



DUSUN DSGW-010B Indoor LoRaWAN Gateway User Guide

[Home](#) » [Dusun](#) » DUSUN DSGW-010B Indoor LoRaWAN Gateway User Guide 

Contents

- [1 DUSUN DSGW-010B Indoor LoRaWAN Gateway](#)
- [2 Getting Started Guide for Dusun Gateway](#)
- [3 Introduction](#)
- [4 Configuration Steps](#)
- [5 Troubleshooting](#)
- [6 Documents / Resources](#)
 - [6.1 References](#)
- [7 Related Posts](#)

DUSUN

DUSUN DSGW-010B Indoor LoRaWAN Gateway



Getting Started Guide for Dusun Gateway

Revision History

Specification		Sect.	Update Description	By
Rev	Date			
1.0	2022-05-17		New version release	Bruce

Approvals

Organization	Name	Title	Date

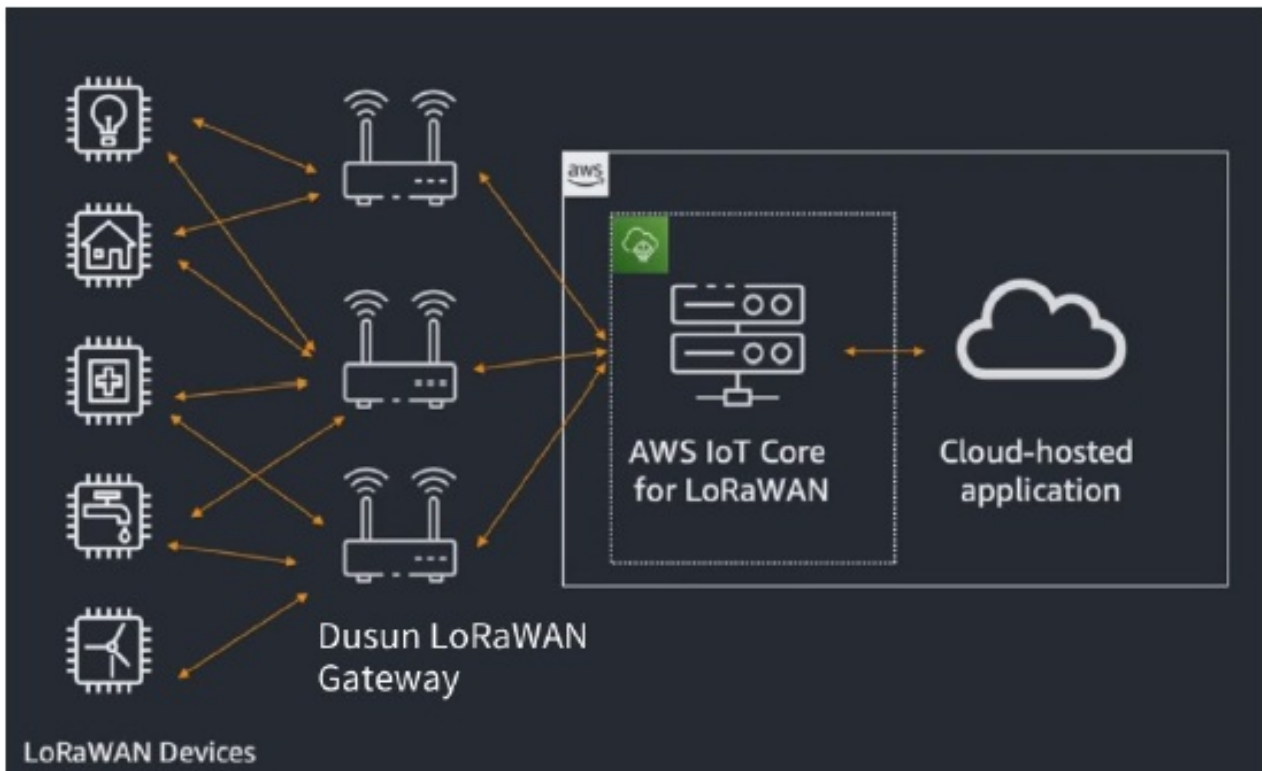
Introduction

Dusun gateway runs an Linux based OS to implement LoRa basic station stack integrating with the AWS IoT Core LoRaWAN network server in order to complete data upload channel. AWS IoT Core for LoRaWAN is a fully managed LoRaWAN network server (LNS) that provides gateway management using the Configuration and Update Server (CUPS) and Firmware Updates Over-The-Air (FUOTA) capabilities. User can replace the private LNS with AWS IoT Core for LoRaWAN and connect the Long Range Wide Area Network (LoRaWAN) devices and gateways to AWS IoT Core.

This file mainly describes a sample way to integrate Dusun gateway with AWS IOT Core LoRaWAN platform in detailed steps. From building the AWS IOT Core LoRaWAN server to connect gateways and gateway sub devices to it.

System diagram

General data transformation link is shown above



Configuration Steps

AWS connection

Configuration in AWS

Setup your AWS account and Permissions

Refer to the instructions at Set up your AWS Account. Follow the steps outlined in these sections to create your account and a user and get started:

- Sign up for an AWS account and
- Create a user and grant permissions.
- Open the AWS IoT console

Pay special attention to the Notes.

Create Resources in AWS IoT

Refer to the instructions at Create AWS IoT Resources. Follow the steps outlined in these sections to provision resources for your device:

- Create an AWS IoT Policy
- Create a thing object

Pay special attention to the Notes.

Detailed configuration steps

Detailed steps to configure the AWS is shared above,

- Log in the AWS Account, switch to Service AWS IoT Core -> Wireless connectivity.



- Click Get started -> Add gateway, fill in the Gateway EUI from the label, choose correct frequency plan, set other sections as desired, click Add gateway.

AWS IoT > Wireless connectivity > Gateways > Add gateway

Step 1
Add gateway

Step 2
Configure your gateway

Add gateway [Info](#)

Gateway details [Info](#)

Gateway's EUI

 Enter the 16-digit alphanumeric EUI code found on your gateway.

Confirm gateway's EUI

 Re-enter your gateway's EUI to confirm.

Frequency band (RFRegion)

 Choose the LoRa-specific frequency band (RFRegion) used where the gateway is deployed.

Name - optional

 Give your gateway a descriptive name to make it easier to locate.

Description - optional

 Enter a description of the gateway.

Thing association [Info](#)

Associate your gateway with an AWS IoT thing

☒ We'll create an AWS IoT thing for you and associate it with this gateway. Things in AWS IoT can make it easier to search for and manage your devices.

- After gateway is added, user need to configure it correctly.
- Click Create certificate, Download certificate files, Copy the CUPS endpoint, Download server trust certificates.

Step 1

Add gateway

Step 2

Configure your gateway

Configure your gateway [Info](#)

Your gateway was added to your AWS account. In this step, you'll collect the security and connection resources you need and upload them to your gateway.

Gateway certificate

Create a certificate so that your gateway can communicate securely with AWS IoT. Download the certificate files so that you can upload them to your gateway.

Create certificate

✔ Certificate created and associated with your gateway

These certificate files were created. Download them and save them to upload to your gateway.

Gateway certificate file

XXXXXXXXXXXXXXXXXXXX.tpm

Private key file

XXXXXXXXXXXXXXXXXXXX.private.key

Download certificate files

Provisioning credentials [Info](#)

Choose the endpoint that your gateway supports. Then, copy the endpoint and download the server trust certificate so that you can add them to your gateway.

CUPS (Configuration and Update Server) endpoint

https://XXXXXXXXXXXX.1f.cups.lorawan.us-west-2.amazonaws.com:443

Copy

LNS (LoRaWAN Network Server) endpoint

wss://XXXXXXXXXXXX.1f.lns.lorawan.us-west-2.amazonaws.com:443

Copy

Server trust certificates

Download your server trust certificate so you can upload the certificate for the endpoint your gateway supports.

Download server trust certificates

- **Note**
These credentials are important, make sure you recorded them.
- Choose a role for adding permission for the gateway, click Submit

Gateway permissions

If you haven't created the `IoTWirelessGatewayCertManagerRole` IAM role for your account, create the role before you continue adding the gateway. Your gateways won't be able to communicate with AWS IoT without this role.

`IoTWirelessGatewayCertManagerRole`

Create role

Connect your gateway Info



Connect to your gateway's local network

Using the getting started guide from your gateway's vendor, connect to your gateway directly using its Ethernet port, or its local Wi-Fi.

Upload

Enter your gateway and server trust certificates

If you created a certificate for your gateway earlier, upload it by using the gateway's user interface. If your vendor provided a certificate with your gateway, you can skip this step.

Endpoint: `amazonaws.com`

Enter the endpoint into your gateway's user interface

Copy your endpoint to your gateway to direct messages from your gateway to your console.

After you add the gateway, it can take a while for it to complete its configuration. To view your gateways, open the Gateway page. You can also add more devices while you wait for your gateway.

After you add the gateway, it can take a while for it to complete its configuration. To view your gateways, open the Gateway page. You can also add more devices while you wait for your gateway.

Cancel

Previous

Submit

Gateway is correctly added

AWS IoT > Wireless connectivity > Gateways

Gateways (1) Info

Edit

Delete

Add gateway





< 1 >

Gateway ID	Name	Description	Last uplink received
209d86c3-1b23-4dc1-9256-9a8952923488	my-first-dusun-lora-gateway	my-first-dusun-lora-gateway	-





Configure in gateway

Steps for configuring gateway to connect to the AWS IoT Core LoRaWAN is shared below,

- Find the folder you used to store the four credentials created in AWS, the `cups.uri` file stored the CUPS endpoint

 209d86c3-1b23-4dc1-9266-9a6952923408.cert.pem	2022/5/17 ...	PEM 文件	2 KB
 209d86c3-1b23-4dc1-9266-9a6952923408.private.key	2022/5/17 ...	KEY 文件	2 KB
 cups.trust	2022/5/17 ...	TRUST 文件	2 KB
 cups.uri	2022/5/17 ...	URI 文件	1 KB

b) Rename the `***.cert.pem` file to `cups.crt`, rename the `***.private.key` file to `cups.key`

 cups.crt	2022/5/17 ...	CRT 文件	2 KB
 cups.key	2022/5/17 ...	KEY 文件	2 KB
 cups.trust	2022/5/17 ...	TRUST 文件	2 KB
 cups.uri	2022/5/17 ...	URI 文件	1 KB

- Upload them to the gateway by scp command `scp cups.* root@<IP of gateway>:/etc/config/dusun/lorawan.`

```
$ scp cups.* root@192.168.1.122:/etc/config/dusun/lorawan
root@192.168.1.122's password:
cups.crt          100% 1220   351.4KB/s   00:00
cups.key          100% 1679   475.0KB/s   00:00
cups.trust        100% 1606   554.9KB/s   00:00
cups.uri          100%   63    22.2KB/s    00:00
```

- Log in gateway using the IP address, default user name : root, Password: root.

Authorization Required

Please enter your username and password.

Username

Password

- Switch to IOT Services -> LoRaWAN

Fill in the correct CUPS domain we recorded just now, select platform AWS, Fill in the correct Gateway EUI, then click Save & Apply.

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Platform choice

ServerAddress

GatewayEUI

ServerPort

- Check the connection in AWS

After configuration, you can easily check in AWS console that the gateway is correctly connected.

AWS IoTWireless connectivityGateways

Gateways (1) info

EditDeleteAdd gateway

< 1 >

Gateway ID	Name	Description	Last uplink received
209d86c3-1b23-4dc1-9266-9a6952923408	my-first-dusun-lora-gateway	my-first-dusun-lora-gateway	May 17, 2022, 16:45:46 (UTC+0800)

AWS IoTWireless connectivityGatewaysGateway details

209d86c3-1b23-4dc1-9266-9a6952923408 info

EditDelete

Details

Gateway ID 209d86c3-1b23-4dc1-9266-9a6952923408	Name my-first-dusun-lora-gateway	Firmware -
Associated thing name c17c9719-2435-4f86-aaea-f32865120ccd	Description my-first-dusun-lora-gateway	

LoRaWAN specific details

Gateway EUI	RFRegion	LastUplinkReceivedAt	Connection status	JoinEuiFilters	NetIdFilters	SubBands
30ae7bfffffa0	EU868	May 17, 2022, 16:46:22 (UTC+0800)	Connected	-	-	-

LoRaWAN certification info

Detach certificatesAttach CUPS certificate

To communicate with AWS IoT Core your gateway must connect to your Configuration and Update Servers (CUPS) and LoRaWAN Network Server (LNS) endpoints. To ensure this connection is secure, your gateway must have certificates attached to authenticate its identity.

CUPS

CUPS allows a Network Server to configure gateways remotely, and to update gateway firmware. [Learn more](#)

Endpoint	Certificate
https://A3R8SH7MSOWK1F.cups.lorawan.us-west-2.amazonaws.com:443	9bbd5de7be07f84a2348236f352061845b211efe9f39ca9829d2077336a96388

Troubleshooting

Indicator	Description
Blue LED steady on	Gateway Normal status
Red LED flashing	No Internet access Please check on Ethernet connection/ wifi connection/ LTE connection/ AWS credentials
Green LED flashing	Gateway restoring factory setting, normally by pressing the reset button for

Documents / Resources

	<div>DUSUN DSGW-010B Indoor LoRaWAN Gateway [pdf] User Guide</div> <div>DSGW-010B, DSGW-210C, DSGW-210B, DSGW-010B Indoor LoRaWAN Gateway, Indoor LoRaWAN Gateway, LoRaWAN Gateway, Gateway</div>
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References

-  [Dusun IoT: IoT Gateway Hardware Supplier & Solutions Vendor- DusunIoT](#)
-  [Dusunremotes | Custom Intelligent Remote Control Manufacturer](#)
-  [Create AWS IoT resources - AWS IoT Core](#)
-  [Set up your AWS account - AWS IoT Core](#)

Manuals+.