

MIGRACIÓ DE DISPOSITIUS DE TTN V2 A TTS V3

SARA PUIG CABRUJA



**THE THINGS
NETWORK**



**THE THINGS
STACK**

CONTINGUTS

- Migració de dispositius de TTN a TTS
- Configuración de la passarel·la
- Creació de JWT per la comunicació amb MQTT
- Recuperació de dades desde Node-Red

MIGRACIÓ DE TTN A TTS

- Descarregar programari necessari [d'aquí](#)
- Executar en el directori on està desat el programari descarregat

```
export TTNV2_APP_ID = "Application ID"
```

```
export TTNV2_APP_ACCESS_KEY = "ACCESS KEY"
```

```
export FREQUENCY_PLAN_ID = "EU_863_870_TTN"
```

```
amd64$ export TTNV2_APP_ID="app-certificacio"  
amd64$ export TTNV2_APP_ACCESS_KEY=""  
amd64$ export FREQUENCY_PLAN_ID="EU_863_870_TTN"
```

MIGRACIÓ DE TTN A TTS

- Executar en el directori on està desat el programari descarregat

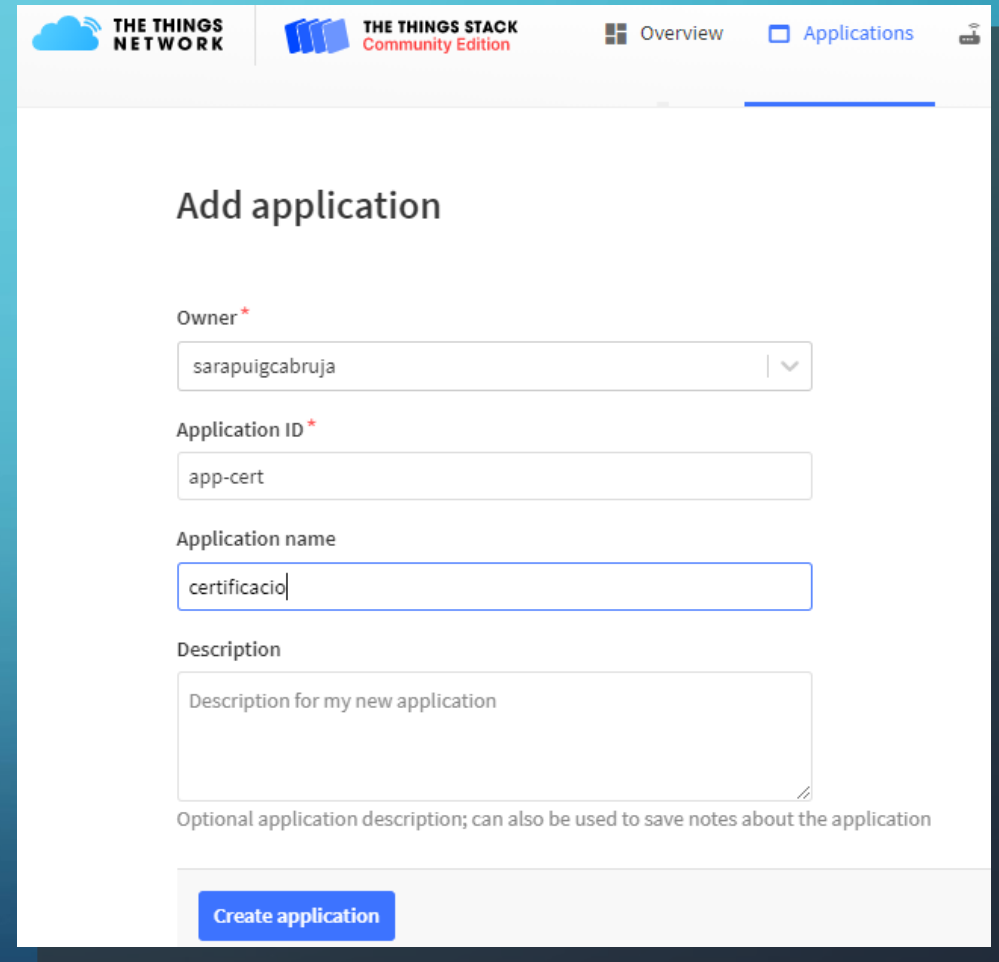
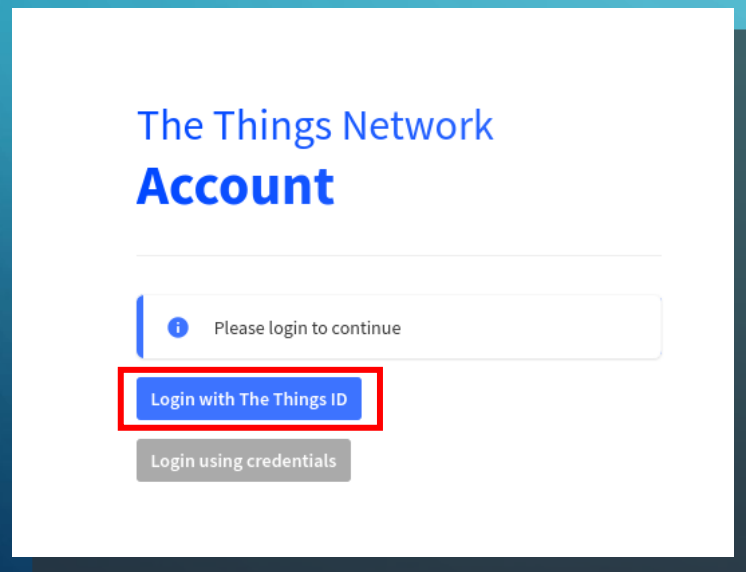
```
./ttn-lw-migrate device --source ttnv2 "Device ID" --dry-run > nomFitxer.json
```

```
./ttn-lw-migrate device --source ttnv2 "Device ID" > nomFitxer2.json
```

```
amd64$ ./ttn-lw-migrate device --source ttnv2 "cert1" --dry-run > cert1.json
EABF59 device_id=cert1
amd64$ ./ttn-lw-migrate device --source ttnv2 "cert1" > cert1-dev.json
EABF59 device_id=cert1
```

MIGRACIÓ DE TTN A TTS

- Accedir [aquí](#)
- Crear aplicació



MIGRACIÓ DE TTN A TTS

Applications > certificacio

certificacio
ID: app-cert

0 End devices 1 Collaborator 0 API keys Created 1 minute ago

General information

Application ID: app-cert

Created at: Feb 22, 2021 11:14:03

Last updated at: Feb 22, 2021 11:14:03

Live data See all activity →

Waiting for events from app-cert...

End devices (0) Search by ID **Import end devices** + Add end device

Applications > certificacio > End devices > Import

Import end devices

File import

Format*

The Things Stack JSON

Format information-

File containing end devices in The Things Stack JSON format.

File*

Change file... cert1-dev.json Remove

Targeted components

Identity Server Network Server Join Server Application Server

Claiming

Set claim authentication code

Create end devices

MIGRACIÓ DE TTN A TTS

Import end devices

Creating end devices...

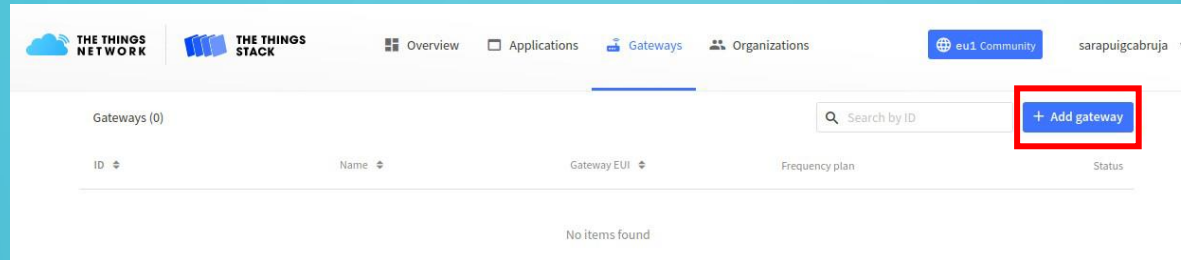
Operation finished •

1 of 1 (100.00% finished)

```
{,
  "lorawan_phy_version": "1.0.2-b",
  "session": {
    "dev_addr": "26013329",
    "keys": {
      "f_nwk_s_int_key": {
        "key": " "
      },
      "app_s_key": {
        "key": " "
      }
    }
  },
  "last_f_cnt_up": 1,
  "started_at": "2021-02-22T09:57:39.056189888Z"
},
"lorawan_version": "1.0.2",
"name": "cert1",
"application_server_address": "eu1.cloud.thethings.network",
"network_server_address": "eu1.cloud.thethings.network"
}
```

Proceed

CONFIGURACIÓ DE LA PASSAREL·LA



General settings

Owner *
sarapuigcabruja

Gateway ID *
eui-0001fcc23d1056c0

Gateway EUI ⓘ
00 01 FC C2 3D 10 56 C0

Gateway name
ttn-siarq-0001-lorixone

Gateway description
ttn-siarq-0001-lorixone
Optional gateway description; can also be used to save notes about the gateway

Gateway Server address
eu1.cloud.thethings.network
The address of the Gateway Server to connect to

Gateway status
 Public
The status of this gateway may be publicly displayed

Attributes
[+ Add attributes](#)
Attributes can be used to set arbitrary information about the entity, to be used by

LoRaWAN options

Frequency plan ⓘ
Europe 863-870 MHz (SF9 for RX2 - recommended)
The frequency plan used by the end device

Schedule downlink late
 Enabled
Enable server-side buffer of downlink messages

Duty cycle
 Enforced
Recommended for all gateways in order to respect spectrum regulations

Schedule any time delay *
530 milliseconds
Configure gateway delay (minimum: 130ms, default: 530ms)

Gateway updates

Automatic updates
 Enabled
Gateway can be updated automatically

Channel
Stable
Channel for gateway automatic updates

[Create gateway](#)

CONFIGURACIÓ DE LA PASSARELLA

- Situar-nos a la carpeta `opt/lorix/clouds/ttn`
- Fitxer de configuració «`local_conf.json`»
- Modifiquem `"server_address": "eu1.cloud.thethings.network"`

```
/* Put these parameters that are different for each gateway (eg. pointing one gateway to a test server while the others stay in production) */
/* Settings defined in global_conf will be overwritten by those in local_conf */
"gateway_conf": {
  "gateway_ID": "0001fcc23d1056c0",

  "servers": [
    {
      "server_address": "eu1.cloud.thethings.network",
      "serv_port_up": 1700,
      "serv_port_down": 1700,
      "serv_enabled": true
    }
  ],
  "gps": true,
  "fake_gps": true,
  "ref_latitude": 41.391193,
  "ref_longitude": 2.139009,
  "ref_altitude": 57,
  "contact_email": " ",
  "description": "ttn-siarq-0001-lorixone"
}
}
```


CONFIGURACIÓ DE LA PASSAREL·LA

- Executar

```
/etc/init.d/ttn-gw restart
```

```
ttn-siarq-0001:/opt/lorix/clouds/ttn$ /etc/init.d/ttn-gw restart  
rm: remove write-protected regular file '/var/run/ttn-gw.pid'?
```

CONFIGURACIÓ DE LA PASSAREL·LA

 **ttn-siarq-0001-lorixone**
ID: eui-0001fcc23d1056c0

• Last seen 9 seconds ago [↑ 24](#) [↓ 1](#) [1 Collaborator](#) [0 API keys](#) Created 37 minutes ago

General information

Gateway ID:

Gateway EUI:

Gateway description:

Created at: Feb 23, 2021 11:05:09

Last updated at: Feb 23, 2021 11:05:09

Gateway Server address:

LoRaWAN information


Frequency plan:

Global configuration: [Download global_conf.json](#)

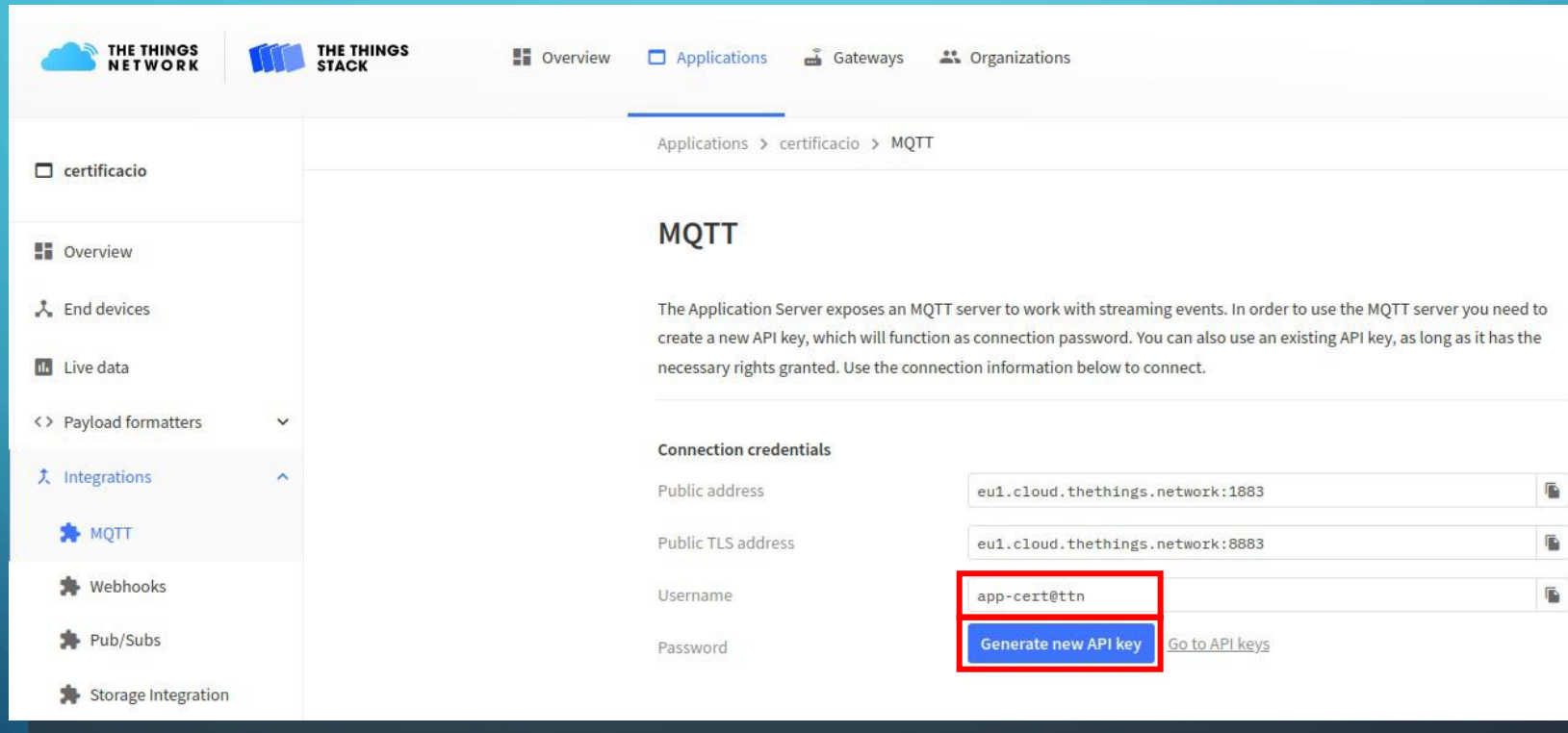
Live data [See all activity →](#)

- ↑ 11:42:15 Drop uplink message `JoinRequestPHYPayload` length `9` should
- ↑ 11:42:15 Drop uplink message `JoinRequestPHYPayload` length `9` should
- ↑ 11:42:15 Receive uplink message Bandwidth: 125000 SNR: -6.2 RSSI: -11
- ↑ 11:42:14 Drop uplink message `JoinRequestPHYPayload` length `9` should
- ↑ 11:42:14 Drop uplink message `JoinRequestPHYPayload` length `9` should
- ↑ 11:42:14 Receive uplink message Bandwidth: 125000 SNR: -7.2 RSSI: -11

Location [Change location settings →](#)



CREACIÓ DE JWT PER LA COMUNICACIÓ AMB MQTT



The screenshot shows the 'MQTT' configuration page in the The Things Network console. The page is titled 'MQTT' and contains the following information:

- Navigation:** Overview, Applications (selected), Gateways, Organizations.
- Breadcrumbs:** Applications > certificacio > MQTT
- MQTT Description:** The Application Server exposes an MQTT server to work with streaming events. In order to use the MQTT server you need to create a new API key, which will function as connection password. You can also use an existing API key, as long as it has the necessary rights granted. Use the connection information below to connect.
- Connection credentials:**
 - Public address: eu1.cloud.thethings.network:1883
 - Public TLS address: eu1.cloud.thethings.network:8883
 - Username: app-cert@ttn (highlighted with a red box)
 - Password: [Generate new API key](#) [Go to API keys](#) (the 'Generate new API key' button is highlighted with a blue box)

RECUPERACIÓ DE DADES DESDE NODE-RED

- MQTT-IN
- v3/nomUsuariMQTT/devices/Device ID/up

Edit mqtt in node

Delete Cancel Done

Properties

Server: eu1.cloud.thethings.network:8883

Topic: v3/app-cert@ttn/devices/cert1/up

QoS: 2

Output: auto-detect (string or buffer)

Name: Name

Edit mqtt in node > Edit mqtt-broker node

Delete Cancel Update

Properties

Name: Name

Connection Security Messages

Server: eu1.cloud.thethings.network Port: 8883

Enable secure (SSL/TLS) connection

TLS Configuration: Add new tls-config...

Client ID: Leave blank for auto generated

Keep alive time (s): 60 Use clean session

Use legacy MQTT 3.1 support

Edit mqtt in node > Edit mqtt-broker node

Delete Cancel Update

Properties

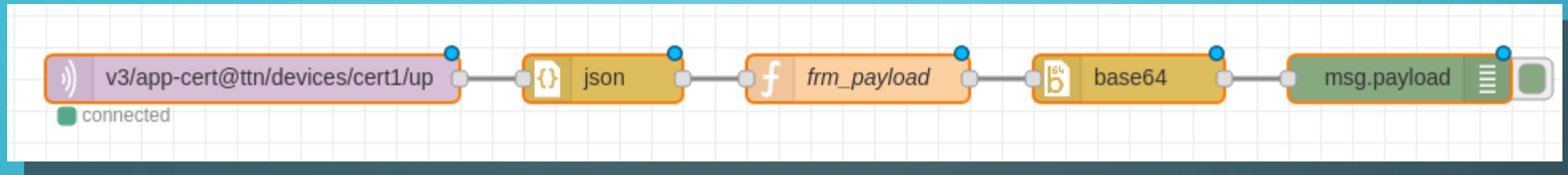
Name: Name

Security Connection Messages

Username: app-cert@ttn

Password:

RECUPERACIÓ DE DADES DESDE NODE-RED



Name

frm_payload

Function

```
1 msg.payload = msg.payload.uplink_message.frm_payload.toString();
2 return msg;
```

- node-red-node-base64

Edit base64 node

Delete Cancel Done

node properties

Action Convert Buffer <-> Base64

Property msg.payload

Name Name

The background is a solid teal color with a subtle gradient. In the four corners, there are decorative white line-art elements resembling circuit traces or neural network connections, with small circles at the end of the lines.

MOLTES GRÀCIES PER LA VOSTRA ATENCIÓ

ALGUNA PREGUNTA?