

MING - An Open-Source LAMP-like stack for the Internet of Things

NodeRED Con 2022 - 7th of October 2022



How did you learn programming?



AMSTRAD CPC 6128



Did you use any stack
to reduce friction?

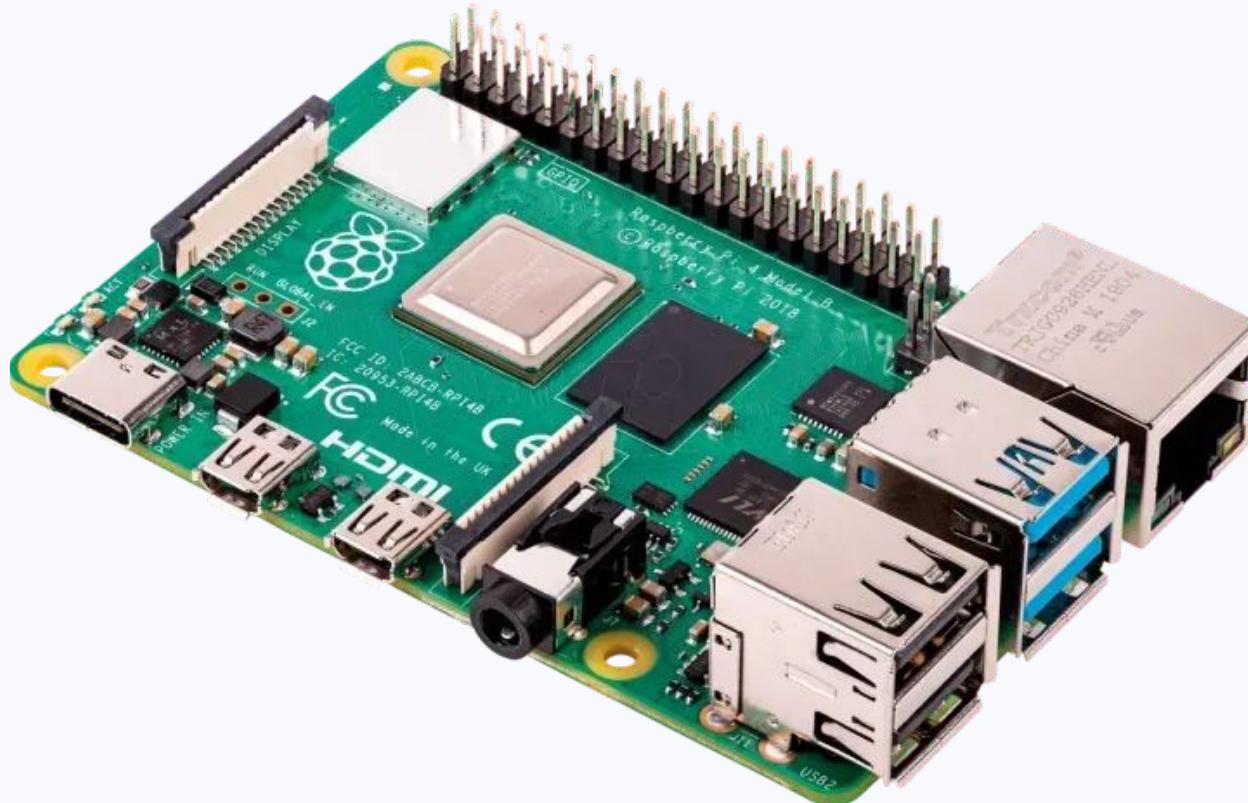




What can we do for the IoT?

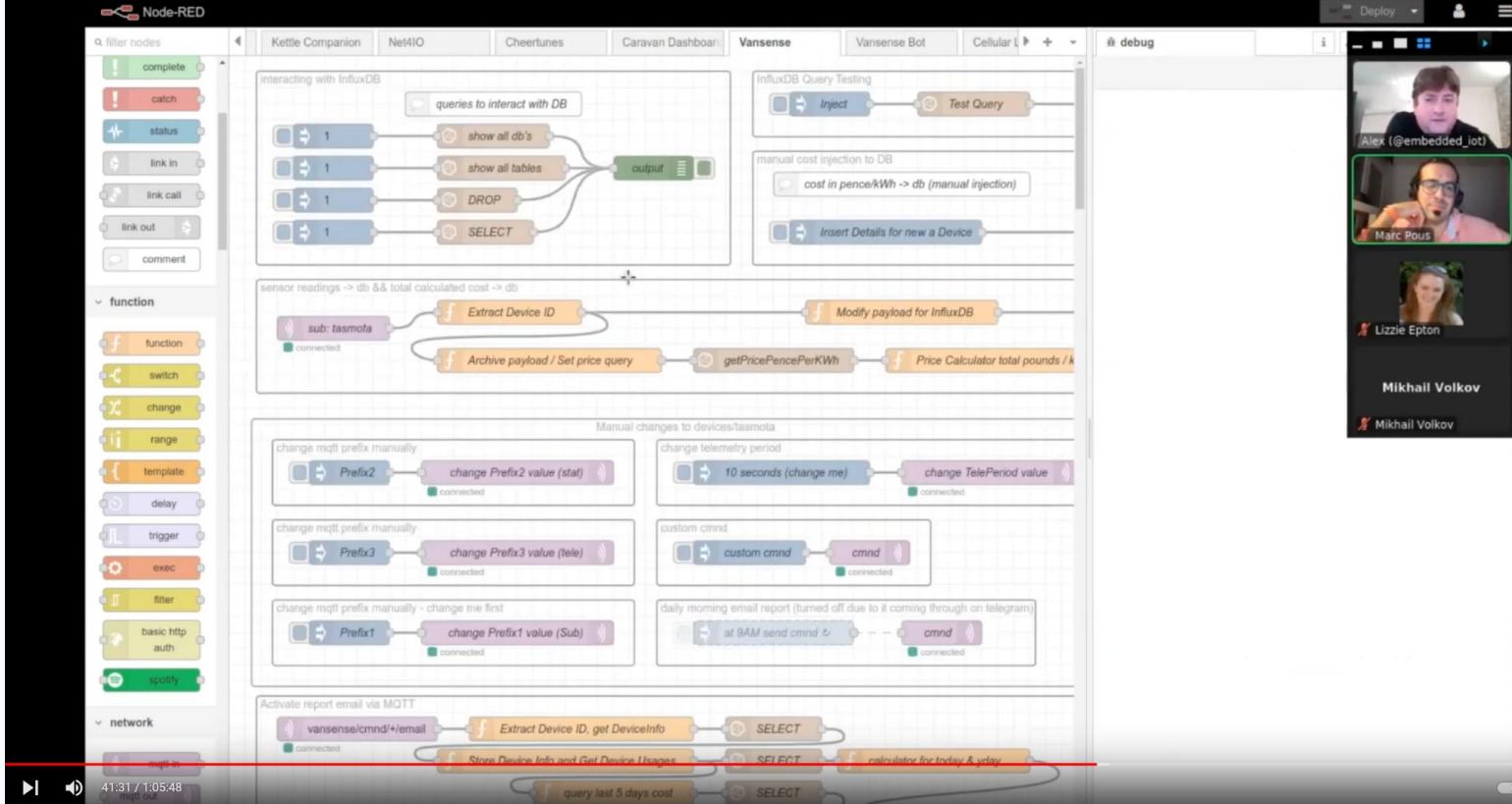






What does a developer
need to have a LAMP-like
stack for the IoT?





M I N G



MQTT InfluxDB NodeRED Grafana



MQTT InfluxDB NodeRED Grafana

DATA COMMUNICATION

DATA STORAGE

DATA PROCESSING / ACQUISITION

DATA VISUALIZATION



MQTT InfluxDB NodeRED Grafana

DATA COMMUNICATION

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DATA PROCESSING / ACQUISITION

DATA VISUALIZATION

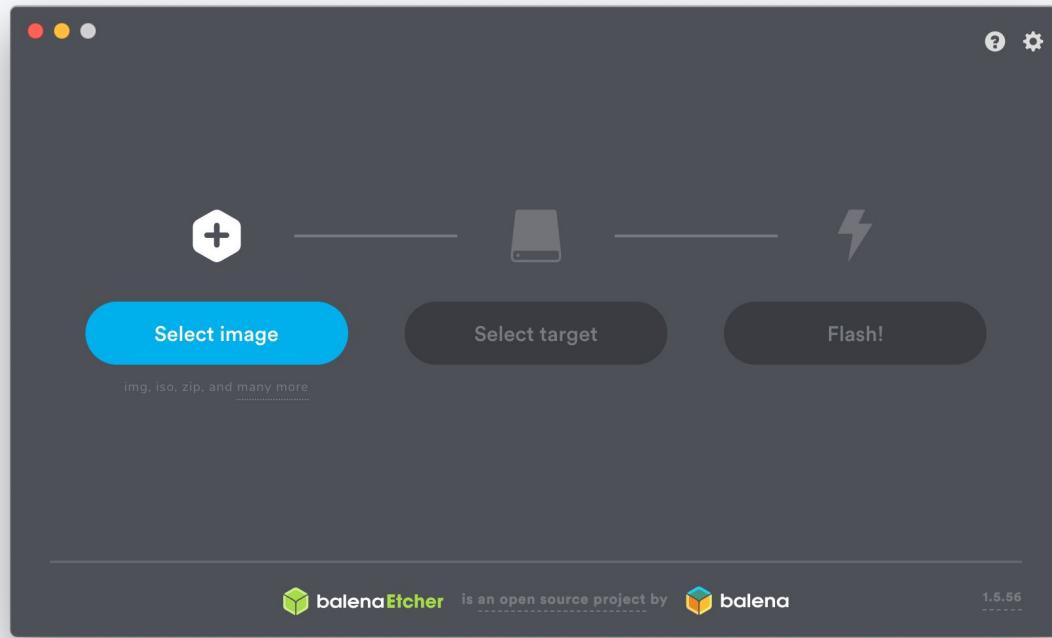
Feel free to contribute and add alternatives to
reduce friction to new IoT developers



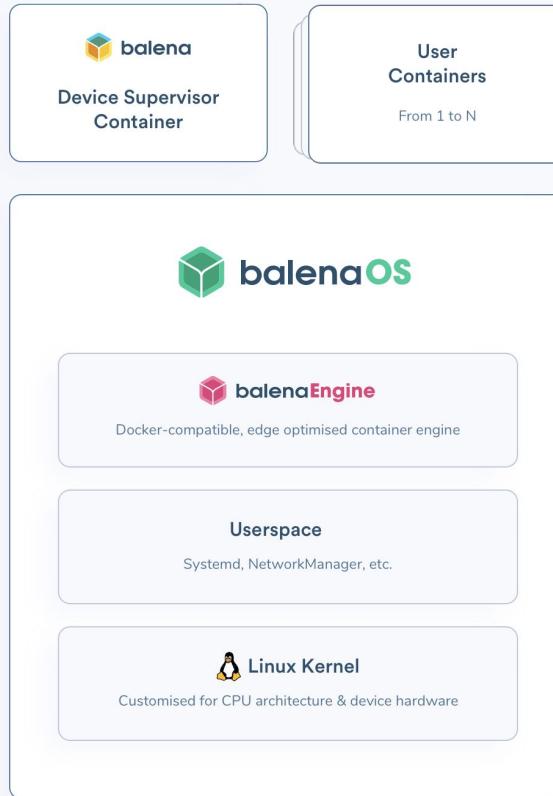
How can I get started?



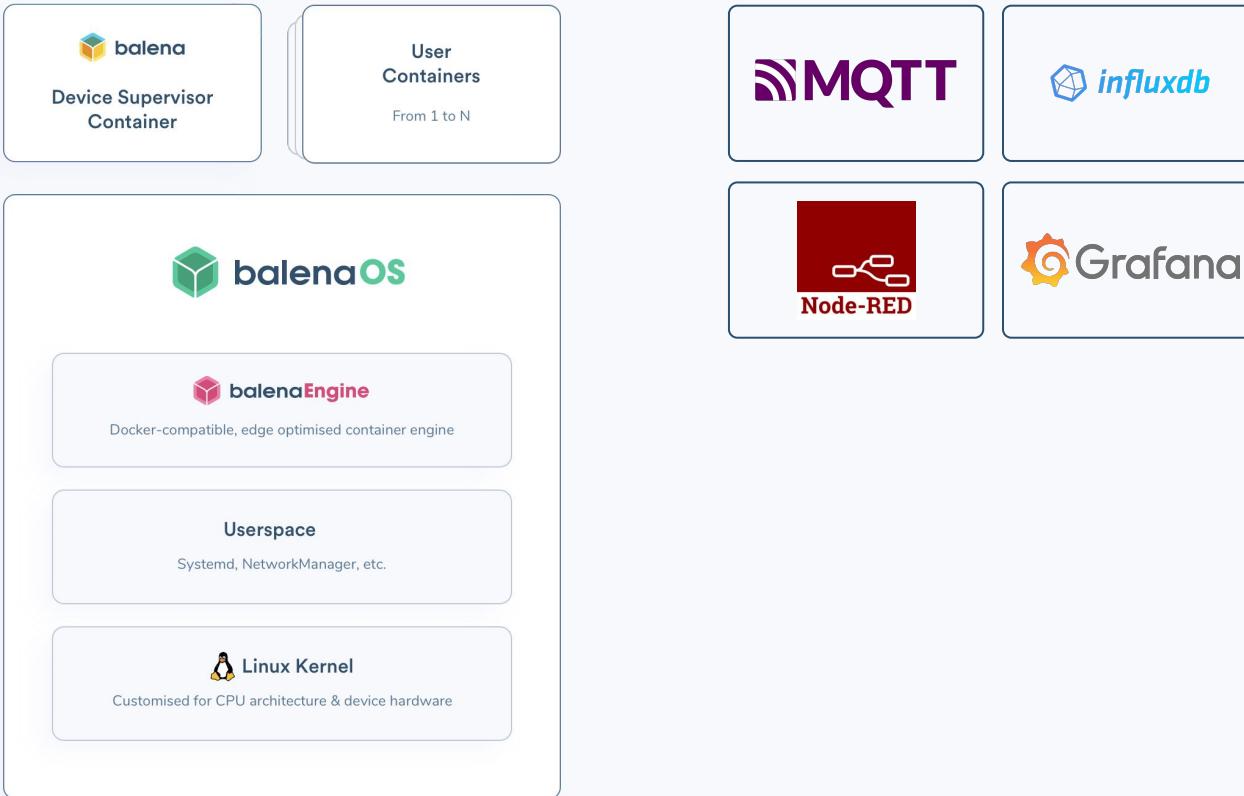
Anyone know this?



Let's take advantage of the containers in the Edge



Let's take advantage of the containers in the Edge



MING by Marc Pous - Balena X

https://hub.balena.io/organizations/marc6/apps/MING

What is balenaHub? Contribute Community

Organizations marc6 Apps MING

Summary Releases

Back to Apps

MING

by Marc Pous

Description Deploy MING Stack (MQTT, InfluxDB, NodeRED and Grafana). An Open-Source LAMP-like stack for the Internet of Things

Works With

Version v0.0.0+rev10 | View code | 14 MB | last updated at: 06 Oct 2022

Deploy Report issue

Release notes

v0.0.0+rev10 | 06 Oct 2022
No release notes

More from Marc Pous

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WORKS WITH

v0.0.0



balena dashboard | mean-rainfall

https://dashboard.balena-cloud.com/devices/79274f1c47d09ad5888d3d092a01e049

Getting Started Docs Forums Status Marc Pous

mean-rainfall

Actions

STATUS Online **UUID** 79274f1 **TYPE** Balena Fin (CM3)

ONLINE FOR 5 days **HOST OS VERSION** balenaOS 2.83.21+rev1 **SUPERVISOR VERSION** 12.10.3

CURRENT RELEASE 4e72605 **TARGET RELEASE** 4e72605

LOCAL IP ADDRESS 10.136.218.127 **PUBLIC IP ADDRESS** 192.168.1.34 **MAC ADDRESS** B8:27:EB:1F:04:F09
AC:3F:A4:EB:21:EC
AC:3F:A4:EB:20:EC

PUBLIC DEVICE URL [Link](#)

TAGS (0) [Edit](#)
No tags configured yet

SERVICES

Service	Status	Release	Actions
grafana	Running	4e72605	View Logs Terminal Edit Delete
influxdb	Running	4e72605	View Logs Terminal Edit Delete
mqtt	Running	4e72605	View Logs Terminal Edit Delete
node-red	Running	4e72605	View Logs Terminal Edit Delete
wifi-connect	Running	4e72605	View Logs Terminal Edit Delete

90% [Help](#) [Docs](#) [Forums](#) [Status](#) [Marc Pous](#)

Logs

Search entries... Add filter Views

```
07.10.22 02:35:02 (+0000) influxdb [httpd] 172.18.0.2 - - [07/Oct/2022:02:35:02 +0000] "GET /query?db=balena&q=show+field+keys HTTP/1.1" 200 70 "-" "Python-urllib/3.7" a549f3ed-45e8-11ed-8075-0242ac120003 1 159
07.10.22 02:35:02 (+0000) grafana Interim dashboard sync skipped: No schema found.
07.10.22 02:35:12 (+0000) influxdb [httpd] 172.18.0.2 - - [07/Oct/2022:02:35:12 +0000] "GET /query?db=balena&q=show+field+keys HTTP/1.1" 200 70 "-" "Python-urllib/3.7" ab42ab82-45e8-11ed-8076-0242ac120003 1 302
07.10.22 02:35:12 (+0000) grafana Interim dashboard sync skipped: No schema found.
07.10.22 02:35:22 (+0000) influxdb [httpd] 172.18.0.2 - - [07/Oct/2022:02:35:22 +0000] "GET /query?db=balena&q=show+field+keys HTTP/1.1" 200 70 "-" "Python-urllib/3.7" b13b454f-45e8-11ed-8077-0242ac120003 1 974
07.10.22 02:35:22 (+0000) grafana Interim dashboard sync skipped: No schema found.
```

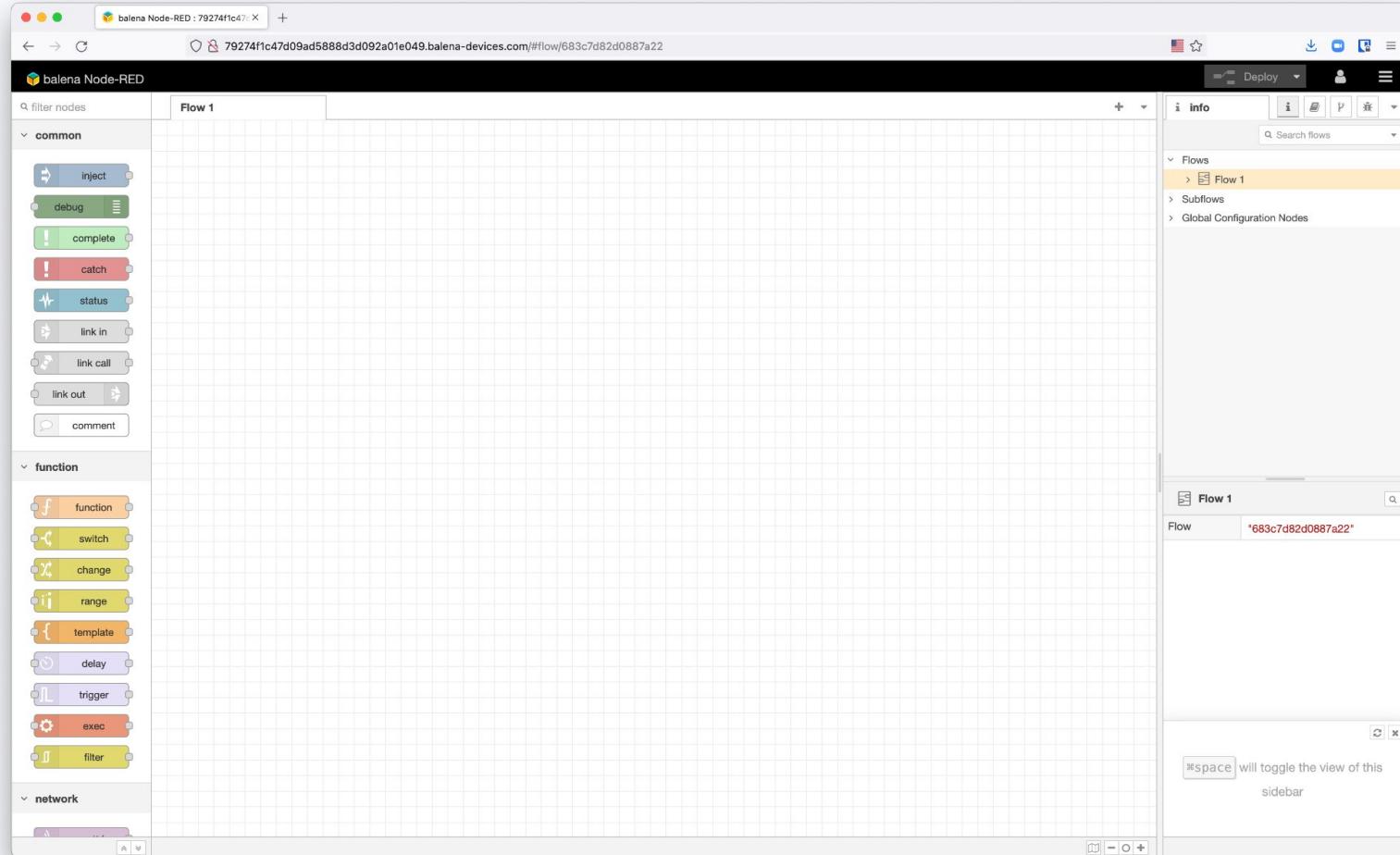
Terminal

Select a target Start terminal session

Changelog v15.2.0

Need help ?

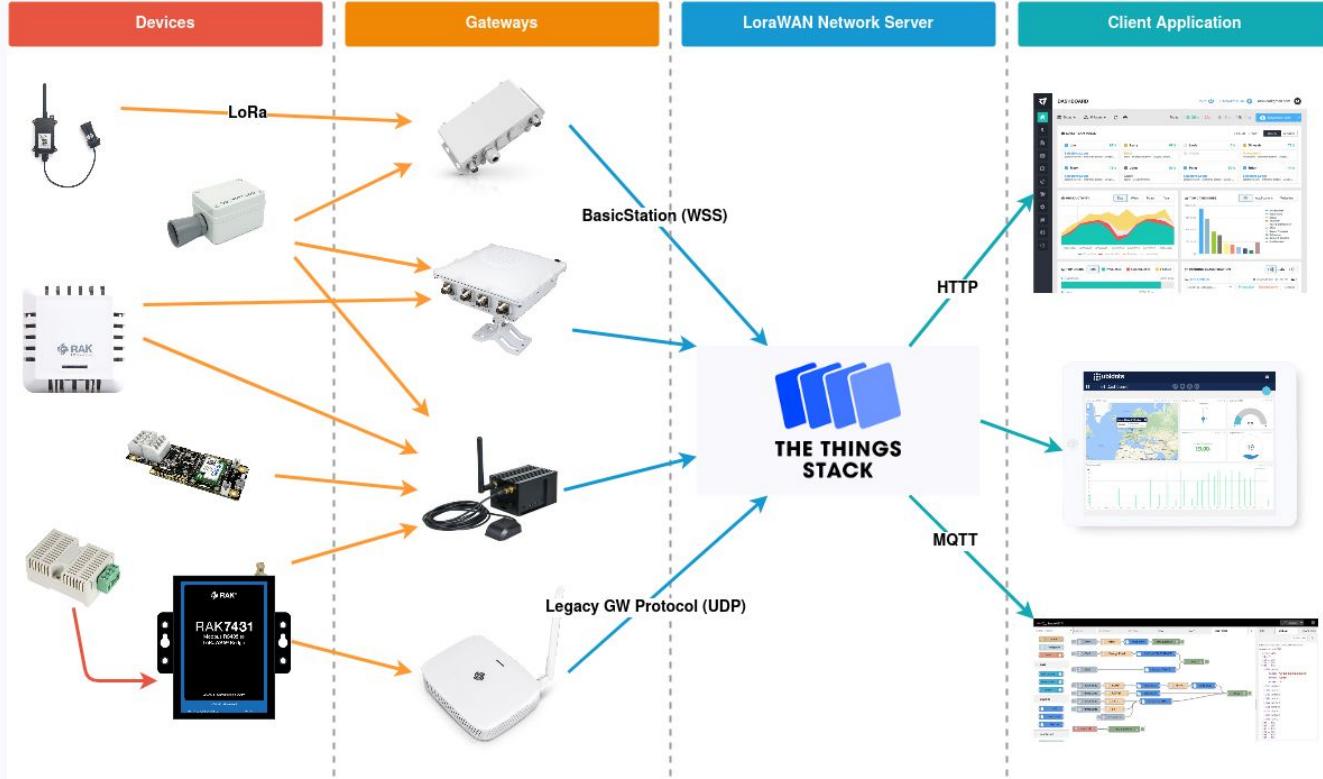




Some examples
about MING?



LoRaWAN Network with MING



balena dashboard | aged-wood Application data - TTC Application balena Node-RED: 192.168.1.38 TTC Test - Grafana

https://dashboard.balena-cloud.com/devices/d4576c729cbdbbede732edf10217705d

90% Getting Started Docs Forums Status Marc Pous

Device Details:

- Status:** Online (green)
- UUID:** d4576c7
- Type:** Raspberry Pi 4 (using 64bit OS)
- Online For:** an hour
- HOST OS VERSION:** balenaOS 2.103.1+rev1 (development)
- SUPERVISOR VERSION:** 14.0.14
- CURRENT RELEASE:** 0fc85a1
- TARGET RELEASE:** 0fc85a1
- LOCAL IP ADDRESS:** 192.168.1.38
- PUBLIC IP ADDRESS:** 79.153.124.126
- MAC ADDRESS:** DC:A6:32:55:4B:34
- PUBLIC DEVICE URL:** (disabled)
- TAGS:** (2) EUI: DCA632FFFFE554B34, URL: https://192.168.1.38
- NOTES:** EUI : DCA632FFFFE554B34

Services:

Service	Status	Release
basicstation	Running	0fc85a1
grafana	Running	0fc85a1
influxdb	Running	0fc85a1
node-red	Running	0fc85a1
postgres	Running	0fc85a1
redis	Running	0fc85a1
stack	Running	0fc85a1
wifi-connect	Running	0fc85a1

Logs:

Search entries... Add filter Views

```

: "pipe", "request_id": "01GDDADY55FB0AYKCHM8ATZ94Y"
20.09.22 11:27:20 (+0000) basicstation 2022-09-20 11:27:20.111 [SYN:VERB] Time sync rejected: quality=2
74 threshold=241
20.09.22 11:27:24 (+0000) influxdb 2022-09-20T11:27:24.536Z61Z info Executing query ("log_id"
: "0d2b81t000", "service": "query", "query": "SELECT fieldkey, fieldType FROM balena.autogen_fieldKeys"
}
20.09.22 11:27:24 (+0000) influxdb [http://172.17.0.5:8086/] 208 153 "-" "Python-urllib/3.7" 322355e-38d7-11ed-81dd-0242ac100004 16
62
20.09.22 11:27:24 (+0000) grafana 2022-09-20 11:27:24 Dashboard not found
logger=
context user_id=0 org_id=1 remote_addr="Dashboard not Found" remote_addr=127.0.0.1
20.09.22 11:27:24 (+0000) grafana INFO [09-20|11:27:24] Request Completed
logger=
context user_id=0 org_id=1 uname=method=GET path=/api/dashboards/uid/paylod.end_device_ids.device_id stat
us=404 remote_addr=127.0.0.1 time_ms=152 size=33 referer=
20.09.22 11:27:24 (+0000) grafana Interim dashboard sync complete.

```

Terminal:

```

root@58a70af2e71a:/# influx
Connected to http://localhost:8086 version 1.7.11
InfluxDB shell version: 1.7.11
> create database balena

```



balena dashboard | shy-sky Overview - Console - The Thing +

https://012e801cea281877752c446b9295026.balena-devices.com/console/

THE THINGS STACK
Open Source

Overview Applications Gateways Organizations admin

Welcome to the Console!

Get started right away by creating an application or registering a gateway.

Need help? Have a look at our [Documentation](#).

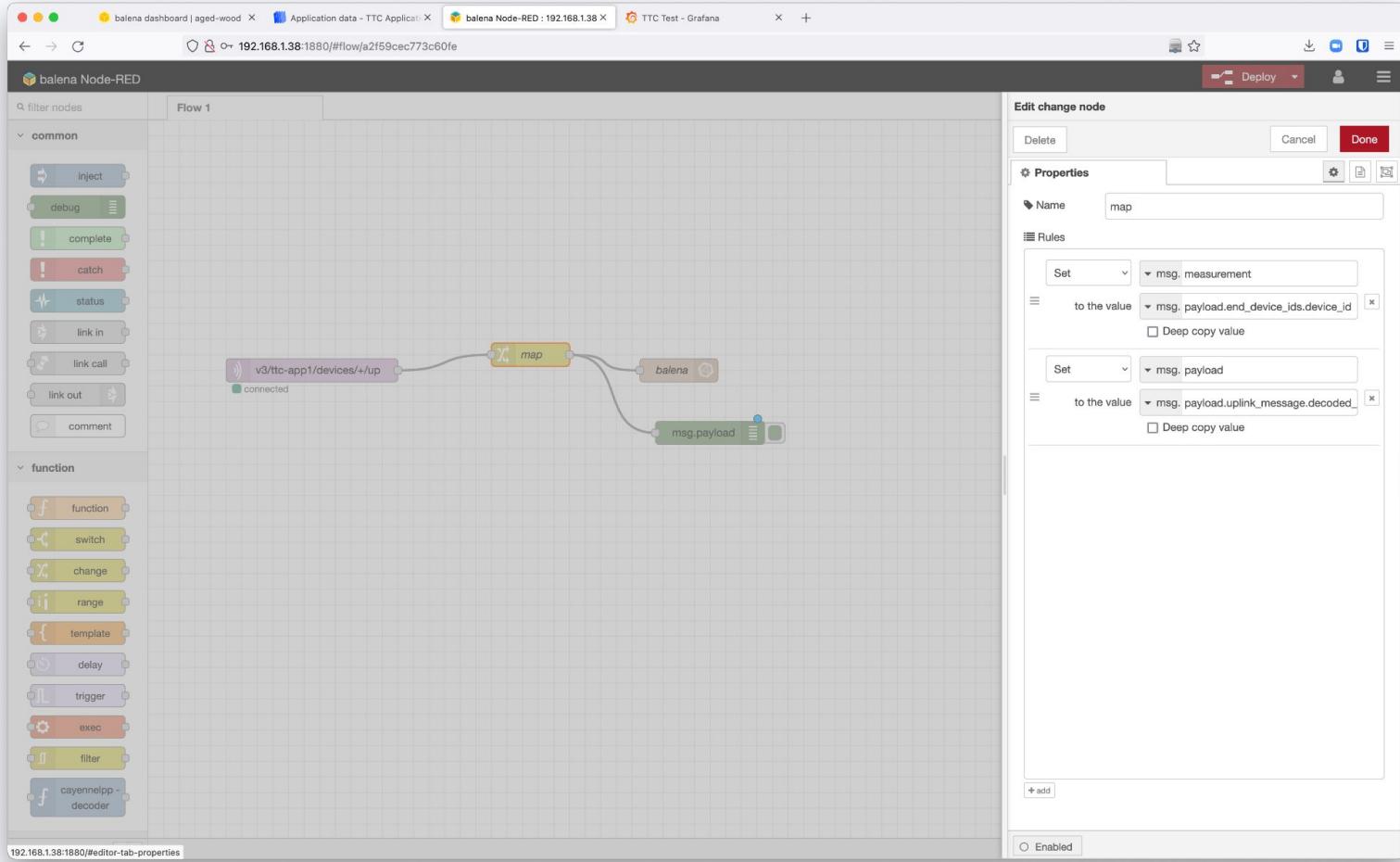
Create an application

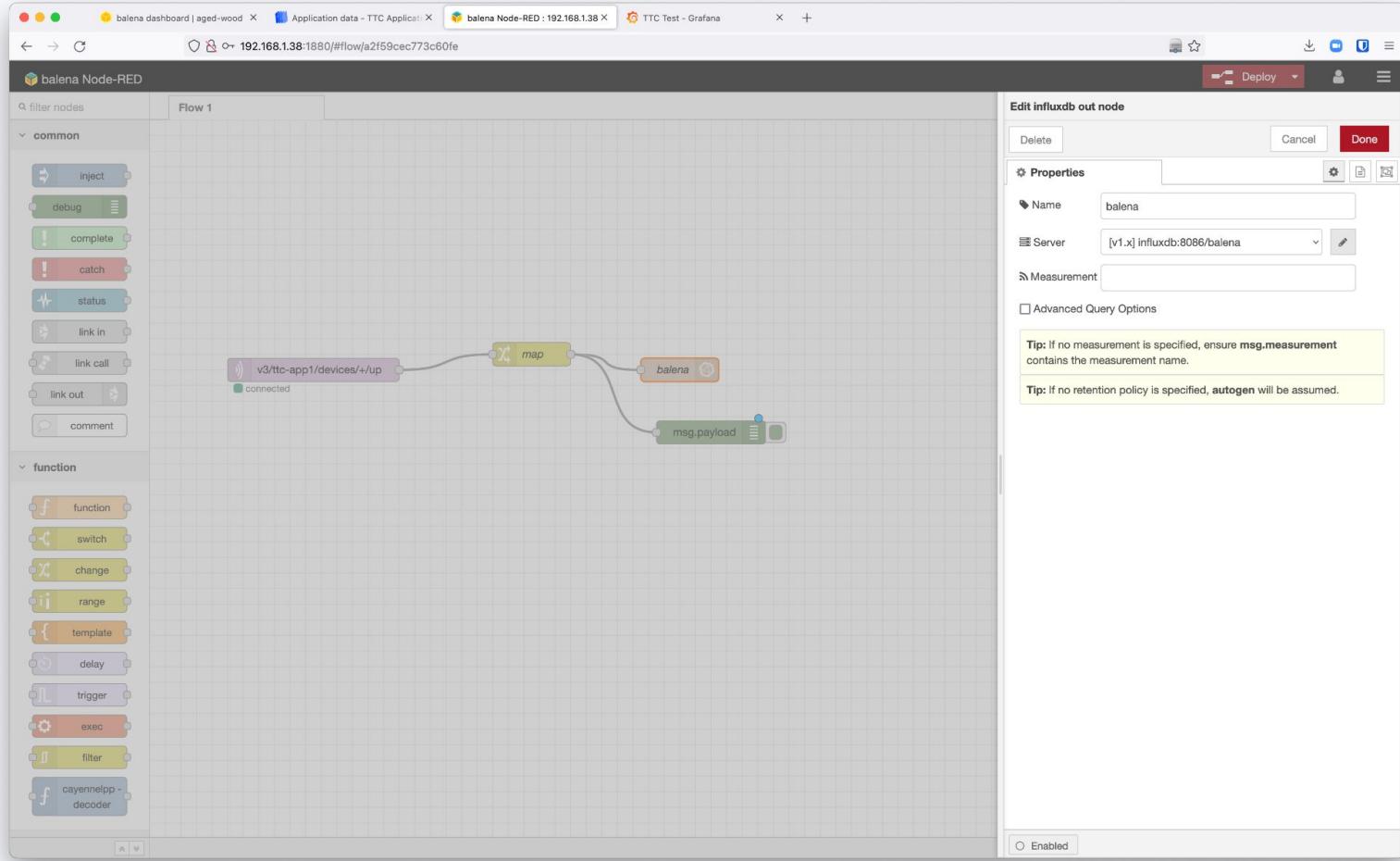
Register a gateway

Version info Component status

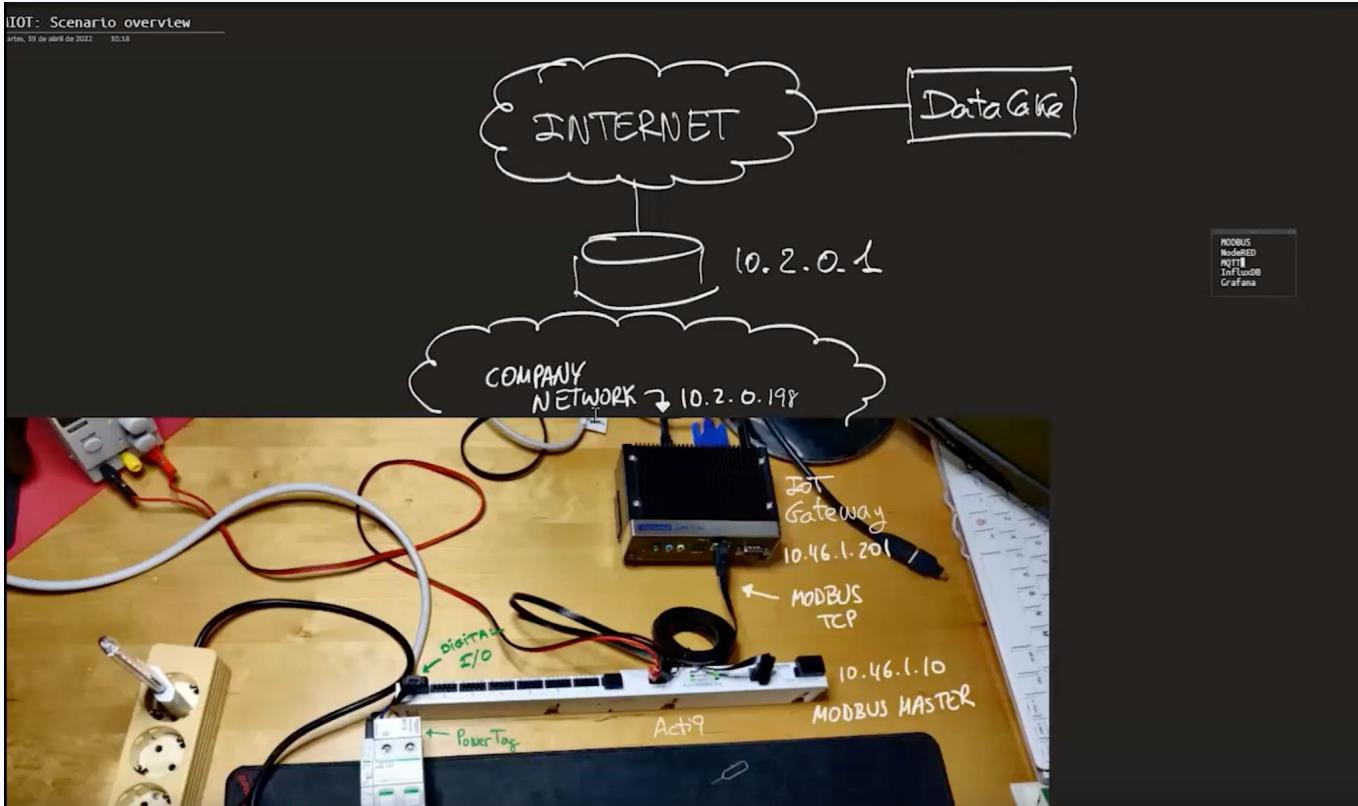
Application Server







Industrial IoT?



YouTube MX

Search

Not secure | 10.2.0.198/#flow/b774e57a4fb492e4

balena Node-RED

pulling data to database aux bak

common

function

Workshop: From legacy to digital factory using open source tools

59 views · May 4, 2022

37:16 / 1:26:49

90%

Oríol Rius

Protocol translation

iC60N

Modbus Response

ic60n/status

mqtt

debug

current flow all

The screenshot shows a Node-RED flow titled "balena Node-RED". The flow starts with an "inject" node connected to a "pulling data" function node. This is followed by a "common" function node labeled "ic60n/status". The output of this node goes to a "protocol translation" node, which then connects to another "ic60n/status" node. This second "ic60n/status" node is connected to an "mqtt" node. A "debug" node is also present in the flow. On the left, there is a sidebar with categories like "common" and "function", and a list of nodes including "iC60N", "Modbus Response", and "function". At the bottom of the screen, there is a YouTube player interface showing the video title "Workshop: From legacy to digital factory using open source tools", the date "May 4, 2022", and the duration "37:16 / 1:26:49". There are also various interaction buttons like "Like", "Dislike", "Share", "Clip", "Save", and "More".



Let's wrap-up!



Why do we do this?

- Reduce friction to developers who want to get introduced into the IoT.
- Enable the IoT developers and professionals.
- Feel free to contribute!



MING by Marc Pous - Balena X +

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WORKS WITH

v0.0.0



https://github.com/mpous/ming

The screenshot shows a GitHub repository page for 'mpous/ming'. The repository is public and contains 1 commit, 2 branches, and 0 tags. The README.md file is displayed, featuring the title 'MING (MQTT, InfluxDB, NodeRED and Grafana)'. It describes MING as an educative project based on MQTT, InfluxDB, balena Node-RED block, Grafana and WiFi Connect balena blocks. The repository also lists requirements for hardware and software, and contributors.

Code

Issues 1 Pull requests Actions Projects Wiki Security Insights Settings

master 2 branches 0 tags

Go to file Add file Code

mpous ming made by blocks 052f828 10 hours ago 1 commit

README.md ming made by blocks 10 hours ago

balena.yml ming made by blocks 10 hours ago

docker-compose.yml ming made by blocks 10 hours ago

logo.png ming made by blocks 10 hours ago

About

No description, website, or topics provided.

Readme 0 stars 1 watching 1 fork

Releases

No releases published Create a new release

Packages

No packages published Publish your first package

Contributors 16

+ 5 contributors



Contact me if you have any questions



Marc Pous

Developer Advocate at balena.io

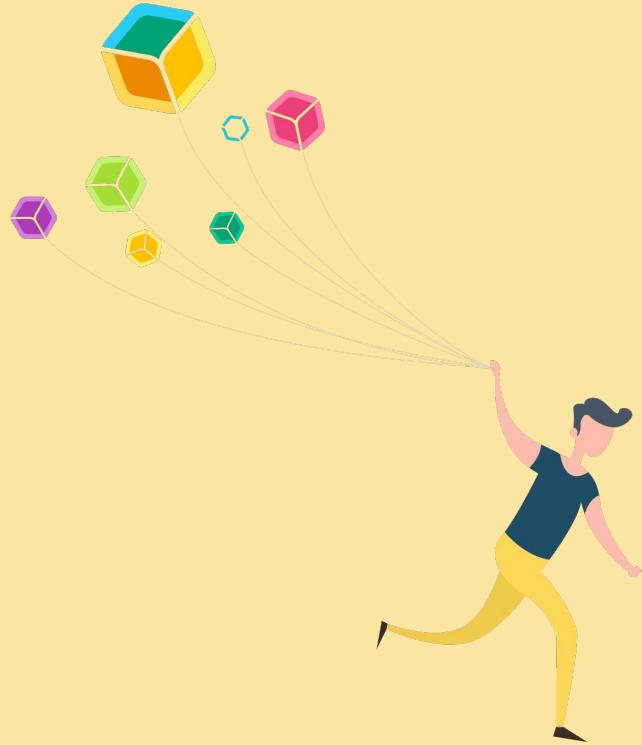
Running [IoT Barcelona](#), [IoT Stars](#) and IoT Coffee Talk

marc@balena.io

@gy4nt @balena_io



Questions?



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