



MINISTERIO
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Plan de Recuperación,
Transformación
y Resiliencia



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Junta de Andalucía

Digitalización y Tecnificación del Sector Agrícola

La Transformación Digital en la Formación Agroalimentaria

José Checa Claudel :: infofiwa@uco.es

Aula de Transformación Digital FiWare #ATDFiware

Universidad de Córdoba



UNIVERSIDAD
DE
CÓRDOBA

ATd. 
fiware





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Selección: LoRaWAN + VPS





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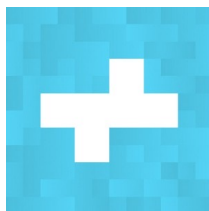


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Programación



CrateDB



Grafana





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Configuración Sensórica



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Dispositivos

Información fundamental para la integración en la plataforma TTN de un dispositivo LoRa

- DeviceID
- APP EUI
- Device ADDR
- APP Key
- NWSKey
- AppSKey



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Definición en la plataforma TTN



<https://www.thethingsnetwork.org>

- Registro de usuario.
- Gateways
- Aplicaciones
- Dispositivos



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Definición en la plataforma TTN

THE THINGS NETWORK

LearnHardwareForumCommunityConferenceEnterprise

atdware

We are a global collaborative Internet of Things ecosystem that creates networks, devices and solutions using LoRaWAN®.

Start buildingLearn more



Europe 1
eu1 - Dublin, Ireland

North America 1
nam1 - California, United States

Australia 1
au1 - Sydney, Australia

Legacy V2 Console
⚠️ shuts down in December 2021

More information

37.3M
Messages today

151
Countries

983
Certified developers

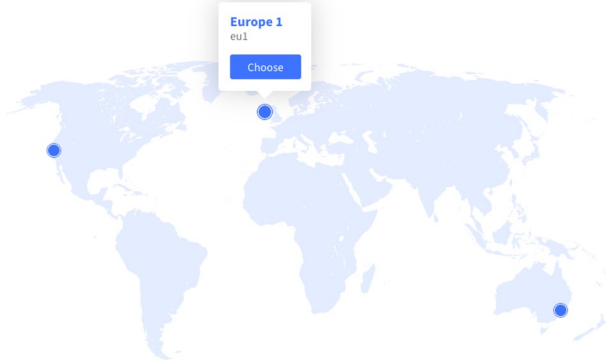
158.9K
Members

21.4K
Gateways

1.5M
YouTube views

13.5K
YouTube subscribers

627
GitHub stars



Europe 1
eu1
Choose



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












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Definición en la plataforma TTN



Overview

Applications

Gateways

Organizations

EU1 Community
No SLA applicable


EU1 Community
Fair use policy applies

ATDFiWare Universidad de Córdoba

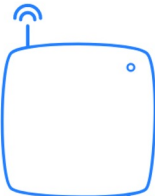
Welcome back, ATDFiWare Universidad de Córdoba! 🙌

Walk right through to your applications and/or gateways.

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



[Go to applications](#)



[Go to gateways](#)

Applications (19)

[+ Add application](#)

| ID | Name | Description |
|-------------------|----------------------------------|----------------------------------|
| atd-adeniusanalog | atd-adeniusanalog | atd-adeniusanalog |
| atd-adeniustemp | atd-adeniustemp | atd-adeniustemp |
| atd-adeniustest | Medidores de Campo para mapeos. | Medidores de Campo para mapeos. |
| atd-airsense | Sensores CO2 de IMBuildings | Sensores CO2 de IMBuildings |
| atd-am102 | Sensores CO2 Ursalink Interior | Sensores CO2 Ursalink Interior |
| atd-cilifo | Estaciones Meteorológicas Cilifo | Estaciones Meteorológicas Cilifo |
| atd-em300th | Milesight EM300 Temp/Hum Sensor | Milesight EM300 Temp/Hum Sensor |
| atd-em500 | Sensores CO2 Ursalink Exterior | Sensores CO2 Ursalink Exterior |
| atd-laird | Sensores Temp/Hum/Switch Laird | Sensores Temp/Hum/Switch Laird |
| atd-node | V2 Node TTN | V2 Node TTN |

<https://eu1.cloud.thethings.network/console/gateways>

<https://eu1.cloud.thethings.network/console/applications/atd-em300th>

People Counter IMBuilding

People Counter IMBuilding



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Definición en la plataforma TTN

THE THINGS STACK
Community Edition

OverviewApplicationsGatewaysOrganizations

EUI Community
Fair use policy applies

Sensores Temperatura Campo...

Overview

End devicesLive dataPayload formattersIntegrationsCollaboratorsAPI keysGeneral settings

Add application

Owner ⁺

atd-fw-4es0

Application ID ⁺

my-new-application

Application name

My new application

Description

Description for my new application

Optional application description; can also be used to save notes about the application

Create application

Applications > Sensores Temperatura Campo (Zane)

Sensores Temperatura Campo (Zane)
ID: atd-ztemp

Last activity 16 seconds ago

14 End devices1 Collaborator2 API keys

General information

Application IDatd-ztemp

Created atAug 13, 2021 19:34:53

Last updated atAug 21, 2021 18:26:46

Live data

09:06:10 atd-ztemp... Forward uplink data message

See all activity →

End devices (14)

Search by ID

Import end devicesAdd end device

| ID | Name | DevEUI | JoinEUI | Last activity |
|---------------|------|-------------------------|-------------------------|---------------|
| atd-ztemp-101 | | 00 06 11 00 91 01 10 02 | 00 01 00 00 00 00 00 00 | 16 sec. ago |
| atd-ztemp-102 | | 00 06 11 00 00 61 60 02 | 00 01 00 00 00 00 00 00 | 7 min. ago |
| atd-ztemp-103 | | 00 06 11 00 00 61 60 08 | 00 01 00 00 00 00 00 00 | 1 min. ago |
| atd-ztemp-104 | | 00 06 11 00 00 61 60 01 | 00 01 00 00 00 00 00 00 | 15 min. ago |

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Far use policy applies

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No SLA applicable

ATDFIWare Universidad de Córdoba

Sensores Temperatura Campo...

Applications > Sensores Temperatura Campo (Zane) > End devices > Register from The LoRaWAN Device Repository

Register end device

From The LoRaWAN Device Repository

Manually

1. Select the end device

Brand

Type to search...

Cannot find your exact end device? [Get help here](#) and [try manual device registration](#).

2. Enter registration data

Please choose an end device first to proceed with entering registration data

Register end device

Hide sidebar

Sensores Temperatura Campo...

Applications > Sensores Temperatura Campo (Zane) > End devices > Register manually

Register end device

From The LoRaWAN Device Repository

Manually

Frequency plan

Select...

LoRaWAN version

Select...

Regional Parameters version

Select...

Show advanced activation, LoRaWAN class and cluster settings

DevEUI

Generate 0/50 used

AppEUI

Fill with zeros

AppKey

Generate

End device ID

Hide sidebar



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Definición en la plataforma TTN

atd-ztemp-101

ID: atd-ztemp-101

↑ 643 ↓ 54 • Last activity 5 minutes ago

Overview

Live data

Messaging

Location

Payload formatters

Claiming

General settings

General information

End device ID

atd-ztemp-101

Description

This end device has no description

Created at

Nov 24, 2021 11:00:39

Activation information

AppEUI

00 01 00 00 00 00 00 00

DevEUI

00 06 11 00 91 81 10 02

Root key ID

n/a

AppKey

••••••••••••••••••••

NwkKey

n/a

Session information

Device address

26 08 05 A3

NwkSKey

••••••••••••••••••••

SNwkSIntKey

••••••••••••••••••••

NwkSEncKey

••••••••••~••••••••••

AppSKey

••••••••••~••••••••••

Live data

09:51:33 Update end device ["locations"]

Location

Change location

THE THINGS STACK
Community Edition

Overview

Applications

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atdfiware-ttgopaxcounter-001

ID: atdfiware-ttgopaxcounter-001

↑ 3,697 ↓ 138 • Last activity 17 seconds ago

Overview

Live data

Messaging

Payload formatters

Claiming

General settings

| Time | Type | Data preview |
|----------|-----------------------------|--|
| 09:54:19 | Forward uplink data message | Payload: { ble: 3, wifi: 10 } 0A 00 03 00 FPort: 1 Data rate: SF7BW125 SNR: 8 RSSI: -97 |
| 09:54:14 | Console: Stream reconnected | The stream connection has been re-established |
| 09:54:06 | Console: Network error | The stream connection was lost due to a network error |
| 09:53:19 | Forward uplink data message | Payload: { ble: 4, wifi: 11 } 08 00 04 00 FPort: 1 Data rate: SF7BW125 SNR: 6.25 RSSI: -95 |
| 09:53:19 | Forward uplink data message | Payload: { ble: 4, wifi: 11 } 08 00 04 00 FPort: 1 Data rate: SF7BW125 SNR: 6.25 RSSI: -95 |
| 09:52:19 | Forward uplink data message | Payload: { ble: 3, wifi: 8 } 08 00 03 00 FPort: 1 Data rate: SF7BW125 SNR: 1.5 RSSI: -103 |
| 09:51:19 | Forward uplink data message | Payload: { ble: 3, wifi: 9 } 09 00 03 00 FPort: 1 Data rate: SF7BW125 SNR: 2.25 RSSI: -97 |



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Definición en la plataforma TTN

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EU1 Community

No SLA applicable

Sensores Temperatura Campo...

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Applications > Sensores Temperatura Campo (Zane) > End devices > atd-ztemp-101

atd-ztemp-101

ID: atd-ztemp-101

↑ 643 ↓ 54 • Last activity 9 minutes ago

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Uplink

Downlink

Simulate uplink

FPort *

1

Payload

The desired payload bytes of the uplink message

Simulate uplink

Sensores Temperatura Campo...

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↑ 643 ↓ 54 • Last activity 9 minutes ago

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Set end device location

Latitude *

37.91525817675977

The north-south position in degrees, where 0 is the equator

Longitude *

-4.724601209163667

The east-west position in degrees, where 0 is the prime meridian (Greenwich)

Altitude *

0

The altitude in meters, where 0 means sea level

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EUI Community
No SLA applicable

Sensores Temperatura Campo...

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Applications > Sensores Temperatura Campo (Zane) > End devices > atd-ztemp-101 > Payload formatters > Uplink

atd-ztemp-101
ID: atd-ztemp-101

↑ 643 ↓ 54 • Last activity 9 minutes ago

Overview Live data Messaging Location Payload formatters Claiming General settings

Uplink Downlink

Click [here](#) to modify the default payload formatter for this application

Setup

Formatter type *

Use application payload formatter


None

Javascript

GRPC service

CayenneLPP

Repository

 THE THINGS STACK
Community Edition

Overview Applications Gateways Organizations

EUI Community
No SLA applicable

Sensores Temperatura Campo...

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Applications > Sensores Temperatura Campo (Zane) > End devices > atd-ztemp-101

atd-ztemp-101
ID: atd-ztemp-101

↑ 643 ↓ 54 • Last activity 10 minutes ago

Overview Live data Messaging Location Payload formatters Claiming General settings

There is currently no claim authentication code set

Claim authentication code *

Valid from dd / mm / aaaa Valid to dd / mm / aaaa

Save changes Delete claim authentication code

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EN v3.16.1 Documentation Get support



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atd-ztemp-101

ID: atd-ztemp-101

↑ 643 ↓ 54 • Last activity 10 minutes ago

OverviewLive dataMessagingLocationPayload formattersClaimingGeneral settings

Basic

Description, cluster information and metadata

End device ID *

atd-ztemp-101

AppEUI *

00 01 00 00 00 00 00 0E

DevEUI *

00 06 11 00 91 01 10 02

End device name

My new end device

End device description

Optional end device description; can also be used to save notes about the end device

Network Server address

eu1.cloud.thethings.network

Application Server address

eu1.cloud.thethings.network

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Community Edition

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OverviewApplicationsGatewaysOrganizations

Applications > Pax Counter TTGO V3.2.16 > End devices > atdfiware-ttgopaxcounter-001 > Live data

atdfiware-ttgopaxcounter-001

ID: atdfiware-ttgopaxcounter-001

↑ 3,697 ↓ 138 • Last activity 17 seconds ago

OverviewLive dataMessagingLocationPayload formattersClaimingGeneral settings

| Time | Type | Data preview | Verbose stream | Pause | Clear |
|------------|-----------------------------|--|----------------|-------|-------|
| ↑ 09:54:19 | Forward uplink data message | Payload: { ble: 3, wifi: 10 } 0A 00 03 00 FPort: 1 Data rate: SF7BW125 SNR: 8 RSSI: -97 | | | |
| ⚠ 09:54:14 | Console: Stream reconnected | The stream connection has been re-established | | | |
| ⚠ 09:54:06 | Console: Network error | The stream connection was lost due to a network error | | | |
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