



# **AIoT Indoor Parking Management Suite**

User Manual

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# Chapter I Introduction

# 1.1 Overview

Milesight

Milesight AloT Indoor Parking Management Suite is designed for indoor parking management. Ultrasonic sensors are used to detect the occupancy of parking spaces, and the information is reported to the parking management system through the gateway, so as to guide users to quickly find free parking spaces and reduce congestion and additional emissions caused by searching for parking spaces. Besides, based on Al algorithm, the professional Supplement Light Al LPR Camera generates reliable traffic insights to improve safety and mobility. Make parking easy and smart with AloT!

Product	Name	Key Features
	Supplement Light AI LPR Motorized Pro Bullet Plus Network Camera	Al-powered LPR Algorithm Integrated Supplement Light Clear Capture of Dynamic License Plates
	Note: You can also choose other models from the Milesight AI LPR Series.	Superior Image Quality for 24/7 Traffic Monitoring Wiegand Protocol Supported Versatile Interfaces
L. Mage	Semi-Industrial LoRaWAN® Gateway UG65	IP65 Rating Outstanding Performance New Generation of LoRa Chip Low Power Consumption Deep Penetration High Capacity Multiple Backhaul Connectivities

## **1.2 Related Products**

		$\checkmark$	Compatible with Multiple Network
			Servers
		≻	Flexible Installation
		≻	Eye-Catching Design
		≻	Massive Connectivity
	Mini LoPoMAN® Cotowov	≻	Blind Spot Coverage
and a second		≻	Gateway Fleet
With	0003	≻	Listen Before Talk
		≻	Low Power Consumption
		≻	High Compatibility
		≻	Dual Ultrasonic Sensor
2	LoPoWAN® Illtrasonic	$\succ$	IP67 Waterproof
		≻	LoRaWAN <sup>®</sup> Based
Manager		$\succ$	Easy Configuration (via NFC)
	1	≻	3-Axis Accelerometer

## 1.3 How it Works

- Sensor EM310-UDL: Detect the occupancy status of a single parking space
- UG65/UG63 LoRaWAN<sup>®</sup> Gateway: Receive the parking space occupation information detected by the sensor and transfer it to the parking management system.
- Supplement Light AI LPR Camera: Detect vehicle information and linkage with gate and the parking management system.

# **1.4 Benefits of the Solution**

#### ✓ Intelligent AI-powered LPR Algorithm

Superior image quality with the highest performance sensor and cutting-edge image processing technologies ensure the best performance of embedded AI analytics. Precise recognition results of number plate, vehicle type, vehicle color and plate color are all set to boost intelligent parking traffic solution right away.

#### ✓ LoRa Outstanding Performance

LoRa technology is a new wireless protocol designed for remote connectivity and low-power communication, eliminating the cumbersome wiring process for parking systems. With the latest Semtech LoRa Chip and a 64-bit quad-core CPU, the LoRaWAN<sup>®</sup> Gateway supports receiving data from up to 8 end-devices at the same time, handles more traffic with less power consumption, and has a line of sight of around 15km in open area, making it ideal for a variety of applications.

#### ✓ Low Power Consumption

The low power consumption of sensors and gateways greatly saves the users system maintenance costs and provides a cost-effective option for parking management.

#### ✓ Dual Ultrasonic Sensor

The advanced sensor EM310-UDL uses a dual ultrasonic beam with a measurement range from 3 cm to 450 cm, resulting in an ultra-short blind spot, which provides high-precision parking space occupancy information for parking management systems.

#### ✓ Flexible Compatibility

To maximize the usability and compatibility, the Supplement Light AI LPR Camera supports CGI/APIs and Wiegand Protocol, which allows the easy open integration with third-party VMS or platforms, realizing the access control solution. And the MQTT protocols offers a wide range of options for data processing.

#### Easy Configuration

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The low power consumption and integrated design and cellular support save a lot of tedious wiring process, making the product environment more adaptable and the overall deployment more simple and convenient.

# **1.5 Related Documents**

Document Type	Link
	Supplement Light AI LPR Camera
Datasheet	http://www.milesight.com/static/file/en/download/datasheet/ipc/Mil esight-Supplement-Light-AI-LPR-Motorized-Pro-Bullet-Plus-Network- Camera-Datasheet-en.pdf
Quick Start Guide	http://www.milesight.com/static/file/en/download/user-manual/ipc/ Milesight-Network-Camera-Quick-Start-Guide.pdf
	Sensor EM310-UDL
Datasheet	https://resource.milesight-iot.com/milesight/document/em310-udl-d atasheet-en.pdf_
User Manual	https://resource.milesight-iot.com/milesight/document/em310-udl-us er-guide-en.pdf
	UG65 LoRaWAN <sup>®</sup> Gateway
Datasheet	https://resource.milesight-iot.com/milesight/document/ug65-datash eet-en.pdf
Quick Start Guide	https://resource.milesight-iot.com/milesight/document/ug65-quick-g uide-en.pdf
User Manual	https://resource.milesight-iot.com/milesight/document/ug65-user-gu ide-en.pdf
	UG63 Mini LoRaWAN <sup>®</sup> Gateway
Datasheet	https://resource.milesight-iot.com/milesight/document/ug63-datash eet-en.pdf_
Quick Start Guide	https://resource.milesight-iot.com/milesight/document/ug63-quick-g uide-en.pdf
User Manual	https://resource.milesight-iot.com/milesight/document/ug63-user-gu ide-en.pdf

# Chapter II Settings

Milesight

# 2.1 Camera Settings

# 2.1.1 Hardware Overview



## 2.1.2 Hardware Installation

Please deploy the cameras at the entrance and exit of the parking lot to detect vehicle information and linkage with gate and the parking management system. To increase the accuracy of license plate recognition, be sure to install the LPR cameras properly to capture the license plates with the correct image size, lighting conditions and camera angle. The following highlights are the precautions of installa tion angle:

A. Installing the camera in front of the vehicle (Recommended):

The captured image should be filled with a full width of the vehicle.

B. Installing the camera slightly to the side:

To avoid capturing unnecessary contents in the image, the camera should be install ed in a higher position(Vertical angle is less than 30°; Horizontal angle is no more th an 30°; Tile angle is less than 5°) to capture the front part of the vehicle.



# 2.1.3 Access to Web GUI

If the network segment of the computer and that of the camera are different, please

follow the steps to change the IP address:

Step1: Change the IP address of computer to 192.168.5.0 segment, here are two ways

as below:

a. Start→Control Panel→Network and Internet Connection→Network

Connection→Local Area Connection, and double click it;

eral	
u can get IP settings assign s capability. Otherwise, you the appropriate IP settings	ed automatically if your network support need to ask your network administrator
Obtain an IP address auto Use the following IP address	ess:
IP address:	192 . 168 . 1 . 10
Subnet mask:	255 . 255 . 255 . 0
Default gateway:	192.168.1.1
Obtain DNS server addre	ss automatically
Preferred DNS server:	192.168.1.1
Alternate DNS server:	
m	vit

b. Click "Advanced", and then click "IP settings"--> "IP address"--> "Add". In the pop-up window, enter an IP address that in the same segment with Milesight network camera (e.g. 192.168.5.61, but please note that this IP address shall not conflict with the IP address on the existing network);

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IP addresses			
IP address		Subnet mask	
192.168.1.10		255.255.255.0	
	Add	Edit	Remove
Default gateways:			
Gateway		Metric	
192.168.1.1		Automatic	
V Automatic metric			
		ОК	Canc
/IP Address	-	-	8
address:	192 . 1	68 . 5 . 6	1
has been also			

Step2: Start the browser. In the address bar, enter the default IP address of the

camera: http://192.168.5.190;

Step3: You need to set the password first when using it for the first time. And you can

also set three security questions for your device after activation. Then you can log in

to the camera with the user name (admin) and a custom password.

Notes

① Password must be 8 to 32 characters long, contain at least one number and one letter.

.....

<sup>②</sup> You can click the "forget password" in login page to reset the password by answering three security questions when you forget the password, if you set the security questions in advance.

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**Step4:** After login, please select "Settings"  $\rightarrow$  "Network"  $\rightarrow$  "Basic"  $\rightarrow$  "TCP/IP". The Network Settings page appears (Shown as below Figure);

Mile	esight ·Network Ca	amera			🕀 English 🛩	💄 admin 🗸
	📥 Media	>	TCPIIP HTTP RTSP UPIP DDNS	s Email FTP		
•	<ul> <li>Network</li> <li>Basic</li> <li>Advanced</li> </ul>	v	Type O Static DHCP			
æ	E Storage		IPAddress 192 . 168 . 69 . 6	i6 Test		
	Event	>	IPv4 Subnet Mask 255 . 255 . 255 .	0		
	🕼 System	>	IPv4 Default Gateway 192 . 168 . 69 .	1		
			Preferred DNS Server 8 . 8 . 8 .	8		
			IPv6			
			IPv6 Mode Manual	v		
			IPv6 Address			
			IPv6 Prefix			
			IPv6 Default Gateway			
			мти			
			MTU 1500	1200-1500 Bytes		
			Save			

Step5: Change the IP address or other network values. Then click "Save" button;

**Step6:** The change of default IP address is completed.

## 2.1.4 LPR Settings

Notes
Here only introduce the configuration related to this solution, for more camera configuration, please refer to <u>Milesight Network Camera User Manual</u>.

#### (1) General

Step1: After log in the web, go to "LPR "→ "Settings"→ "General".

Check the checkbox "Enable LPR", you can draw the screen to select area interested.

Mil	e <i>sight</i> ·Network Cam	era			🕀 English 🗸	💄 admin 🗸
	å Media	,	General Advanced List Management List Event			
۲	Network	,	Enable LPR			
$\odot$	E Storage		Country / Region Brazil	w.		
	🖫 Event	,	Image Settings	3		
Ø	(A) LPR	*	Provide Strip Detection Settings	>		
<b>a</b>	Settings Smart Search		Video Ciedoc: H 2 Int Smart Stream Of LPR Message Post Settings	\$		
	🕃 System	,	Current Conhections.2 Schedule Settings	2		
			Add Clear Save			

[Enable LPR]: Automatic license plate recognition after it is enabled.

[Country/Region]: You can select the country/region to use the LPR function.

### **Step 2:** Detection Settings.

You can draw the screen to select four areas interested. The area as shown in the blue box below, it will also display pixels above each area.

	Enable LPR Effective Region	Normal      Advanced	
	Image Settings		>
	Detection Settings		*
	Detection Region (	D	
	ID	Name	Operation
Aos Clear	1	ROI_1	2 17
	2	ROI_2	2 13
	3	ROI_3	2 5
	4	ROI_4	2 5

Name	Operation
ROI_1	2 5
ROI_2	2 17
ROI_3	2 5
ROI_4	2 0
1280*720 Always	~
Always	~
4	
0 ms	(0-60000)
All	
Risto Color Z Vol	hiclo Typo
	incie i ype
	Name           ROI_1           ROI_2           ROI_3           ROI_4           1280°720           Always           4           0           ms           2

[Detection Region]: You can set up to 4 ROI areas by drawing the screen. If you choose Normal, it supports configuring the LPR detection regions for the current area. If you choose Advanced (Only for PTZ series), it supports configuring different LPR detection regions for different PTZ presets(Only support Preset 1~4 so far).

ffective Region	🗋 Normal 🧿 Advanc	ed	
Effective with Preset	Preset 1	^ Call	
Image Settings	Preset 1		<b>)</b>
Detection Settings	Preset 2 Preset 3		>
LPR Message Post Settings	Preset 4		>
Schedule Settings			>

[Processing Resolution]: Default selected resolution is 1280\*720. Users can choose different resolution according to the network environment.

Detection Settings		
Processing Resolution	1280*720	^
Detection Trigger	1920*1080	
Confidence Level	1280*720	

[Detection Trigger]: If you choose "Always", camera will always detect the license plate. If you choose "Alarm input", camera will only detect the license plate when Alarm Input is triggered.

**[Confidence Level]:** You can set the confidence level from 1 to 10. When the confidence level of the license plate is higher than the set confidence level, it will push the license plate image to the logs interface.

[Repeat Plate Checktime]: Set the time interval for repeatedly reading license plates to effectively avoid duplicate identification of parking vehicles.

[Feature Identification]: Check Plate Color, Vehicle Type, Vehicle Color, Detection Region, Direction, Country / Region or All to enable Features Identification, it will display the corresponding information on the logs interface.

# Notes

 $\oplus$  The optimal recognize license plates interval of Milesight LPR cameras is within

90-150 PX.

 $\odot$  For better performance, please choose the appropriate resolution in advance.

Step 3: Schedule Settings. You can draw the schedule by clicking. And then click

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[Save] or [Delete] after setting. You also can copy the settings to other channels.

Step 4: Don't forget to click "Save" after finishing all settings.

### (2) Advanced

In the interface, you can set display information on snapshot of license plate recognition, and also customize the file name of snapshots which are uploaded via FTP or Email or stored on local LPR Picture File Path.

Mil	esight Network Cam	iera			🕀 English 🗸	💄 admin 🛩
	å Media	>	General Advanced List Management List Event			
۲	Network	>				
0	E Storage		Snapshot OSD			
	5 Event	>	Snapsnot Hie Name	3		
đ	🔊 PTZ					
_	🙉 LPR	~				
	Settings Smart Search					
	🕼 System	>				

# [Snapshot OSD]

•	🐣 Media					
		>	General Advanced	List Management	List Event	
	Network	>				
	Storage		Snapshot OSD			
<b>U</b>	S Event	>	Font Size	Medium	~	
e <sup>®</sup>	& PT7		Font Color		•	
	A 100		Background Color			
-	Settinge	Ŭ	OSD Position	Тор	~	
	Smart Search		OSD Infomation	All		
	圆 System	>		Plate	Plate Type	Plate Color
				Vehicle		
				Vehicle Type	Vehicle Color	Direction
				Other		
				Time	Position	Device ID
				Detection Region	n 🗹 Device Name	Line Break Character
			Item of	File Name	spaces	Sorting
			Line	Time	1 -	
			Pla	te Type	1 ×	= = = =
			s	peed	1 ~	E E
			Di	rection	1 ~	E 1E

ltem	Function Introduction
	Small/Medium/Large are available for OSD information.
Font Size	Note: Snapshot OSD font size and Image OSD font size are
	corresponded.
Font Color	Enable to set different colors for OSD information.
	Note: Snapshot OSD font color and Image OSD font color are

	corresponded.						
Destaura	Check the checkbox to select background color of snapshot OSD						
Background	information.						
Color	Note: Background color cannot be the same with font color.						
OSD Position	Check the checkbox to show OSD information position.						
	Customize the OSD content. You can set OSD Information as						
	shown						
	below:						
OSD Information	OSD Infomation All Plate License Plate Plate Type Plate Color Vehicle Vehicle Type Vehicle Color Direction Speed Other Time Position Device ID Detection Region Device Name Line Break Character						
	When license plate is recognized and the alarm is triggered, the						
	snapshot of license plate recognition will show as below:						
	2020-10-10 20:04:09 RT578N Position						

[Snapshot File Name]

Mile	esight Network Carr	iera					🕀 English 🗸	💄 admin 🗸
	🖰 Media	) Genera	Advanced	List Management Li	st Event			
	Network	>						
0	E Storage	Sr	iapshot OSD					
Ű	G Event	> ST	apshot File Name		· س م			
ø	🔊 PTZ		separator		V U			
	🙊 LPR	~	iem of File Name	Plate				
Page	Settings			License Plate	late Type Plate Color			
	Smart Search			Vehicle	abiata Catara Disastina			
	🐼 System	>		Speed	enicle Color Direction			
				Other				
				🗹 Time 📃 P	osition Device ID			
				Detection Region D	evice Name			
			item	of File Name	Sorting			
				Time	프 1프			
			Lic	cense Plate	JΞ 1Ξ			
			Save					
	Item				F	unction Introduction		
	Concreter			", "_" and	d Space are	available for File Name Separa	tor for	mat.

Separator	The default s	eparator is "-".
	You can cust	omize the snapshot file name according to items
	chosen.	
	Item of File Name	All
		Plate
Item of File Name		✓ License Plate
		Vehicle
		Vehicle Type Vehicle Color Direction
		Speed
		Other
		✓ Time Position Device ID
		Detection Region Device Name

Each time an item is checked, the list will add the item row, including the item name and sorting operation. You can click and button to sort these items, and choose separator to connect these items name. Also, the content of Position and Device ID items can be customized. When you check all items, the function interface will show as below:

16

Item of File Name	All	
	Plate	
	🔽 License Plate 🛛 🔽 Plate T	ype 🔽 Plate Color
	Vehicle	
	Vehicle Type 🛛 🔽 Vehicle	e Color 🗹 Direction
	Speed	
	Other	
	Time Positio	n 🔽 Device ID
	Detection Region  Device	Name
Item o	of File Name	Sorting
	Time	JE 1E
Lice	ense Plate	1⊟ 1⊟
PI	ate Type	J⊟ 1⊟
	Speed	JΞ 1Ξ
C	Direction	1三 1三
Deter	ction Region	JE 1E
Position:	Position	J⊟ 1⊟
Dev	vice Name	1프 1프
Device ID:	Device ID	1三 1三
PI	ate Color	JΞ 1Ξ
Vel	hicle Type	JΞ 1Ξ
Vet	aicle Color	=1 =1

Notes

You need to check at least one item.

Once license plate is recognized, the snapshot will be uploaded via FTP or Email or stored on your local LPR Picture File Path. Then, You can see the snapshot file name which you customize as shown below:

.....



Full-snapshot Recognized successfully



Full-snapshot Recognized failed





License plate snapshot Recognized successfully License plate snapshot Recognized failed

.....

# Notes

 $\odot$  If the item checked is not recognized successfully, then the item will be displayed with the specific symbol "#".

2 The file name of full-snapshot will be preceded by a number of 4.

### (3) List Management

Add the license plates to this interface as Black, White type (Black/White List) , and then you can set the alarm action for these license plates in the corresponding black list mode, white list mode or Visitor mode interface. When these license plates are

detected, the camera will respond accordingly to your settings.

Mile	esight Network Ca	amera						🕀 English 🖌 💄 admin 🗸
J.	🖾 Local	,	General Advanced List Management	List Event				
Ð	Network	>	Plate Type All  License License Plate	e Plate	Schedule Rule	Valid Time	Note	Search
Ŭ	Storage		QW12345	Black List		Always		1 1
ð	Event	>	NB21599	Schedule Mode	Rule 3	2022-04-21 - 2022-04-21		10
	🔊 PTZ		MN1237		Add			1 5
	LPR     Settings	×	LK2596 JK	License F	Plate+			
	Smart Search		DF6598	Type	Black List		*	10
_	C System	>	DD1231	Valid Tim	e Black List			/ 🖯
_			CV1238	Note	White List			10
- 1			CD2356		Schedule Mode Save Cancel		~	10
_			AS1235					18
							Total 11 30/page ~	< 1 > Go to 1
			Rules Edit				Add Upload	Export Delete List

18

Mile	<i>esight</i> ∙Network C	amera						🌐 English 🖌 💄 admin 🗸
	🖉 Local		General Advanced List Manager	ent List Event				
۲	🖧 Media	>	Plate Type at y La	rense Plate				Sparth
0	Network	,	Lineare Dista	Dista Trina	Patronica Dista	Martiel Monal	1 Minia	Controlling
Ŭ	E Storage		QW12345	Black List		Always		18
	Event	>	N821599	Schedule Mode	Rule 3	2022-04-21 - 2022-04-21		10
	& PTZ		MN12365	Schedule Mode	Rule 2	Alwäys		10
101			LM2365	White List		2022-04-21 - 2022-04-21		1 0
	00 LPR	ř	LK25963	White List		Atways		/ 0
	Settings		ж	Schedule Mode	Rule 1	Always		/ 🖯
	Smart Search		DF65987	White List		2022-04-21 - 2022-04-21		/ 0
	igr System	2	DD12312	Black List		Always		10
			CV12369	Black List		2022-04-21 - 2022-04-21		1 0
			CD235612	White List		2022-04-21 - 2022-04-21		/ 🗊
			AS12356	Black List		Always		10
			Rules tot				Total 11 30/page	- < 1 > Gate 1

Step1: Click the "Add" button, select the Type as black or white, enter the license

Mile								
	🕼 Local		General Advanced List Manager	ent List Event				
•	🖧 Media	>	Plate Type AL	cense Plate				Search
$\odot$	Network	>	License Plate	Plate Type	Schedule Rule	Valid Time	Note	Operation
	Storage		QW12345	Black List		Always		/ 0
	Event	>	NB21599	Schedule Mode	Rule 3	2022-04-21 - 2022-04-21		/ 🛛
	🏟 PTZ		MN1230		Add			18
	(iii) LPR	~	LM236			]	-	
			JK	License Pia	ale*			18
	Smart Search		DF659!	Type	Black List		-	10
	System	>	DD1231	Valid Time	Black List			/ 🖯
			CV1236	Note	White List			/ 🖯
			CD2356		Save Cancel			10
			AS123:			]		/ 🖯
							Total 11 30/page ~	< 1 > Go to 1
			Rules Edit				Add Uproad	Export Delete List

plate, the license plate will be added successfully.

**Step2:** You can add a csv form with the license plate you want to add, click the "**Browse**" button to import the form to this interface, click the "**Upload**" button, the license plates will be added successfully.

17 C	100000 1 1001		WINNING CONTRACTS		
					10
					18
	Batch Upload				10
		Note: Please upload csv format file(utf-8).			18
		Download template here!			10
6		Cancer		94 (A)	1 0
56	Black List	4	Aaways	-	18
				Total 11 30/page	< 1 > Go to 1
				Add Upload	Export Delete List

# Notes

You can first download the template as a reference in this interface.
 It allows to add 1000 license plates to the List.

Step3: Select Plate Type or directly enter the license plate number, click the "Search"

.....

button, the corresponding license plate will be displayed in the list.

Step4: Click the "Export List" button to export the license plates in the current list to

a csv form locally.

Step5: Click the "Delete List" button to delete all the license plates in the current list.

#### (4) Wiegand Configuration

When adding the license plates, you can define the ID card number for the license plate, when the camera identify these license plates and recognize the attached ID card number, it will send the ID card number to your parking system through the **Wiegand protocol**, and then your system can respond based on the received information, such as access control.

Mile	esight •Network Ca	mera						€	🕽 English 🛩	💄 admin 🗸
	🗂 Media	>	General Advanced List M	lanagement List Event Trat	fic Detection					
	Network	>	Plate Type All ~	License Plate						Search
$\odot$	Storage		License Plate	Plate Type	Schedule Rule	Valid Time	ID Card No.	Note	Opera	tion
	Event	>	MS2023	Schedule Mode	Rule 1	2022-07-19 - 2022-07-19	01012022	-	/	8
ø	lPR	~	MS2022	White List		Aways	20220101		/	0
	Settings Smart Search		MS1111	White List		2022-07-19 - 2022-07-26	01202201		/	ជ
	C System	>								
								Total 3 30ipage ··· (	1 3	Go to 1
			Rules Edit					Add Upload	Export	Delete List

Step1: Go to "System"→ "Interfaces"→ "Wiegand", then enable the Wiegand



interface.



**Step2:** Back to **"List management"** interface, click the "**Add"** button, select the corresponding license plate type, enter the ID Card number and license plate, the license plate will be added successfully.

	Add	×
License Plate*	MS2022	
Туре	White List $\sim$	
Valid Time	Always ~	
ID Card No.	20220101	)
Note		
	Save Cancel	
Notes		
Please make sure the camera has b through the Wiegand interface as sl	een correctly connected t hown below.	o your parking
1) GND and A (Wet contact for External	ernal Output).	

② A, B and GND (DATA0, DATA1 and GND for Wiegand).

#### (5) List Event

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Step1: Select the List Type, Black list, White list or Visitor.

Step2: Schedule Settings. You can draw the schedule by clicking it.

Step3: Set alarm action.

Record		
Duration	5 s v	
Linkage	Save to storage (Please mount storage device.) Upload Via FTP	
Snapshot		
Snapshot Type	License Plate v	
Number	1	
Interval	1 second v	
Linkage	Save to storage (Please mount storage device.) Upload Via FTP Send Email (Please enable the Email.) Email Triggered Interval Arito	
External Output	Save to storage (Please mount storage device.) Upload Via FTP Send Email (Please enable the Email.) Email Triggered Interval Auto	>
External Output Play Audio (Pleas Alarm to SIP Pho	Save to storage (Please mount storage device.) Upload Via FTP Send Email (Please enable the Email.) Email Triggered Interval Auto see enable the Audio Speaker.) me (Please open the SIP.)	>
Linkage External Output Play Audio (Pleas Alarm to SIP Pho HTTP Notificatior	Save to storage (Please mount storage device.) Upload Via FTP Send Email (Please enable the Email.) Email Triggered Interval Auto se enable the Audio Speaker.) me (Please open the SIP.) n	>
External Output Play Audio (Pleas Alarm to SIP Pho HTTP Notification White LED	Save to storage (Please mount storage device.) Upload Via FTP Send Email (Please enable the Email.) Email Triggered Interval Auto se enable the Audio Speaker.) me (Please open the SIP.) n	>
External Output External Output Play Audio (Pleas Alarm to SIP Pho HTTP Notification White LED Flash Mode	Save to storage (Please mount storage device.) Upload Via FTP Send Email (Please enable the Email.) Email Triggered Interval Auto se enable the Audio Speaker.) me (Please open the SIP.) n Twinkle	>
Linkage External Output Play Audio (Pleas Alarm to SIP Pho HTTP Notification White LED Flash Mode Flash Time	Save to storage (Please mount storage device.) Upload Via FTP Send Email (Please enable the Email.) Email Triggered Interval Auto se enable the Audio Speaker.) me (Please open the SIP.) n Twinkle 3 Reset	>

After that, when a license plate marked as "Black" is detected, the camera will respond accordingly to your settings if you select the Black List in List type;

when a license plate marked as "White" is detected, the camera will respond accordingly to your settings if you select the White List in List type;

when a license plate that is not marked as "Black" or "White" is detected, the camera



will respond accordingly to your settings if you select the Visitor in List type.

#### (6) Smart Search



Step1: The detect results in real time will be displayed on the right side of Logs page,

including detected time, live screenshot, and license plate.

Step2: Select Plate Type or directly enter the license plate number, select Start Time

and End Time, click the "Search" button, the corresponding license plate will be

displayed in the list below.

# Notes

① It supports displaying 4000 logs.

2 Only when there is a SD Card or NAS has been set on the storage management , then the logs can be stored and showed on Smart Search page.

<sup>③</sup> For Plate Color/Vehicle Color Recognition and Vehicle Type Classification, please make sure your model is MS-xxxx-xPC.

Step3: Click the license plate on the right of each log to display license plate details as

shown below.

Mile	sight Network Ca	imera		🕀 English 🗸	💄 admin 🛩
	👌 Media	>	Smart Search		
۲	Network	>	Plate Type Visitor v License Plate Start Time ① 2022-04-16 00 00 00 End Time ③ 2022-04-16 23 59:59	More ~	Search
$\odot$	E Storage				
	Event Event	>			
ି	PTZ		2ºBKZ·2 DO TP 41 B DO MY	DO KD 2	10
	LPR	~	2022-04-18 09:29:56 2022-04-18 09:30:10 2022-04-18 09:30:16 2022-04-18 09:30:16	2022-04-18 0	9.30.25
	Settings Smart Search		DO TD 21 DO BK'66 TO KD3 DO SO 21	PB UP	2
	🕃 System	>	2022-04-18 09 30 42 2022-04-18 09 30 47 2022-04-18 09 30 49 2022-04-18 09 30 49	2022-04-18 0	9.31.22
			2022 44 16 09 31 30 DO * NN 2 HDO * BO 8 10 DO * LM 66 DO * AE 16	DO*SR	51
			(a)         (b)         (c)         (c) <th>2022-04-18 0</th> <th>9.32.13</th>	2022-04-18 0	9.32.13
			Time: 2022-04-18 09:31:24 License Plate: DOBC		
			Vehicle Type: Car Vehicle Color: Red		
			Detection Region: 1 Country / Region: DEU		
			Tead 155 c 1 2 3	4 5 2	Go to S
			Export	Export All	Auto Export

**Step4:** Click the **"Export**" button to export the license plate you selected to a csv form locally.

You can also click the "Auto Export" button to automatically export the log to FTP,

SMTP or Storage.

	Ucense Plate		Start Time S 2022-04-2	1 00:00:00 End Time 🕑 20	22-04-21 23:59:59		More ~ Search
			Al				
			02구0844	경기78아8313	02허9757	62호4516	66사1005
			2022-04-21 00:18:28	2022-04-21 00:19:36	2022-04-21 00:21:44	2022-04-21 00:22:01	2022-04-21 00:26:37
			Export		×	02구0844	527\3108
						2022-04-21 00:30:49	2022-04-21 00:31:25
		Export File	Plate List Video Plate List(With pictures)	Picture	##두5480	##\\+4111	
		Video File Format	MP4	M		2022-04-21 00:32:11	2022-04-21 00:32:51
2-04-21 0 5: Visitor			Save Car	icel			
pe: Truck	Vehicle Color: Red Direction: approach						
Region: 1	Country / Region: -						
						Total	16 < 1 > Go to 1
						Export	Export All Auto Export

	Auto Export	×	2022-04-21 00:22:01	2022-04-21 00:26:37
Enable Day Time Export Time Range Export to 54	Auto Export	×	2022-04-21 02-22-01 02-7-0844 2022-04-21 00 30-49 ##%5480 2022-04-21 00 32-11	2022-04-21 00-26-37 52-73 3108 2022-04-21 00 31-25 ##*-4111 2022-04-21 00 32-51
			Total 1	16 < 1 > Go to 1
			Export	Export All Auto Export

### (7) Data Transmission

The data can be sent to your parking system through RTSP, TCP or HTTP protocol. Step1: Go to "LPR "→ "Settings"→ "General", then go to LPR Message Post Settings. Step 2: Check the checkbox to enable LPR Message Post. It will push information to some

third-party devices or software that are compatible with ours. Information can be pushed by **RTSP**, **TCP** or **HTTP**.

LPR Message Post Settings		<u> </u>
Enable LPR Message Post		
Post Type	O HTTP O TCP 💿 RTSP	
ТСР Туре:		
System Structure		



Enter the LPR IP address and LPR port on the NVR/VMS to register the LPR camera. Then LPR Camera will transmit the data of recognition result to the NVR/VMS when the license plate is recognized. The data includes the time that was recognized, the license plate, the license plate snapshot, and the full-screen snapshot.

#### List of messages

	Command Name	Explanation
0x0001	COMM_LOGIN_REQ	Request login to LPR.
0x8001	COMM_LOGIN_REPLY	Response to COMM_LOGIN_REQ.

#### Basic Packet Composition

1.	SIG	CC FF	:	Packet Start
2.	SIG END	FF DD	:	Packet End

- 3. COMMAND
- 4. DATA\_SIZE
- 5. DATA

### Basic Packet Composition

SIG	COMMAND	DATA_SIZE	DATA	SIG END
2 byte	2 byte	4 byte	Variable	2 byte

### COMM\_LOGIN\_REQ

- 1. Data Type: JSON-charset=utf-8
- 2. Data Content: ID and Password
- 3. Example

{

"id": "admin",

"password": "1234"



SIG	COMMAND	DATA_SIZE	DATA	SIG END
2 byte	2 byte	4 byte	Variable	2 byte
CC FF	0x0001	Variable	JSON DATA	FF DD

% DATA\_SIZE = DATA length + 2 bytes(SIG END)

% Use Little-Endian

ata	f	fccl	010	0250	000	0007	7b22	6964	1223	3a22	2616	546	1696	5e22	22c22	270
Leng	gth	: 4	5]													
1c	c3	16	22	0b	53	70	85	c2	82	82	48	08	00	45	00	".SpHE.
00	55	12	36	40	00	80	06	00	00	c0	a8	01	0a	c0	a8	.U.6@
01	df	0a	c2	Ød	10	0c	87	57	5f	63	3f	45	a4	50	18	W c?E.P.
40	29	84	81	00	00	ff	cc	01	00	25	00	00	00	7b	22	@){"
69	64	22	3a	22	61	64	6d	69	6e	22	2c	22	70	61	73	id":"adm in","pas
73	77	6f	72	64	22	За	22	31	32	33	34	35	36	22	7d	sword":" 123456"}
0.2	dd	ff														

### > COMM\_LOGIN\_REPLY

- 1. Data Type : JSON-charset=utf-8
- 2. Data Content : result Required Items

HTTP Status code

- a. 200 : OK
- b. 401 : No Privileges
- c. Etc...
- 3. Example
  - {

"result": "200"

}

SIG	COMMAND	DATA_SIZE	DATA	SIG END
2 byte	2 byte	4 byte	Variable	2 byte
CC FF	0x8001	Variable	JSON DATA	FF DD

### > COMM\_RECOG\_POST

- 1. Recognition Result Message
  - The LPR camera sends the recognition results on its own initiative without requiring a request from the NVR/VMS.
  - Data Type : Binary
  - Data Content

#### a. metadata

 $\bigcirc$  Device ID : 16 byte – GUID byte array : 04 f9 12 bb ce 94 65 40 89 af

e8 3c d8 8f 70 be

- $\bigcirc$  recognition time : 8 byte Posix Time : 1525867890000
- (3) Car Number : 16 byte utf-8 string : "부산 02 가 1234"<< NULL

#### Exclude Fixed Size

- $\bigcirc$  Color of the Car : 1 byte refer to the color table (stand by)
- S Color of the licence plate : 1 byte refer to the color table (stand by)
- <sup>6</sup> Speed : 2 byte unsigned short integer, Km/h Unit
- $\bigcirc$  Number of resulting images : 1 byte
- 8 Direction : 1 byte 0: Unknown 1: In 2: Out
- 9 Region:32 byte
- 10 ROI ID : 1 byte 1~4 0:unknown
- ① plate's length
- 12 license plate
- (3) Vehicle Type: 0:unknown 1:car 2:motor bike 3:bus 4:truck 5:minibus

- (1) Confidence:4 byte(float)
- (15) Plate Type: 1:black 2:white 3:visitor
- 16 Distance: (int)need to enable radar
- $\bigcirc$  Azimuth: (float) need to enable radar
- (18) Vehicle Count:need to enable radar
- (19) Width: resolution width
- 20 Height: resolution height
- (1) coordinate\_x1: The left coordinates of license plate.
- 22 coordinate\_y1: The top coordinates of license plate.
- ② coordinate\_x2: The right coordinates of license plate.
- 24 coordinate\_y2: The bottom coordinates of license plate.

### b. Image data : variable size

#### c. Data Chunk

① Chunk ID : 4 byte

Meta: 11 ff 00 00

Image : 22 ff 00

② Chunk Size : 4 byte

Data size excluding Chunk Header 8 byte.

2. Packet Example

SIG	COMMAND	DATA_SIZE		DATA		SIG END	
2 byte	2 byte	4 byte		Variable		2 byte	
CC FF	0x8801	Variable				FF DD	
	Metadata Chunk Image			Chunk	Ima	ge Chunk	

Chunk Header		Metadata Chunk							
Chunk ID	Chunk Size 4 byte	GUID 16 byte	Time 8 byte	Number(O bsolescen t) 16 byte	V-color 1 byte	P-colo r 1 byte	Speed 2 byte	I-count 1 byte	Directio n 1byte
11 FF 00 00	110+Numb er length (GUID+ .+Number )	04 f9 12	0x16344 D04550	<del>"부산 01 가</del> <del>1234"</del>	0x01	0x01	100	2	0
		Region 32byte	ROI ID 1byte	Plate Len 1byte	Numbe r Variabl e	Vehicl e Type 1 byte	Confi dence 4 byte	Plate type 1 byte	Distanc e 4 byte
		WOB/Z K	1	6	"AB123 4"	1		3	30
		Azimut h 4 byte	Vehicle Count 4 byte	Width 2 byte	Height 2 byte	coordi nate_x 1 2 byte	coordi nate_ y1 2 byte	coordin ate_x2 2 byte	coordin ate_y2 2 byte
		3.5	50	1280	720	   			

Chunk He	Image Chunk	
Chunk ID 4 byte	Chunk Size 4 byte	JPEG image data
22 FF 00 00	Variable	FF D8 FF E0

Chunk Hea	Image Chunk	
Chunk ID 4 byte	Chunk Size 4 byte	JPEG image data
22 FF 00 00	Variable	FF D8 FF E0

#### > Color Table

enum LprColor{

 $LPR_COLOR_UNKNOWN = 0,$ 

LPR\_COLOR\_BLACK,

LPR\_COLOR\_BLUE,

LPR\_COLOR\_CYAN,

LPR\_COLOR\_GRAY,

LPR\_COLOR\_GREEN,

LPR\_COLOR\_RED,

LPR\_COLOR\_WHITE,

LPR\_COLOR\_YELLOW,

LPR\_COLOR\_VIOLET,

LPR\_COLOR\_ORANGE

};

Revision	Date	Description
1.0	2018/10/18	
1.1	2019/5/13	Metadata Chunk Add Direction
1.2	2019/9/17	Metadata Chunk Add Region,ROI-ID

1.3	2020/7/29	Remove "Number". Add new fileds "Plate Len" and "Number".
1.4	2021/7/5	Add "Vehicle Type" and modify "Color Table"
1.5	2021/8/13	Add "Confidence, Plate Type, Distance, Azimuth, Vehicle Count"
1.6	2022/4/12	Add Width and Height of Resolution, Coordinate of license plate

### HTTP Type

#### > Integrate Method

For the HTTP Type, currently our LPR camera supports HTTP Post and Get request method. VMS or NVR needs to develop matched API to receive the LPR information from the camera. The matched API URL may be like below:

URL of Post Method: <u>http://IP:Port/xxxx</u>

URL of Get Method: http://IP:Port/xxxx?

After VMS or NVR has completed the API, our LPR camera could use the API URL to send LPR information to the VMS or NVR when the car plate is recognized.

#### > LPR Information transfer

#### ✓ Post Method

Take an example, the API URL from a VMS is like "<u>http://192.168.2</u>.24:1234/post" Fill in the specified URL in camera's web UI (if the VMS requires the authentication, please also fill in) :

LPR Message Post Settings	
Enable LPR Message Post:	
Post Type:	HTTP 🗸
HTTP Method:	Post 🗸
Snapshot Type:	All
HTTP Notification URL:	http://192.168.2.24:1234/post
User Name:	admin
Password:	

Camera will post the LPR information data in json format to the VMS or NVR in

real time when it is recognized.

The content will be sent is as follows:




NNZTaSgBaNZ60gGafQA0RoOgo2U6imAzy6TyvenmigBn1+9Gw1JRQBHtNJsPpUtFICLafSoZYNx3Y5q5RTAromBTq1pMgUrAR0UhpKAHZpM01FIAeRsAZ4HaqF3zJ+FXGqndfeWmBBSdqKSmAU1LRQAVq 28jyWCx11QvSsqr1gfkZaQFNuGamJ1qSYfvjUa/eq2BL059K73S23WMf0rgP4a7fw++/TUrKN6K6GnRRRVEnmFLRg0gqChaBR+NGKAFpab1nYoGLS0bOM5qRINw60gIqWpfsx9qPs/+7QBFRx61N9n/

Key Sample of		Description
	Value	
device	Network Camera	The Device Name which can be configured on the System Info of camera. The default is Network Camera.
time	2020-11-03 20:29:48	The time when license plate is recognized.
plate	AMW212	The recognized license plate number.
type	Visitor	The plate list type of recognized license plate, Black or White or Visitor.
speed	-	The running speed of detected vehicle.
direction	Away	The driving direction of detected vehicle, Approach or Away.
detection_region	1	The ID of detection region where the vehicle is being tested, 1 or 2 or 3 or 4.
region	BEL	The registration country/region of the recognized license plate.
resolution_width	1280	The width of LPR processing resolution.
resolution_height	720	The height of LPR processing resolution.
coordinate_x1, coordinate_y1	473, 93	The top left coordinates of license plate.

coordinate_x2, coordinate_y2	676, 135	The bottom right coordinates of license plate.					
confidence	0.70	The confidence value of recognized license plate.					
plate_color	White	The color of recognized license plate.					
vehicle_type	Bus	The type of recognized vehicle.					
vehicle_color	White	The color of recognized vehicle.					
plate_image		The snapshot of license Plate, depends on whether it is configured to send together. As shown below, it will be sent together if select License Plate or All. HTTP Method: Snapshot Type: License Plate Full Snapshot All					
full_image		The full snapshot, depends on whether it is configured to send together. As shown below, it will be sent together if select Full Snapshot or All. HTTP Method: Snapshot Type:					

### ✓ Get Method

Take an example, the API URL from a VMS is like "<u>http://192.168.7.121:8080/api/lpr</u>?" Fill in the specified URL in camera's web UI (if the VMS requires the authentication, please also fill in) :

LPR Message Post Settings	
Enable LPR Message Post:	
Post Type:	HTTP 🗸
HTTP Method:	Get 🗸
HTTP Notification URL:	http://192.168.7.121:8080/api/ lpr?
User Name:	admin
Password:	*****

For sending the license plate information, the LPR camera will automatically add

Milesight

the license plate parameters to the URL.

For example, the car plate is "MS12345". Once it's detected, the LPR camera will send below URL to VMS:

http://192.168.7.121:8080/api/lpr?Caption = LPR&description = MS12345

If the license plate information is to be displayed in VMS, the VMS side needs to extract it from the URL.

# RTSP Type

#### Prerequisites

This part is implemented in onvif metadata. There are three streams in rtsp: video

stream, audio stream, and alarm stream. Metadata alarm is performed through the onvif alarm stream in the rtsp. So if the VMS or NVR supports and can receive the onvif alarm stream in the rtsp, it can work with rtsp.

#### Integrate Method

We have defined the format of the XML. Knowing the XML format, VMS or NVR can be

developed to be integrated, and LPR information can be displayed in VMS or NVR.

ex.) The contents of the xml include the date, time, license plate, and license plate snapshot paths as shown below.

<tt:MetaDataStream>

<tt:Event>

<wsnt:NotificationMessage>

<wsnt:Topic

Dialect="http://www.onvif.org/ver10/tev/topicExpression/ConcreteSet">tns1:RuleEn gine/LicensePlateDetector/LicensePlate</wsnt:Topic>

<wsnt:Message>

<tt:Message UtcTime="2018-05-15T06:19:34Z" PropertyOperation="Changed">

	<tt:source></tt:source>	
	<tt:simpleitem< td=""><td>Name="VideoSourceConfigurationToken"</td></tt:simpleitem<>	Name="VideoSourceConfigurationToken"
Value	e="VideoSourceToken"/>	
	<tt:simpleitem< td=""><td>Name="VideoAnalyticsConfigurationToken"</td></tt:simpleitem<>	Name="VideoAnalyticsConfigurationToken"
Value	e="VideoAnalyticsToken"/>	
	<tt:simpleitem name="Rule" td="" value<=""><td>e="MyLicensePlateDetectorRule"/&gt;</td></tt:simpleitem>	e="MyLicensePlateDetectorRule"/>
	<tt:key></tt:key>	
	<tt:simpleitem name="LicensePlat&lt;/td&gt;&lt;td&gt;teResult" value="43 거 6510"></tt:simpleitem>	
	<tt:data></tt:data>	
	<tt:simpleitem< td=""><td>Name="LicensePlatePicturePath"</td></tt:simpleitem<>	Name="LicensePlatePicturePath"
Value	e="/LPR/2018051506193401.jpg"/>	
	<tt:simpleitem name="LicenseCarS&lt;/td&gt;&lt;td&gt;peed" value="25km/h"></tt:simpleitem>	
	<tt:simpleitem name="LicenseCarD&lt;/td&gt;&lt;td&gt;Direction" value="1"></tt:simpleitem>	

Description: You can receive the recognized license plate image through the snapshot path and the command named get ( ex. http://IP:PORT/LPR/2018051506193401.jpg). Only 10 latest images are available for download. (If you can't see image in the NVR or VMS, type url ( ex.http://IP:PORT/LPR/2018051506193401.jpg) in the web browser address box to see if the image is visible.)

#### LPR information transfer

When the integration is complete, the LPR camera sends an xml containing LPR information to the VMS or NVR in real time when it is recognized.

# 2.1.5 Application Example

Taking Milesight VMS Enterprise as an example, the LPR camera can be added to VMS Enterprise, and then the recognized information can be sent to the VMS for management.

Notes
For more information, please refer to the <u>Milesight VMS Enterprise User Manual</u>.

# (1) ANPR Settings

Here you can directly configure the LPR settings on the VMS side, the configuration is the same as on the camera side, you can refer to <u>2.3.4 LPR Settings</u>.

<b>M</b> ilesight	Live View Playback Smart Analytics E-Map Logs Settings	□ ± 4	💄 alison 🗸	
ANPR	General Detection Traffic Detection Picture Storage			
ANPR Management ANPR Settings ANPR Result Search Traffic Report	Sever List Group List Enable Detection Process Resolution 1200720 V			
WMS-end People Counting People Counting Settings People Counting Groups People Counting Report	Potrovic Cameea 192.164.69.60 Image Settings Enable JPR Night Mode       Auto Mode Ukito Mode       Days to Kight Nature			
A VMS-end Video Analytics	36 Peset			
Analytics Settings Analytics Events Analytics Result Search	Night to Day Value  RLight Sensor Value  IR Light Sensor Value			
Retrieve	Level O			
Video Search	Set Detection Region Effective Region Mode Normal			

### (2) ANPR Search

The real-time detection results will be displayed on the center of Smart Search page, including License Plate, Plate Type, Capture Time, live screenshot, camera name and IP.



### (3) ANPR Event

Here you can set ANPR Event Types as Vehicle Detection, Visitor Detection, Speed Detection, Congestion Detection and Retrograde Detection, and then set the corresponding alarm actions.



## (4) ANPR Preview

Here you can preview the license plate recognition results which are pushed by

front-end device, the preview page is as below:



# 2.2 Sensor Settings

Milesight

## 2.2.1 Hardware Overview



### 2.2.2 Hardware Installation

Please deploy the sensors above each parking space.

1. Ensure the location of device is within the communication range of LoRaWAN<sup>®</sup> gateway and keep it away from metal objects.

2. Device must be sat in a horizontal position on top of the object so that it has a clear path to the object. And the detection distance of the sensor is **up to 450cm** from the object, so please install the sensor within this range.

3. Place device in where it is far away from the side-wall more than **30 cm** and without internal obstructions that block the ultrasonic signal. If the device has to install on the side wall, please ensure the ultrasonic sensor direction point away from the wall.



# Notes

Here only introduce the installation location, for detailed installation steps, please refer to Chapter 4 in <u>EM310-UDL User Guide</u>.

# 2.2.3 Sensor Configuration

## (1) NFC Configuration

EM310-UDL can be configured via NFC.

**Step1:** Download and install "Milesight ToolBox" App from Google Play or App Store.

Step2: Enable NFC on the smartphone and open"Milesight ToolBox" App.

**Step3:** Attach the smartphone with NFC area to the device to read the basic information.



**Step4**: Basic information and settings of devices will be shown on ToolBox if it's recognized successfully. You can switch on/off the device by tapping the button on the Device Status.

Status	Setting	Maintenance	19:15 EM3	2.0K/s ₪	iii 🔊
N	6713	B31056670013	Status		
Model	EM	310-UDL-868M	SN	6713C01068	3570
Device FUI	24F1	24713B310566	Model	EM310-UD	DL-80
			Device EUI	24E1247130	010
Firmware Version		V1.1	Firmware Versio	n	
Hardware Version		V1.0	Hardware Versio	on	
Device Status		Off	Device Status	Of	f (

Step5: Tap "Read" button to check current status and sensor data of device.Step6: Tap "Write" button to write all your settings to the device.



### (2) Basic Settings

# Notes

Before you start, please be aware that the following configuration is the key to this solution. For more configuration, please refer to <u>EM310-UDL User Manual</u>.

Step1: Reporting Interval Setting.

Go to "Device -> Setting -> General Settings" of ToolBox App to change the reporting

interval.

≡ EM310	)-UDL-8	68M	
Status	Setting	Ma	
LoRaWAN Settings			$\sim$
General Settings			~
Reporting Interval	-	30	+ min
Tilt & Distance Swite	h (1)		
Change Password			
Calibration Settings			$\vee$
Threshold Settings			$\sim$
	Write		
	write		
Device		Templa	ite

ltem	Function Introduction					
	Periodic reporting interval of transmitting data to network server.					
	Default: 10 mins					
Reporting	Range: 1-1080 mins.					
Interval	We recommend that you set the reporting interval to 30 minutes					
	for power saving, it can be used as the heartbeat packet of the					
	sensor at the same time.					

### Step2: Threshold Settings.

Here you can set the detection threshold of the sensor, then the sensor will detect whether the distance reaches the threshold according to the collecting interval. When the threshold is reached or is dismissed, it uploads the current data once instantly. 1. Go to "**Device -> Setting -> Threshold Settings"** of ToolBox App to enable the "Distance" option.

2. Input the distance threshold. You can choose either "Over" or "Below" as the

45

threshold.

- Over: Upload the current data when it exceeds the set threshold, it means the current parking space is available.
- Below: Upload the current data when it is less than the set threshold, it means the current parking space is occupied.

3. Set the collecting interval of the sensor. We recommend that you set the collecting interval to 1 minute to detect the real-time status of the parking spaces.

4. Enable the "Threshold Dismiss Report" option to report the data when the threshold is dismissed.

≡ EM310-U	JDL-86	8M
Status S	etting	
LoRaWAN Settings		$\vee$
General Settings		$\vee$
Calibration Settings		$\vee$
Threshold Settings		^
Distance Over / m		•
Below / m		
2		
Collecting Interval	-	1 + min
Threshold Dismiss Re	port	•
v	Vrite	
Device		Template

Take the configuration in the above figure as an example, here I set the "Below" option to 2 meters and then enable the "Threshold Dismiss Report" option, when a vehicle enters the corresponding parking space and the sensor detects that the distance to the object (vehicle) is less than 2 meters, the data will be reported. And when the vehicle leaves the corresponding parking space and the sensor detects that the distance exceeds 2 meters, the data will also be reported.



# Notes

① Of course, you can also set the "Over" option and enable the "Threshold Dismiss Report" option, then when the distance is greater than the set threshold or released, the data will be reported

② If the "Over" option and the "Below" option are configured at the same time, the data will not be reported when the vehicle enters or leaves the parking space.

## (3) LoRaWAN Settings

LoRaWAN settings is used for configuring the transmission parameters in LoRaWAN®

network.

**Votes** For detailed configuration steps, please refer to Chapter 3.2 in <u>EM310-UDL User Manual</u>.

# 2.3 Gateway Settings

## 2.3.1 Hardware Overview

#### A. UG65

Milesight



LED Area
 POWER: Power Indicator
 STATUS: System Indicator
 LoRa: LoRa Indicator
 Wi-Fi: Wi-Fi Indicator
 UTE: Cellular Indicator
 ETH: Ethernet Port Indicator
 LoRa Antenna Connector
 (only for external antenna version)



B. UG63



③ Bracket Mounting Screws

- ④ SIM Slot
- 5 Type-C Port
- 6 Ethernet Port (PoE)
- ⑦ Power Connector
- (8) Reset Button
- (9) Waterproof Silicone
- ① Cable Groove
- ① LED Area
- SYS: System Indicator
- LoRa: LoRa Indicator
- 2 Reset Button
- ③ Ethernet Port (PoE PD) & Indicator
- ④ Type-C Console Port

# 2.3.2 Hardware Installation

Please deploy several gateways in the parking lot to receive the parking space occupancy information detected by the sensor and transmit it to the parking management system.

1. For the parking lots separated by walls, the recommended gateway deployment

interval is **7 to 50 meters** for better signal coverage.

2. The signal strength is related to the actual scene. Therefore, it is recommended that

customers deploy the gateway according to the actual signal coverage. It is better to deploy the gateway in the middle of the environment that needs to be covered. Users can check the signal strength between the gateway and the sensor on the webpage as shown below:

Milesight												admin
Status		General	Applications	Profiles Device	Multicast Groups	Gateway Fleet	Packets					
Packet Forwarder		Send Data To D	evice									
			Device EUI		Туре		Payload			Port	Confirmed	_
Network		0000000	00000000		ASCII ¥					85		Send
		Send Data to M	ulticast Group									
System	•		Multicast Group		Туре		Payload			Port		
Maintenance	•			~	ASCII 👻					85		Send
	×.	Network Server				~						
		Clear									Search	
		Devie	ce EUI/Group	Gateway ID	Frequency	Datarate	RSSI/SNR	Size	Font	Туре	Time	Details
		24E12	4713C010927	24E124FFFEF1627E	868500000	SF7BW125	-84/11.0	10	224	UpUnc	2022-07-20 19:18:17+08:00	0
		24E12	4713C010927	24E124FFFEF1627E	868100000	SF7BW125	-84/11.2	10	223	UpUnc	2022-07-20 19:17:17+08:00	0
		24E12	4713C010927	24E124FFFEF1627E	868100000	SF7BW125	-83/13.5	10	222	UpUnc	2022-07-20 19:16:17+08:00	0
		24E12	4713C010927	24E124FFFEF1627E	868100000	SF7BW125	-84/13.2	10	221	UpUnc	2022-07-20 19:15:17+08:00	0
		24E12	4713C010927	24E124FFFEF1627E	868300000	SF7BW125	-83/13.5	10	220	UpUnc	2022-07-20 19:14:17+08:00	0
		24E12	4713C010927	24E124FFFEF1627E	868500000	SF7BW125	-84/10.0	10	219	UpUnc	2022-07-20 19:13:17+08:00	0
		24E12	4713C010927	24E124FFFEF1627E	858100000	SF7BW125	-84/13.2	10	218	UpUnc	202 Manual Refresh 19:12:17+08:00	✓ Refresh

3. For some areas where the signal is not available, we recommend deploying UG63 as

a supplement.



① Usually in an open environment, the recommended gateway deployment interval is 7 to 100 meters.

.....

2 It is recommended to deploy gateways at each layer.

③ Here only introduce the installation location, for detailed installation steps, please

refer to <u>UG65 Quick Guide</u> and <u>UG63 Quick Guide</u>.

# 2.3.3 Gateway Configuration

### (1) Access to Web GUI

This chapter explains how to access to Web GUI of the gateway.

Username: admin

Password: password

#### Method 1: Wireless Access

**Step1:** Enable Wireless Network Connection on your computer and search for access point "**Gateway\_\*\*\*\*\*\***" to connect it.

**Step2:** Open a Web browser on your PC (Chrome is recommended) and type in the IP address **192.168.1.1** to access the web GUI.

Step3: Enter the username and password, click "Login".

	- 6		Language English v
	Logm		
	Copyright © 2022 Milesight Af Rights Reserved.		7
<b>Notes</b> If you enter the username or pass will be locked for 10 minutes.	word incorrectly more	than 5 times, the log	jin page

Step4: After logging in the web GUI, follow the guide to complete the basic

configurations. It's suggested that you change the password for the sal	e of security.
---	----------------

LoRa Antenna Type	2 Change Password
Step 1: Choose Your LoRa Antenna Type Please confirm whether your device uses external ar	ntennas or not, which will affect your product signal.
Internal Antenna	External Antenna
SKip	Next

Step5: You can view system information and perform configuration of the gateway.

Milesig	ght								💄 admin 🛛 🖯
			Fo	r your device security.	please change the d	efault password			
Status		Overview	Packet Forward	Cellular	Network	WLAN	VPN	Host List	Help –
Status									Model
Packet Forwarder		System Informa	ation						Show the model name of router.
		Model		UG65-L00E-470M-	EA				Region
Network Server		Pagian		CN/470					Show the Region of router.
		Region		01410					Serial Number
Network		Serial Number		6221A4950760					Show the serial number of router
		Firmware Version	1	60.0.3000.26					Firmware Version
System	•	Hardware Version	n	V1.1					Show the current firmware version of router.
		Local Time		2020-12-10 17:57:2	4 Thursday				Hardware Version
Maintenance	•	Uptime		03:04:04					Show the current hardware version of router.
400	-	CPU Load		6%					Local Time
AFF		RAM (Capacity/A	wailable)	512MB/65MB(12.7	%)				Show the current local time of system.
		eMMC (Capacity)	/Available)	2.0G/1.8G(90.80%)					Uptime
							Manual R	efresh 🗸 Refresh	Show the information on how long the router has been running.

#### Method 2: Wired Access

**Step1:** Connect PC to the ETH port directly or through PoE injector to access the web GUI of gateway. The following steps are based on Windows 10 system for your reference.

#### Step2:

Go to "Control Panel"  $\rightarrow$  "Network and Internet"  $\rightarrow$  "Network and Sharing Center", then click "Ethernet" (May have different names).

$ ightarrow ~ \uparrow {f 2 \over 2} \ll { m Network}$	and Internet > Network and Sharing Center	v ⊙	Search Control Panel	
Control Panel Home	View your basic network information	n and set up o	connections	
Change adapter settings	View your active networks			
Change adapter settings Change advanced sharing settings	Yeastar5G Private network	Access type: Internet HomeGroup: Ready to create Connections: Wi-Fi (Veastar5G)		
	ldentifying	Access t Connect	ype: No network access tions: U Ethernet	
	Change your networking settings			
	Set up a new connection or network Set up a broadband, dial-up, or VPN of	connection; o	Ethernet	
	Troubleshoot problems	C	)	
	Diagnose and repair network problem	is, or get troubles	neoting information.	
See also				
HomeGroup				
Infrared				
Internet Options				
Windows Firewall				

**Step3:** Go to "Properties"  $\rightarrow$  "Internet Protocol Version 4(TCP/IPv4) "and select "Use the following IP address", then assign a static IP manually within the same subnet of



the gateway.

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eneral						
You can get IP settings this capability. Otherwis for the appropriate IP s	assigned aut e, you need ettings.	omatical to ask y	ly if y our ne	our net etwork	work su adminis	pports trator
O Obtain an IP addre	ess automatic	ally				
• Use the following I	P address:					
IP address:		192	. 168	. 23	. 200	]
Subnet mask:		255	. 255	. 255	. 0	1
Default gateway:		192 . 168 . 23 . 150				]
Obtain DNS server	address aut	omatical	ly			
• Use the following D	NS server a	ddresses	:			
Preferred DNS server	r:	8	. 8	. 8	. 8	]
Alternative DNS serve	er:				•	]
Validate settings u	upon exit				Advar	ced

Step4: Open a Web browser on your PC (Chrome is recommended) and type in the IP

address 192.168.23.150 to access the web GUI.

Step5: Enter the username and password, click "Login".

	Language English •
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# Notes

If you enter the username or password incorrectly more than 5 times, the login page will be locked for 10 minutes.

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**Step6:** After logging in the web GUI, follow the guide to complete the basic configurations. It's suggested that you change the password for the sake of security.

1	2
LoRa Antenna Type Step 1: Choose Your LoRa Antenna Type	Change Password
Please confirm whether your device uses external ante	ennas or not, which will affect your product signal.
Internal Antenna	External Antenna

Step7: You can view system information and perform configuration of the gateway.

Milesight								💄 admin 🛛 🔁	
	For your device security, please change the default peace ord								
Status	Overview	Packet Forward	Cellular	Network	WLAN	VPN	Host List	Help —	
								Model	
Packet Forwarder	System Informatio	n						Show the model name of router.	
	Model		UG65-L00E-470M-E	A				Region	
Network Server	Region		CN470					Show the Region of router.	
Network •	Serial Number		6221A4950760					Serial Number Show the serial number of router.	
	Firmware Version		60.0.3000.26					Firmware Version	
System 🕨	Hardware Version		V1.1					Show the current firmware version of router.	
	Local Time		2020-12-10 17:57:24	1 Thursday				Hardware Version	
Maintenance	Uptime		03:04:04					Show the current hardware version of router.	
	CPU Load		6%					Local Time	
	RAM (Capacity/Avail	able)	512MB/65MB(12.7%	5)				Show the current local time of system.	
	eMMC (Capacity/Ava	silable)	2.0G/1.8G(90.80%)			Manual Re	fresh 🗸 Refresh	Uptime Show the information on how long the router has been running.	

# (2) LoRaWAN Settings

LoRaWAN settings is used for configuring the transmission parameters in  $\ensuremath{\mathsf{LoRaWAN}}\xspace^{\ensuremath{\mathbb{R}}}$ 

network.





# (3) Adding Sensors

Step1: Go to the "Device" page and click "Add" to add the sensors.

General	Applications	Profiles	Device	Gateways	Packets	
Device						
Add	Bulk Import	Delete All			Search	Q
Device Name	Device EUI	Device-Profile	Application	Last Seen	Activated	Operation
		No ma	atching records foun	d		

The meanings of the options on the interface are as follows:

ltem	Function Introduction
Add	Add a device.
Bulk Import	Download template and import multiple devices.
Delete All	Delete all devices in the list.
Device Name	Show the name of the device.

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Device EUI	Show the EUI of the device.				
Device-Profile	Show the name of the device's device profile.				
Application	Show the name of the device's application.				
Last Seen	Show the time of last packet received.				
Activated	Show the status of the device . $\checkmark$ means that the device has				
Activated	been activated.				
Operation	Edit or delete the device.				

**Step2:** After clicking the "Add" button, it will pop up a device adding window, you need to fill in the corresponding device information, please select the correct device profile according to device type. And then click the "Save&Apply" button after filling in the information.

Device Name	lora-sensor
Description	a short description of your node
Device EUI	000000000000000
Device-Profile	OTAA-ClassC 🗸
Application	~
Frame-counter Validation	
Application Key	
Device Address	
Network Session Key	
Application Session Key	
Uplink Frame-counter	0
Downlink Frame-counter	0

The meanings of the options on the interface are as follows:

ltem	Function Introduction
Device Name	Enter the name of this device.
Description	Enter the description of this device.
Device EUI	Enter the EUI of this device.
Device-Profile	Choose the device profile.
Application	Choose the application profile.
	Choose from: "Disable", "Modbus RTU to TCP", "Modbus RTU
	over TCP". This feature is only applicable to Milesight class C type
Modbus RTU	LoRaWAN <sup>®</sup> controllers.(UC501/UC300, etc.)
Data	-Modbus RTU to TCP: TCP client can send Modbus TCP
Transmission	commands to ask for controller Modbus data.
	-Modbus RTU over TCP: TCP client can send Modbus RTU
	commands to ask for controller Modbus data.
	Enter the LoRaWAN <sup>®</sup> frame port for transparent transmission
	between Milesight LoRaWAN <sup>®</sup> controllers and UG65.
Fport	Range: 2-84, 86-223.
	Note: this value must be the same as the Milesight LoRaWAN $^{\textcircled{B}}$
	controller's Fport.
	Enter the TCP port for data transmission between the TCP Client
TCP Port	and UG65 (as TCP Server).
	Range: 1-65535.

Frame-Counter	If disable the frame-counter validation, it will compromise security				
Validation	as it enables people to perform replay-attacks.				
	Whenever an end-device joins a network via over-the-air				
Application Key	activation, the application key is used for derive the Application				
	Session key.				
Device Address	The device address identifies the end-device within				
	the current network.				
	The network session key specific for the end-device. It is used by				
Network Session	the end-device to calculate the MIC or part of the MIC (message				
Кеу	integrity code) of all uplink data messages to ensure data				
	integrity.				
	The AppSKey is an application session key specific for the				
Application	end-device. It is used by both the application server and the				
Session Key	end-device to encrypt and decrypt the payload field of				
	application-specific data messages.				
	The number of data frames which sent uplink to the network				
	server. It will be incremented by the end-device and received by				
Uplink	the end-device.				
Frame-counter	Users can reset the a personalized end-device manually, then the				
	frame counters on the end-device and the frame counters on the				
	network server for that end-device will be reset to 0.				
Downlink	The number of data frames which received by the end-device				

Frame-counter	downlink from the network server. It will be incremented by the
	network server.
	Users can reset the a personalized end-device manually, then the
	frame counters on the end-device and the frame counters on the
	network server for that end-device will be reset to 0.

**Step3**: After saving the configuration, the sensor is added successfully. It will list all the devices that have been added, as shown in the device list below, you can check the connection status and basic information of the device.

Milesight											🛓 admin 🛛 🕀
Status		General	Applications	Profiles	Device	Multicast Groups	Gateway Fleet	Packets			?
Packet Forwarder		Device									
Network Server		Add	Bulk Import	Delete All						Searc	0.
			Device Name		Device EUI		Device-Profile	Application	Last Seen	Activated	Operation
NEWOR		671	3C0105		24E124713C1		ClassA-OTAA	cloud	17 seconds ago	~	
System		671	3C0108		24E124713C(		ClassA-OTAA	cloud	28 minutes ago	~	2 ×
	-	671	3C0107810001		24E124713C0	6	ClassA-OTAA	cloud		-	
Maintenance	•	Showing 1 to 3 of	3 rows								
APP											

Step4: You can also click "Bulk Import" if you want to add many sensors all at once.

		2
Import File	Browse Import Template Downloa	d

Click "Template Download" to download template file and add device information to this file. Application and device profile should be the same as you created on web page.

- 24	A	В	C	D	E	F	G	Н	T.
1	name	description	deveui	application	deviceprofile	appkey	devaddr	appskey	nwkskey
2	24e1242191323266		24e1242191323266	cloud	ClassC-OTAA	112233445566778899aa112233445566			
3									
4									
5									

And then import this file to add bulks of devices.

### (4) Data Transmission

You can create a new application on this page, which is mainly used to define the method of decoding the data sent from end-device and choosing the data transport protocol to send data to another server address. The data will be sent to your custom server address using **MQTT**, **HTTP or HTTPS** protocol.

**Step1:** Go to "Network Server" > "Application".

**Step2:** Click to enter the configuration page, displayed as the following picture:

Status	General	Applications	Profiles	Device
Packet Forwarder	Applications			
	Name	C	loud	
Network Server	Description	C	loud	
Network •	Payload Codec		None	~

Step3: Click "Save" to create this application.

The meanings of the options on the interface are as follows:

ltem	Function Introduction
Name	Enter the name of the application profile.
	E.g Smoker-sensor-app.

Description	Enter the description of this application.			
Description	E.g a application for smoker sensor.			
	Select from: "None", "Cayenne LPP", "Custom".			
Payload Codec	None: This mode enables devices not to encode data.			
	Cayenne LPP: This mode enables devices to encode data with the			
	Cayenne Low Power Payload (LPP).			
	Custom: This mode enables devices to encode data with the			
	decoder function and the encoder function which you have			
	entered the code.			
Data	Data will be sent to your custom server using the MQTT,HTTP			
Transmission	or HTTPS protocol.			

#### **HTTP or HTTPS:**

**Step 1:** select HTTP or HTTPS as transmission protocol.

Туре	HTTP	

Step 2: Enter the destination URL. Different types of data can be sent to different

URLs.

URL		
	Data Type	URL
	Uplink data	
	Join notification	
	ACK notification	
	Error notification	

Enter the header name and header value if there is user credentials when accessing

#### the HTTP(s) server.

HTTP Header				
	Header Name	Header Value	Operation	
			×	
			8	

The meanings of the options on the interface are as follows:

	Item	Description
HTTP	Header Name	A core set of fields in HTTP header.
Header	Header Value	Value of the HTTP header.
	Data Type	Data type sent to HTTP/HTTPS server.
URL	Торіс	Topic name of the data type using for publish.
	URL	HTTP/HTTPS server URL to receive data.

## **MQTT**:

Step 1: Select the transmission protocol as MQTT.

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Ī

#### **Step 2:** Fill in MQTT broker general settings.

General	
Broker Address	
Broker Port	
Client ID	
Connection Timeout/s	30
Keep Alive Interval/s	60

**Step 3:** Select the authentication method required by the server.

If you select user credentials for authentication, you need to enter the username and

password for authentication.

User Credentials	
Enable	
Username	
Password	

If certificate is necessary for verification, please select mode and import CA certificate,

client certificate and client key file for authentication.

TLS	
Enable	۲
Mode	Self signed certificates
CA File	Browse Import Delete
Client Certificate File	Browse Import Delete
Client Key File	Browse Import Delete

Step 4: Enter the topic to receive data and choose the QoS.

Data Type	topic		
Uplink data	devices/UR67/messages/events	QoS 0	~
Downlink data		QoS 0	~
Multicast downlink data		QoS 0	~
Join notification		QoS 0	~
ACK notification		QoS 0	~
Error notification		QoS 0	~

The meanings of the options on the interface are as follows:

ltem		Description
	Broker Address	MQTT broker address to receive data.
	Broker Port	MQTT broker port to receive data.
	Client ID	Client ID is the unique identity of the client to the server. It must be unique when all clients are connected to the same server, and it is the key to handle message at QoS 1 and 2.
General	Connection Timeout/s	If the client does not get a response after the connection timeout, the connection will be considered as broken. Range: 1-65535 Default: 30
	Keep Alive Interval/s	After the client is connected with the server, the client will send heartbeat packet to the server regularly to keep alive. Range: 1-65535 Default: 60
	Enable	Enable user credentials.
User Credentials	Username	The username used for connecting to MQTT broker.
	Password	The password used for connecting to MQTT broker.
	Enable	Enable the TLS encryption in MQTT communication.
TLS	Mode	Select from "Self signed certificates", "CA signed server certificate". CA signed server certificate:verify with the certificate issued by Certificate Authority (CA) that pre-loaded on device. Self signed certificates: upload the custom CA certificates, client certificates and secret key for verification.
	Data Type	Data type sent to MQTT broker.
Торіс	Торіс	Topic name of the data type using for publish.
	QoS	QoS 0 – Only Once This is the fastest method and requires only 1 message. It is also the

	most unreliable transfer mode.
	QoS 1 – At Least Once
	This level guarantees that the message will be delivered at least once,
	but may be delivered more than once.
	QoS 2 – Exactly Once
	QoS 2 is the highest level of service in MQTT. This level guarantees that
	each message is received only once by the intended recipients. QoS 2 is
 	the safest and slowest quality of service level.

# (5) Device Payload

EM310-UDL reports basic information of sensor whenever it joins the network.

Channel	Туре	Description
	01(Protocol Version)	01=>V1
	09 (Hardware Version)	01 40 => V1.4
ff	0a (Software Version)	01 14 => V1.14
	0b (Power On)	Device is on
	0f (Device Type)	00: Class A, 01: Class B, 02: Class C
	16 (Device SN)	16 digits

## Example:

ff0bff ff0101 ff166713b31056670013 ff090100 ff0a0100 ff0f00					
Channel	Туре	Value	Channel	Туре	Value
ff	0b (Power On)	ff (Reserved)	ff	01 (Protocol Version)	01 (V1)
ff	16 (Device SN)	6713b3105667 0013	ff	09 (Hardware version)	0100 (V1.0)
ff	0a (Software version)	0100 (V1.0)	ff	0f (Device Type)	00 (Class A)

Channel	Туре	Description
01	75(Battery Level)	UINT8, Unit: %
03	82 (Distance)	UINT16, Unit: mm
04	00 (Device Position)	00: Normal (horizontal offset angle < 20°) 01: Tilt (horizontal offset angle ≥ 20°)

### EM310-UDL reports sensor data according to reporting interval (10 mins by default).

### Example:

01 75 62 03 82 44 08 04 00 00					
Channel	Туре	Value	Channel	Туре	Value
01	75 (Battery)	62 => 98%	03	82 (Distance)	44 08 => 08 44 = 2116 mm = 2.116 m
04	00 (Device Position)	00=Normal			

EM310-UDL supports downlink commands to configure the device. Application port is 85 by default.

Channel	Туре	Description
ff	03 (Set Reporting Interval)	2 Bytes, unit: s

**Example:** Set reporting interval as 20 minutes.

	ff03	b004
Channel	Туре	Value
ff	03 (Set Reporting Interval)	b0 04 => 04 b0 = 1200s = 20 minutes

# 2.3.4 Application Example

Taking Milesight IoT Cloud as an example, the gateways can be added to IoT Cloud, and then data can be sent to the Cloud for management as shown below.





Status		General	Radios	Advanced	Custom	Traffic		
Packet Forwarder		General Setting						
Network Server		Gateway EUI Gateway ID	24E124FFF	FFEF12257				
Network	•	Frequency-Sync	Disabled		~			
System	×	Multi-Destination						
		ID	Enable	e T	уре	Server Address	Connect Status	Operation
Maintenance		0	Enable	d Embe	dded NS	localhost	Connected	
APP	×							8

**Step2:** Go to "Packet Forwarder-> Radio" page to select the antenna type, center frequency and channels. The channels of the gateway and nodes need to be the same.

Region		US915		~
	Name			Center Frequency/MHz
	Radio 0		[	904.3
	Radio 1		[	905.0
Multi Channels Settin	g			
Enable	Index	Radio		Frequency/MHz
	0	Radio 0	~	903.9
	1	Radio 0	~	904.1
	2	Radio 0	~	904.3
	3	Radio 0	~	904.5
	4	Radio 1	~	904.7
	5	Radio 1	~	904.9
	6	Radio 1	~	905.1
	7	Radio 1	~	905.3

**Step3:** Go to "Network Server"  $\rightarrow$  "General" page to enable the network server and "Cloud mode", then select "Milesight IoT Cloud".

Status		General	Applications	Profiles	Device
Packet Forwarder		General Setting			
		Enable			
Network Server		Cloud Mode			
Network	►		Milesight	t IoT Cloud	~
		NetID	010203		
System	•	Join Delay	5		sec
Maintonanco		RX1 Delay	1		sec
Waintenance		Lease Time	8760-0-0	d y	hh-mm-ss
APP	•	Log Level	info		~

**Step4:** Log in the Milesight IoT Cloud. Then go to "My Devices" page and click "+New Devices" to add gateway to Milesight IoT Cloud via SN. Gateway will be added under "Gateways" menu.

Milesight IoT Cloud							Zhang David 💿
② Dashboard	Devices	Gateways	+				
My Devices	Search	О,		Solution Normal 1 al Offline 1 Solution	tive 0		+ New Devices
🖄 Map		Status	Name	Associated Devices (Joined /Not Joined /Failed)		Last Updated	
Reports		all	0.065 622180*	@/1/9 Detail		4 minutes ago	@ <u>w</u> 0
Event Center 😣		Jac.	Add Device	SN:		6 hours ago	0 M 0 < 1 >
				Cancel	m		
Ξ·							

**Step5:** The gateway is online on Milesight IoT Cloud.

Milesight IoT Cloud						Zhang David 🤵
② Dashboard	Devices	Gateways	+			
My Devices		Q,		⊗ Normal 1 all Offline 1 ⊗ Inactive 0		+ New Devices
🖄 Map		Status	Name	Associated Devices (Joined /Not Joined /Failed)	Last Updated	
Reports		atl	UG65 6221805	0/1/0 Detail	4 minutes ago	@ <u>M</u> ()
Event Center 🤒		別	UG63 Gateway 6616C11	1/Q/Q Dstail	6 hours ago	@ <u>M</u> 0
R Me						< <b>1</b> >
≡						

# Notes

You can also add sensors to the gateway on IoT Cloud, the steps are as follows: **Step1:** Go to "My Devices" page and click "+New Devices". Fill in the SN of the device and select an associated gateway.

Name: EM310      Associated Gateway: UG Gateway      Device EUI: 24e1247138      Application Key: 5572404c696e6b4c61.	* SN:	6713B32178	
Associated Gateway: UG Gateway     Device EUI: 24e1247138*****     Application Key: 5572404c696e6b4c6*	* Name:	EM310	
Device EUI: 24e1247138     Application Key: 5572404c696e6b4c61.	* Associated Gateway:	UG Gateway 🗸	
* Application Key: 5572404c696e6b4c61.	* Device EUI:	24e1247138	
	* Application Key:	5572404c696e6b4c6	
		Cancel Confirm	n


## Chapter III Services

Milesight provides customers with timely and comprehensive technical support services. End-users can contact your local dealer to obtain technical support. Distributors and resellers can contact with Milesight directly for technical support.

Technical Support Mailbox: support@milesight.com Web: <u>https://www.milesight.com</u> Online Problem Submission System: <u>https://www.milesight.com/service/feedback.asp</u>

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