30:39] [netdata] 2022-04-18 21:30:39: python.d ERROR: ipfs[localhost] : Url: http://localhost:5001/api/v0/swarm/peers. Error: HTTPConnectionPool(host='localhost', port=5001): Max retries exceeded with url: /api/v0/swarm/peers (Caused by NewConnectionError('<urllib3.connection.HTTPConnection object at 0x7f99d51f00>: Failed to establish a new connection: [Errno 111] Connection refused'))
[Logs] [2022-04-18 23:30:39] [netdata] 2022-04-18 21:30:39: python.d ERROR: ipfs[localhost] : _get_data() returned no data or type is not <dict>
[Logs] [2022-04-18 23:30:39] [netdata] 2022-04-18 21:30:39: python.d INFO: plugin[main] : ipfs[localhost] : check failed
[Logs] [2022-04-18 23:30:39] [netdata] 2022-04-18 21:30:39: python.d ERROR: isc_dhcpd[isc_dhcpd] : Make sure '/var/lib/dhcp/dhcpd.leases' is exist and readable by netdata
[Logs] [2022-04-18 23:30:39] [netdata] 2022-04-18 21:30:39: python.d INFO: plugin[main] : isc_dhcpd[isc_dhcpd] : check failed
[Logs] [2022-04-18 23:30:39] [netdata] 2022-04-18 21:30:39: python.d ERROR: litespeed[localhost] : "/tmp/lshtpd/" has no "rreport" files or dir is not readable
[Logs] [2022-04-18 23:30:39] [netdata] 2022-04-18 21:30:39: python.d INFO: plugin[main] : litespeed[localhost] : check failed
[Logs] [2022-04-18 23:30:39] [netdata] 2022-04-18 21:30:39: python.d ERROR: memcached[localhost] : Failed to connect to "127.0.0.1", port 11211, error: [Errno 111] Connection refused
[Logs] [2022-04-18 23:30:39] [netdata] 2022-04-18 21:30:39: python.d ERROR: memcached[localhost] : Failed to connect to "::1", port 11211, error: [Errno 111] Connection refused
[Logs] [2022-04-18 23:30:39] [netdata] 2022-04-18 21:30:39: python.d INFO: plugin[main] : memcached[localhost] : check failed
[Logs] [2022-04-18 23:30:39] [netdata] 2022-04-18 21:30:39: python.d ERROR: memcached[localhost] : Failed to connect to "::1", port 11211, error: [Errno 99] Address not available
[Logs] [2022-04-18 23:30:39] [netdata] 2022-04-18 21:30:39: python.d INFO: plugin[main] : memcached[localhost] : check failed
```

node

```

marcpous@Marc-macbook kerberos-balena % 
marcpous@Marc-macbook kerberos-balena % 
marcpous@Marc-macbook kerberos-balena % balena push DockerCon2022

Update available 13.1.11 + 13.4.0

https://github.com/balena-io/balena-cli/blob/master/INSTALL.md

```

```

[Info] Starting build for dockercon2022, user marc6
[Info] Dashboard link: https://dashboard.balena-cloud.com/apps/1925502/devices
[Info] Building on armv5
[Info] Pulling previous images for caching purposes...
[Success] Successfully pulled cache images
[Kerberos] Step 1/2 : FROM kerberos/kerberos@sha256:243e9a405d4dc18e5c87d0e9f702f1abf367d56196a5f75344cb0efdeeb16272
[netdata] Step 1/10 : FROM netdata
[netdata] # Executing 1 build trigger
[netdata] ---> Running in a801591effa4
[netdata] Removing intermediate container a801591effa4
[netdata]     -> 4f4a938b70dc
[netdata] Step 2/10 : RUN apk add --no-cache openssh-server
[netdata]     -> Running in 3b4b13afe525
[netdata] fetch https://dl-cdn.alpinelinux.org/alpine/v3.15/main/aarch64/APKINDEX.tar.gz
[netdata] fetch https://dl-cdn.alpinelinux.org/alpine/v3.15/community/aarch64/APKINDEX.tar.gz
[netdata] (1/3) Installing openssh-keygen (8.8_p1-r1)
[netdata] (2/3) Installing openssh-server-common (8.8_p1-r1)
[netdata] (3/3) Installing openssh-server (8.8_p1-r1)
[netdata] Executing busybox-1.34.1-5.trigger
[netdata] OK: 217 MiB in 187 packages
[netdata] Removing intermediate container 3b4b13afe525
[netdata]     -> 450e881b669d
[netdata] Step 3/10 : ENV DOCKER_GRP netdata
[netdata]     -> Running in 4779708e3d02
[netdata] Removing intermediate container 4779708e3d02
[netdata]     -> 0d8eed0fffb
[netdata] Step 4/10 : ENV DOCKER_USR netdata
[netdata]     -> Running in c766428fb3c9
[netdata] Removing intermediate container c766428fb3c9
[netdata]     -> 9b319afdb20
[netdata] Step 5/10 : ENV NETDATA_PORT 19999
[netdata]     -> Running in acc0ead35ee2
[netdata] Removing intermediate container acc0ead35ee2
[netdata]     -> 951f4237284f
[netdata] Step 6/10 : WORKDIR /etc/netdata
[netdata]     -> Running in bd7ca4438b5a

```

B 6.1 kB↓ 7.2 kB↑ | ① 18/4, 7:20 PM

-zsh

```

[netdata]     ->> Running in bb640e2ea0054
[netdata]     ->> 2922c20b185
[netdata]     ->> Start a shell in "/run/sh"
[netdata]     ->> ---- Running in c98754bf42b
[netdata]     ->> Removing intermediate container bb640e2ea0054
[netdata]     ->> 1af66ca3dd64
[netdata]     ->> Successfully built 1af66ca3dd64
[netdata]     ->> Removing intermediate container c98754bf42b
[netdata]     ->> 0ed9a930531
[netdata]     ->> Successfully built 0ed9a930531
[netdata]     ->> Generating image deltas from release c190263d99bd6858542d8f31df114ec8 (id: 2138131)
[Success] Successfully generated image deltas
[Info] Uploading images
[Success] Successfully uploaded images
[Info] Built on armv5
[Success] Release successfully created!
[Info] Release: 7883544f22408c17222e081ed2b0df3 (id: 2138231)
[Info] Build finished in 3 minutes, 1 second

```



marcpous@Marc-macbook kerberos-balena %

1.0 kB↑ | ① 18/4, 7:22 PM

balena dashboard | Fleets

https://dashboard.balena-cloud.com/devices/1bb86ca3046888619f7c669c90c2a8248/summary

Getting Started Docs Forums Status Marc Pous

green-cherry

STATUS: Updating (32%)

UUID: 1bb86ca3046888619f7c669c90c2a8248

TYPE: Raspberry Pi 4 (using 64bit OS)

ONLINE FOR: 31 minutes

HOST OS VERSION: balenaOS 2.95.8 (development)

SUPERVISOR VERSION: 12.11.38

CURRENT RELEASE: c190263

TARGET RELEASE: 7883344

LOCAL IP ADDRESS: 192.168.1.38

PUBLIC IP ADDRESS: 79.153.115.189

MAC ADDRESS: DC:A6:32:66:CD:77
DE:A8:06:02:A8:33

TAGS (0): No tags configured yet

PUBLIC DEVICE URL: [View](#)

NOTES: Add device notes...

SERVICES

Service	Status	Release	Actions
kerberos	Downloaded	7883344	View Edit Delete Logs
main	Downloaded	c190263	View Edit Delete Logs
netdata	Downloading 64%	7883344	View Edit Delete Logs

CPU: ~21% Temperature: ~49C Memory: 418 MB/3.8 GB Storage: 699 MB/13.8 GB

Logs

Search entries... Add filter Views

```
ze49859ea152fb@sha256:cd2542912f3711851fb5c25c0990ab1d6ac1e3cc38d636cb1040343706ee5088' 18.04.22 17:22:32 (+0000) Downloading image 'registry2.balena-cloud.com/v2/f60e/ccb7de32bc00be44de6b197ff6@sha256:57fc6cc41780f8530b2261c9b10e483b8e84c1725bdc8c8eeff4b4686a33bc816' 18.04.22 17:22:35 (+0000) Downloaded image 'registry2.balena-cloud.com/v2/a580e1744aa0a695ed2e49859ea152fb@sha256:cd2542912f3711851fb5c25c0990ab1d6ac1e3cc38d636cb1040343706ee5088' 18.04.22 17:22:48 (+0000) Service exited 'main sha256:b2341189bde4d391c8c574b5b5960dc1dfbdb35a8b02297f13e3fb16421149c6' 18.04.22 17:22:49 (+0000) Killed service 'main sha256:b2341189bde4d391c8c574b5b5960dc1dfbdb35a8b02297f13e3fb16421149c6'
```

Terminal

Select a target Start terminal session

Need help?

balena dashboard | green-cherry X +

https://dashboard.balena-cloud.com/devices/1bb86ca3046888619f7c669c90c2a8248/summary

Getting Started Docs Forums Status Marc Pous

green-cherry

STATUS: Online

UUID: 1bb86ca

TYPE: Raspberry Pi 4 (using 64bit OS)

ONLINE FOR: 31 minutes

HOST OS VERSION: balenaOS 2.95.8 (development)

SUPERVISOR VERSION: 12.11.38

CURRENT RELEASE: 7883344

TARGET RELEASE: 7883344

LOCAL IP ADDRESS: 192.168.1.38

PUBLIC IP ADDRESS: 79.153.115.189

MAC ADDRESS: DC:A6:32:66:CD:77

DE:A8:06:02:A8:33

TAGS (0)

No tags configured yet

NOTES

Add device notes...

SERVICES

Service	Status	Release
kerberos	Running	7883344
netdata	Running	7883344

Reboot

Restart services

CPU ~67% Temperature ~58C Memory 472 MB/3.8 GB Storage 1.1 GB/13.8 GB

Logs

Search entries... Add filter Views UTC Timestamps

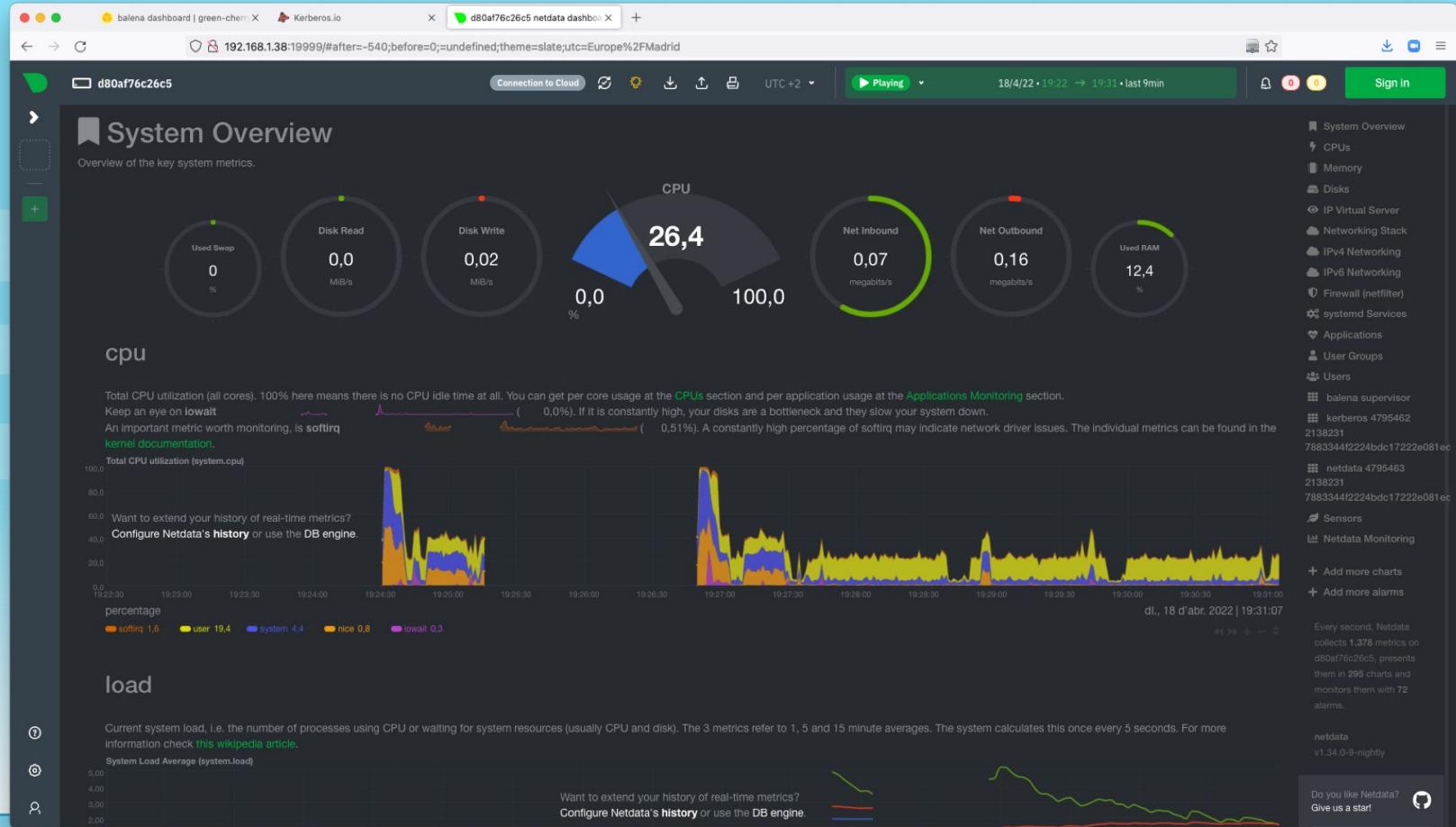
```
18.04.22 17:24:52 (+0000) netdata 2022-04-18 17:24:52: cgroup-name.sh: INFO: Running API command: curl --unix-socket "/var/run/balena-engine.sock" http://localhost/containers/82426e4ff776e876e238959192318282ce47ea5f4b1dd9e887ebdd32260fe236.json
18.04.22 17:24:52 (+0000) netdata 2022-04-18 17:24:52: cgroup-name.sh: INFO: docker container '82426e4ff776e876e238959192318282ce47ea5f4b1dd9e887ebdd32260fe236' is named 'kerberos_4795462_2138231_7883344f2224bcd17222e081ed2bdaf3'
18.04.22 17:24:52 (+0000) netdata 2022-04-18 17:24:52: cgroup-name.sh: INFO: cgroup 'system.slice_docker-82426e4ff776e876e238959192318282ce47ea5f4b1dd9e887ebdd32260fe236.scope' is called 'kerberos_4795462_2138231_7883344f2224bcd17222e081ed2bdaf3'
```

Terminal

Select a target Start terminal session

v12.0.4

Need help



Scaling is easy!



balena dashboard | DockerCon X

https://dashboard.balena-cloud.com/fleets/1925502/devices

Getting Started Docs Forums Status Marc Pous

Add device Actions Search entries... Add filter Views

Organizations Marc Pous Fleets DockerCon2022

Summary Devices Releases Variables Configuration Settings Provisioning Keys Members Teams

v12.0.4

Map Hybrid

North Atlantic Ocean, South Atlantic Ocean, Indian Ocean, South China Sea, East China Sea, Bay of Bengal, Arabian Sea, Gulf of Aden, Gulf of Mexico, Gulf of Guinea, Caribbean Sea, Hudson Bay, Labrador Sea, North Pacific Ocean, South Pacific Ocean.

Key locations marked with yellow dots: United States (AZ), Spain, Italy, Pakistan.

Keyboard shortcuts Map data ©2022 Google, INEGI Terms of Use

Fold for Covid - Donate spare computer power to fight COVID-19

https://foldforcovid.io

Fold for Covid | balena x Rosetta

How does it help? How does it work? Community FAQs Github Get Started

Help fight the COVID-19 pandemic with your old laptop, Raspberry Pi, or other spare computer

Mapa Satèl·lit

7.167 Computers fighting COVID-19 around the world

Join the fight!

What is Fold for Covid, and how does it help?

The Fold for Covid project aims to make it easy to donate spare compute capacity to support COVID-19 research with a few simple steps. [This effort](#) contributes to the [Rosetta@Home](#) project, led by the [Baker Laboratory at the University of Washington](#), which uses distributed computing to help scientists and doctors find potential treatments for COVID-19.

Your contributions help researchers look for proteins that bind to the famous "spike" protein on COVID-19. By finding these binding proteins, doctors hope to develop medicines that prevent the virus from entering healthy cells.

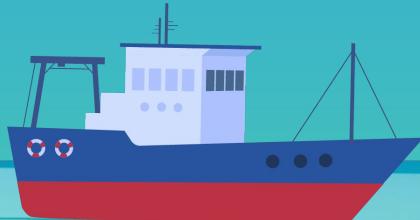
Join the fight!

- Find an old laptop or computer
- Download and install balenaEtcher & image
- Let's fight the virus together!

Get Started

Let's wrap-up!

- We built a container on Docker Desktop.
- We deployed the container onto an IoT device using Docker.
- We deployed to 3 devices. But, we could have deployed to 1,000 devices. Or 100,000.



Questions?





Marc Pous

Developer Advocate @ balena.io

e: marc@balena.io

t: @balena_io @gy4nt

https://github.com/mpous/Talks/tree/master/2022_DockerCon





Thank You.





balenaPlant

Automatic watering



