

LoRaWAN Gateway & Node Configuration Guide



LRPv2 (BB-WSW) Node Setup Guide



Before to Start – Download the Tool You Need

BB-WSW2C42100

LoRaWAN node with power monitoring, 4 x AI, 2 x DI,1 x DO, conduit, external antenna , 915 MHz, 923MHz, 868MHz

瀏覽產品


BB-WSW2C00015


LoRaWAN node w/RS485, external antenna

瀏覽產品

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Certificate (1)

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Utility (2)

Doc. #	Subject	Date	↕
1-3603904801	LoRaWAN_BB-WSW_Node_QuickGuide	2019-05-22	
1-3603904969	LoRaWAN-Utility	2019-05-14	

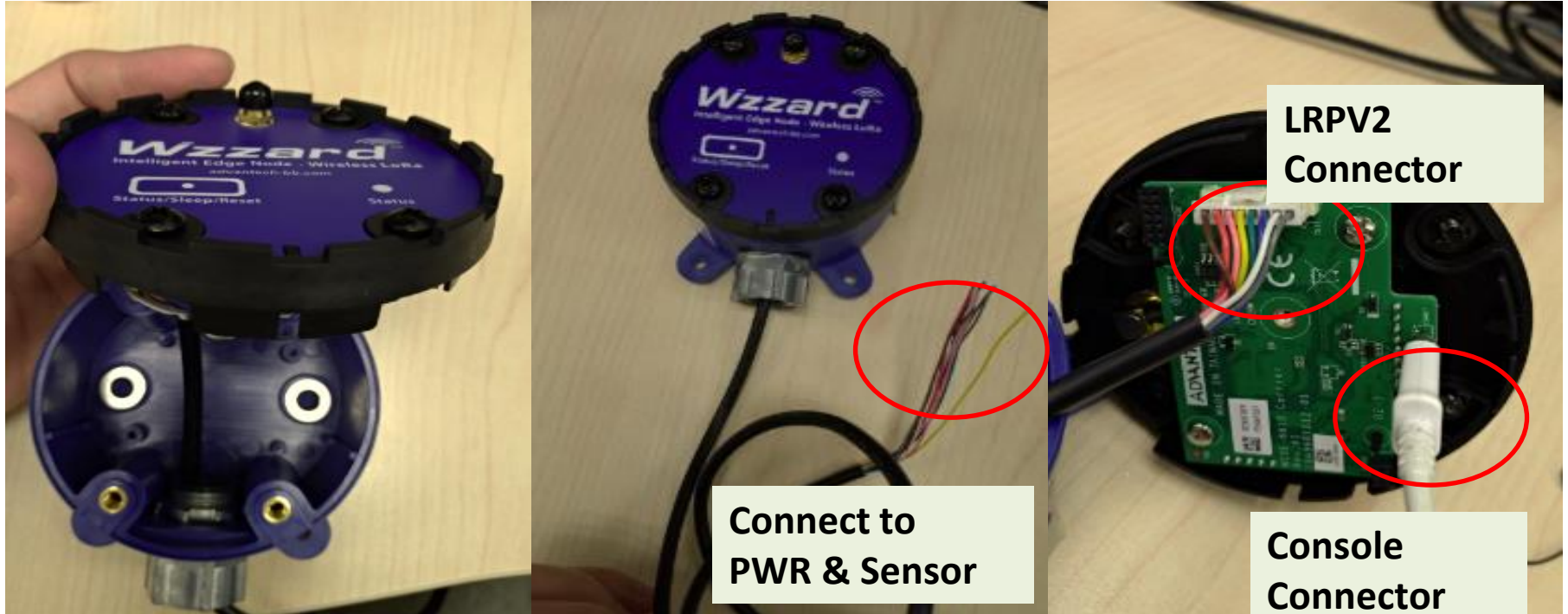
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Physical Connection Overview



**Connect to
PWR & Sensor**

**LRPV2
Connector**

**Console
Connector
(Micro USB)**

Please connect the PC and node with the Micro USB cable.

The following address direct you to the USB driver if you need it.

<https://www.silabs.com/products/development-tools/software/usb-to-uart-bridge-vcp-drivers>

Physical Connection for RS485(Modbus RTU) SKU

Connector							
Brown 8	Red 7	Pink 6	Yellow 5	Green 4	Blue 3	White 2	Gray 1
D-	D+	NC	NC	NC	NC	GND	PWR 9~36VDC



BB-WSW2C00015-1

LoRaWAN node w/RS485, external antenna (915MHz)

BB-WSW2C00015-2

LoRaWAN node w/RS485, external antenna (868MHz)

BB-WSW2C00015-3

LoRaWAN node w/RS485, external antenna (923MHz)

Physical Connection for AIDIDO SKU 1/2

Connector 1

Brown8

Red
7

Pink
6

Yellow
5

Green
4

Blue
3

White
2

Gray
1

GND

AI4

GND

AI3

GND

AI2

GND

AI1

Connector 2

GND

DO

GND

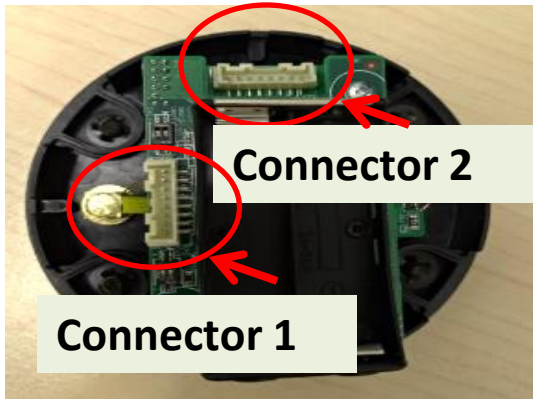
DI2

GND

DI1

V-

V+ 9~36VDC



BB-WSW2C42100-1 LoRaWAN node

4 x AI, 2 x DI, 1 x DO, conduit, external antenna (915 MHz)

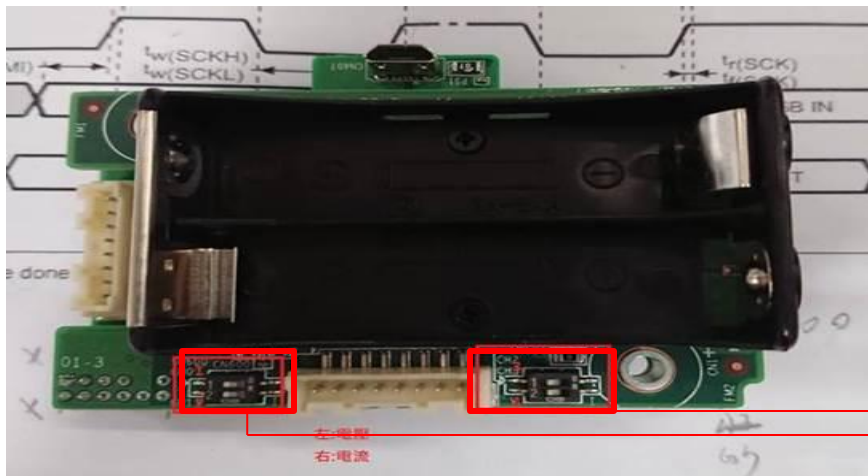
BB-WSW2C42100-2 LoRaWAN node

4 x AI, 2 x DI, 1 x DO, conduit, external antenna (868 MHz)

BB-WSW2C42100-3 LoRaWAN node

4 x AI, 2 x DI, 1 x DO, conduit, external antenna (923 MHz)

Physical Connection for AIDIDO SKU 2/2



There are 4 DIP switch for switching the mode between current and volt
---switch all DIP to the right(Current)
---switch all DIP to the left (Volt)

BB-WSW2C42100-1 LoRaWAN node

4 x AI, 2 x DI, 1 x DO, conduit, external antenna (915 MHz)

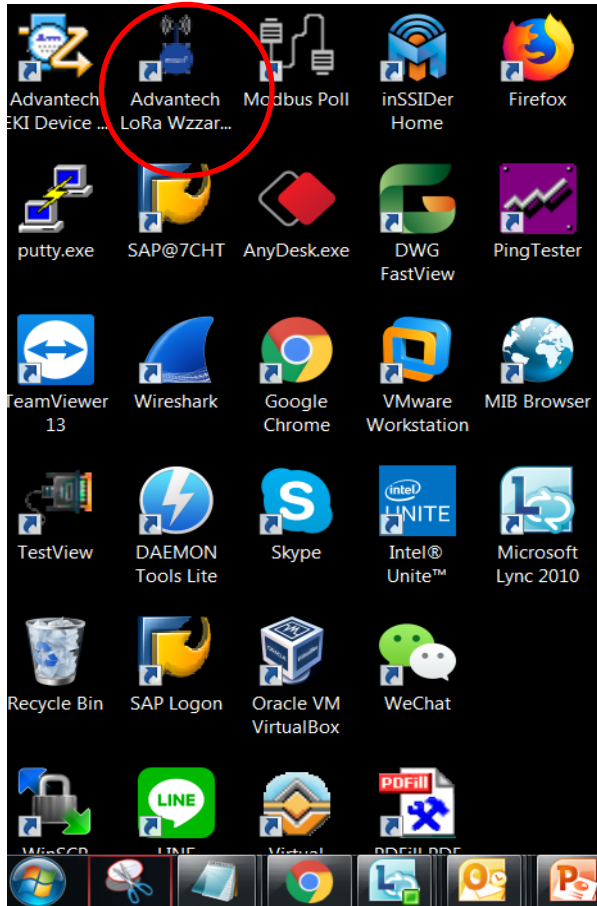
BB-WSW2C42100-2 LoRaWAN node

4 x AI, 2 x DI, 1 x DO, conduit, external antenna (868 MHz)

BB-WSW2C42100-3 LoRaWAN node

4 x AI, 2 x DI, 1 x DO, conduit, external antenna (923 MHz)

LoRaWAN Node Utility 1/5



After to connect the computer with the node via the console connector, it's feasible to execute the utility and configure the node.

LoRa Wzzard Utility

Help | Connect | About

System LoRaWan Radio Sensor

Device Information

Model Name

WSW2C42100-2

Version

1.00.04

Device Description

Advantech 4A12DI1D0 LoRa Node, 868MHz

LoRaWAN Node Utility 2/5

LoRa Wzzard Utility

Help | Connect | About

System **LoRaWan** Radio Sensor

LoRaWan Setting

Join Mode :

Device Address :

Application Session Key :

Network Session Key :

ADR : On

Tx Confirm : off

Tx Retry Number :

Undo

Update

LoRaWAN Node Utility 3/5

Radio settings for EU/US SKU

The image displays two screenshots of the LoRa Wizzard Utility software interface, comparing radio settings for EU868 and US915 bands.

Left Screenshot (EU868):

- Radio Setting:** Band: EU868, RF Power: 16, Data Rate: 2.
- Channel Frequency:** CH3: 867100000, CH4: 867300000, CH5: 867500000, CH6: 867700000, CH7: 867900000.
- Channel Status:** CH3, CH4, CH5, CH6, CH7 (all unchecked).

Right Screenshot (US915):

- Radio Setting:** Band: US915, RF Power (dBm): 20.
- Data Rate:** Dropdown menu showing options: 1: SF9 / 125kHz / 1760bps (selected), 0: SF10 / 125kHz / 980bps, 2: SF8 / 125kHz / 3125bps, 3: SF7 / 125kHz / 5470bps.
- Channel Selection:** Grid of channels CH0 to CH63. CH0, CH1, CH5, CH6, and CH7 are checked.

LoRaWAN Node Utility 4/5

Under sensor Page, you can configure the sensor node parameter.
(AIDIDO SKU)

LoRa Wzzard Utility Help | Connect | About - □ ×

System LoRaWan Radio Sensor

Common Config
Interval : 10 Refresh

Digital Input

Index	Enable	Value
1	<input checked="" type="checkbox"/>	1
2	<input checked="" type="checkbox"/>	1

Digital Output
 Enable
 Action

Analog Input

Index	Mode	Negative	Value
1	10V ▼	<input type="checkbox"/>	0.000000 V
2	10V ▼	<input type="checkbox"/>	0.000000 V
3	10V ▼	<input type="checkbox"/>	0.000000 V
4	10V ▼	<input type="checkbox"/>	0.000000 V

With the LoRa chipset limitation, the minimum uplink interval should be higher than 5 sec

LoRaWAN Node Utility 5/5

For RS485 (ModbusRTU SKU)

LoRa Wzzard Utility

Help | Connect | About



System LoRaWan Radio **Modbus**

Uart Setting

Baud Rate

115200

Parity

None

Data Bits

8

Stop Bits

1

Modbus / RTU Read

ID	Enable	Slave ID	Function Code	Address	Quantity	Polling Time (ms)	Modbus Timeout
1	<input checked="" type="checkbox"/>	1	3: Read ...	10	1	1000	1000
2	<input checked="" type="checkbox"/>	100	3: Read ...	1	2	1000	1000
3	<input type="checkbox"/>	1	1: Read ...	1	1	1000	1000
4	<input type="checkbox"/>	1	1: Read ...	1	1	1000	1000
5	<input type="checkbox"/>	1	1: Read ...	1	1	1000	1000
6	<input type="checkbox"/>	1	1: Read ...	1	1	1000	1000

Modbus / RTU Write

Slave ID	Function Code	Address	Quantity	Value	Write
1	5: Write single coils	1	1	0	<input type="button" value="Write"/>

By default setting, it supports 6 read rule.

Each of the rule can read 3 Modbus address(fc:3)

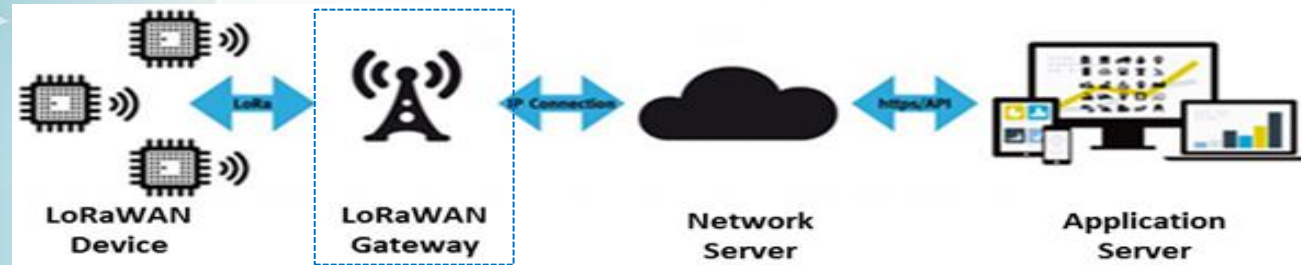
It can read up to 23 address(fc:3) when speeding up the LoRa data rate.

Wise-66 10 Setup Guide



ADVANTECH

GW Setting



Physical Connection Guide – Wise-6610

LoRaWAN gateway Pin Definition

<u>Red</u>	Yellow	<u>Black</u>	Grey
PWR+ 9~36VDC	DI	GND	DO



Wise-6610 Overview 1) UM Access

Login

Username

Password

GUI

Default IP is 192.168.1.1

ID/PW: root/root

Menu > Customization > User Module > LoRaWAN GW

Status	User Modules
General	Hosted Management Client 1.2.1 (2017-05-02) <input type="button" value="Delete"/>
Mobile WAN	LoRaWAN Gateway 1.0.16 (20190620T091952Z) <input type="button" value="Delete"/>
Network	Node-RED 1.0.1 alfa (2017-03-13) <input type="button" value="Delete"/>
DHCP	Pinger 2.2.0 (2017-05-26) <input type="button" value="Delete"/>
IPsec	
DynDNS	
System Log	
Configuration	
LAN	
VRRP	
Mobile WAN	
PPPoE	
Backup Routes	
Static Routes	
Firewall	
NAT	
OpenVPN	
IPsec	

New Module

Wise-6610 Overview 2) RF Setting

Navigation
Router
LoRaWAN Radio
• Packet Forward
• LoRaWAN Status
Network Server
MQTT
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LoRaWAN Gateway Settings									
LoRaWAN Radio Setting									
Model Name									
WISE-6610-N100-A									
LoRaWAN Radio Enable									
On ▼									
Radio 0 Main Frequency(KHz)									
902700 <small>The main frequency used on Radio 0.</small>									
Radio 1 Main Frequency(KHz)									
903400 <small>The main frequency used to setting on Radio 1.</small>									
Channel 00	On ▼	Radio select	Radio 0 ▼	Offset (KHz)	-400				
Channel 01	On ▼	Radio select	Radio 0 ▼	Offset (KHz)	-200				
Channel 02	On ▼	Radio select	Radio 0 ▼	Offset (KHz)	0				
Channel 03	On ▼	Radio select	Radio 0 ▼	Offset (KHz)	200				
Channel 04	On ▼	Radio select	Radio 1 ▼	Offset (KHz)	-300				
Channel 05	On ▼	Radio select	Radio 1 ▼	Offset (KHz)	-100				
Channel 06	On ▼	Radio select	Radio 1 ▼	Offset (KHz)	100				
Channel 07	On ▼	Radio select	Radio 1 ▼	Offset (KHz)	300				
Channel Std	On ▼	Radio select	Radio 0 ▼	Bandwidth	500Khz ▼	SF	8 ▼	Offset (KHz)	300
Quick Setup <small>Quick setting LoRaWAN Radio.</small>									

1. Enable radio & Decide the uplink channel
2. No need to input downlink channel. The network server decide the downlink channel based on the uplink packets.

3. Feasible to press Quick Setup to choose the channel

Wise-6610 Overview 3) RF Setting

Navigation

Router

- [LoRaWAN Radio](#)
- [Packet Forward](#)
- [LoRaWAN Status](#)
- [Network Server](#)
- [MQTT](#)
- [Application Server](#)
- [Licenses](#)
- [Return to Router](#)

LoRaWAN Gateway Settings

LoRaWAN Radio Quick Setup

US902-0(902.3Mhz-903.7Mhz std:903.0Mhz) ▼ Select

US902-0(902.3Mhz-903.7Mhz std:903.0Mhz)

US902-1(903.9Mhz-905.3Mhz std:904.6Mhz)

US902-2(905.5Mhz-906.9Mhz std:906.2Mhz)

US902-3(907.1Mhz-908.5Mhz std:907.8Mhz)

US902-4(908.7Mhz-910.1Mhz std:909.4Mhz)

US902-5(910.3Mhz-911.7Mhz std:911.0Mhz)

US902-6(911.9Mhz-913.3Mhz std:912.6Mhz)

US902-7(913.5Mhz-914.9Mhz std:914.2Mhz)

AS923-1(922.0Mhz-923.4Mhz std:922.1Mhz) 8

AS923-2(923.2Mhz-924.6Mhz std:924.5Mhz)

AU915-0(915.2Mhz-916.6Mhz std:915.9Mhz)

AU915-1(916.8Mhz-918.2Mhz std:917.5Mhz)

AU915-2(918.4Mhz-919.8Mhz std:919.1Mhz)

AU915-3(920.0Mhz-921.4Mhz std:920.7Mhz)

AU915-4(921.6Mhz-923.0Mhz std:922.3Mhz)

AU915-5(923.2Mhz-924.6Mhz std:923.9Mhz)

AU915-6(924.8Mhz-926.2Mhz std:925.5Mhz)

AU915-7(926.4Mhz-927.8Mhz std:927.1Mhz)

KR920(922.1Mhz-923.3Mhz std:Disabled) 8

US902-2
channel 0 : 905.5 Mhz
channel 1 : 905.7 Mhz

Choose the channel according to the LoRa node spec

Wise-6610 Overview 4) Network Server Setting

Channel 04	<input type="checkbox"/>	Radio 1	-300	
Channel 05	<input type="checkbox"/>	Radio 1	-100	
Channel 06	<input type="checkbox"/>	Radio 1	100	
Channel 07	<input type="checkbox"/>	Radio 1	300	
Channel STD	<input type="checkbox"/>	Radio 0	500Khz	8
Channel FSK	<input type="checkbox"/>	Radio 0	125Khz	50000

Quick setting LoRaWAN Radio

Direct the LoRaWAN GW to a network server

LoRaWAN Gateway Setting

LoRaWAN Gateway Identifier	FE5A72FFFE9680A0		
Network server	IP address	Upstream Port	Downstream Port
Backup server	127.0.0.1	1680	1680
Backup Enable	Off		
Backup Database Interval	5		

Since wise-6610 supports network server feature, You can direct the data to Wise-6610(127.0.0.1) itself.

Wise-6610 Overview 5) GW MQTT Setting

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LoRaWAN Gateway Settings	
MQTT Broker	
MQTT Broker Enable	
<input type="text" value="On"/>	Enable the local MQTT broker.
MQTT Broker Port	
<input type="text" value="1883"/>	The local MQTT broker TCP port number (1 - 65535).
MQTT Bridge	
MQTT Bridge Enable	
<input type="text" value="Off"/>	Enable bridging to a remote MQTT broker.
MQTT Bridge Port	
<input type="text" value="1883"/>	The remote MQTT broker TCP port number (1 - 65535).
MQTT Bridge Address	
<input type="text"/>	The remote MQTT broker address.
MQTT Bridge User	
<input type="text"/>	The user name for the remote MQTT broker.
MQTT Bridge Password	
<input type="text"/>	The password for the remote MQTT broker.
MQTT Bridge Client Identifier	
<input type="text"/>	The client identifier for the remote MQTT broker.
<input type="button" value="Save"/>	

Wise-6610 supports MQTT broker to process the data handled by the network server.

Wise-6610 Overview 6) Status Checking

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LoRaWAN Status
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LoRaWAN Gateway Settings				
Basic Status				
Data Record Time : 2018-07-10T16:15:11Z				
Total Up Stream : 185 Bytes				
CRC OK packet : 9				
CRC Bad packet : 705				
NO CRC packet : 0				
Channel Status				
Channel	Radio Index	Enabled	Frequency(Hz)	Received(Bytes)
0	0	Enabled	902300000	21
1	0	Enabled	902500000	84
2	0	Enabled	902700000	21
3	0	Enabled	902900000	0
4	1	Enabled	903100000	42
5	1	Enabled	903300000	17
6	1	Enabled	903500000	0
7	1	Enabled	903700000	0
std	0	Enabled	903000000	0
Last Up Stream				
index	Data			
1	{ "rxpk": [{ "tmst": 3066556676, "time": "2018-07-10T11:30:00.609891Z", "chan": 1, "rfch": 0, "freq": 902.500000, "stat": 1, "modu": "LORA", "datr": "SF10BW125", "codr": "4/5", "lsnr": -14.0, "rssi": -109, "size":			
2	{ "rxpk": [{ "tmst": 3135274452, "time": "2018-07-10T11:31:09.332687Z", "chan": 1, "rfch": 0, "freq": 902.500000, "stat": 1, "modu": "LORA", "datr": "SF10BW125", "codr": "4/5", "lsnr": -12.5, "rssi": -107, "size":			
3	{ "rxpk": [{ "tmst": 4189579524, "time": "2018-07-10T11:48:43.651567Z", "chan": 4, "rfch": 1, "freq": 903.100000, "stat": 1, "modu": "LORA", "datr": "SF10BW125", "codr": "4/5", "lsnr": -10.8, "rssi": -112, "size":			
4	{ "rxpk": [{ "tmst": 2200128396, "time": "2018-07-10T13:38:44.176042Z", "chan": 1, "rfch": 0, "freq": 902.500000, "stat": 1, "modu": "LORA", "datr": "SF10BW125", "codr": "4/5", "lsnr": -11.2, "rssi": -107, "size":			

Raw data is received after to enable the LoRaWAN radio, you can check if wireless functions well in this page

Wise-6610 Overview 7) Network Server Link

Navigation

Router

[LoRaWAN Radio](#)

• [Packet Forward](#)

• [LoRaWAN Status](#)

[Network Server](#)

[MQTT](#)

[Application Server](#)

[Licenses](#)

[Return to Router](#)

LoRaWAN Gateway Settings

Basic Status

Data Record Time : 2018-07-10T16:15:11Z
Total Up Stream : 185 Bytes
CRC OK packet : 9
CRC Bad packet : 705
NO CRC packet : 0

Channel Status

Channel	Radio Index	Enabled	Frequency(Hz)	Received(Bytes)
0	0	Enabled	902300000	21
1	0	Enabled	902500000	84
2	0	Enabled	902700000	21
3	0	Enabled	902900000	0
4	1	Enabled	903100000	42
5	1	Enabled	903300000	17
6	1	Enabled	903500000	0
7	1	Enabled	903700000	0
std	0	Enabled	903000000	0

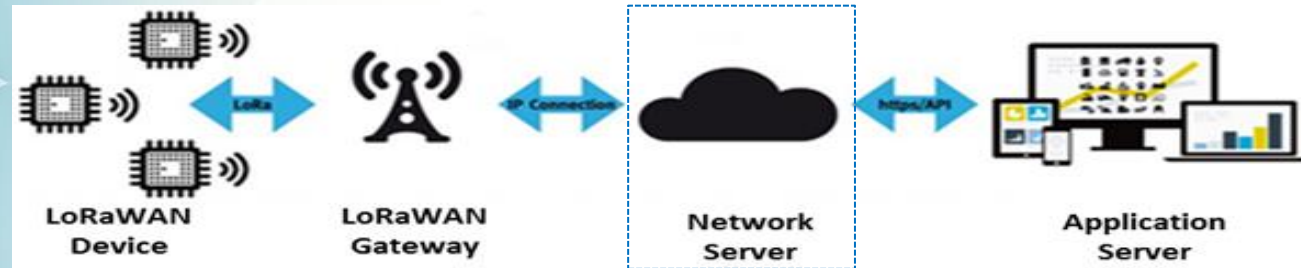
Last Up Stream

index Data

1	{ "rxpk": [{ "tmst": 3066556676, "time": "2018-07-10T11:30:00.609891Z", "chan": 1, "rfch": 0, "freq": 902.500000, "stat": 1, "modu": "LORA", "datr": "SF10BW125", "codr": "4/5", "lsnr": -14.0, "rssi": -109, "size":
2	{ "rxpk": [{ "tmst": 3135274452, "time": "2018-07-10T11:31:09.332687Z", "chan": 1, "rfch": 0, "freq": 902.500000, "stat": 1, "modu": "LORA", "datr": "SF10BW125", "codr": "4/5", "lsnr": -12.5, "rssi": -107, "size":
3	{ "rxpk": [{ "tmst": 4189579524, "time": "2018-07-10T11:48:43.651567Z", "chan": 4, "rfch": 1, "freq": 903.100000, "stat": 1, "modu": "LORA", "datr": "SF10BW125", "codr": "4/5", "lsnr": -10.8, "rssi": -112, "size":
4	{ "rxpk": [{ "tmst": 2200128396, "time": "2018-07-10T13:38:44.176042Z", "chan": 1, "rfch": 0, "freq": 902.500000, "stat": 1, "modu": "LORA", "datr": "SF10BW125", "codr": "4/5", "lsnr": -11.2, "rssi": -107, "size":

After configuring the LoRaWAN setting, please go to LoRaWAN server(network server) to create the data processing rule on Network server

Network Server Setting



Network Server Configuration – Assign the Gateway

1. Please assign the LoRaWAN GW to network server
2. Please leave the Tx chain as 0 (according to Wise6610's HW spec)

Server Admin

Infrastructure

Gateways

Networks

Multicast Channels

Events

Devices

Backends

Received Frames

Transmission Frames

Gateways List

Export

Create

<input type="checkbox"/> MAC	Group	Description	IP Address	Dwell [%]	Last Alive	Status
<input type="checkbox"/> FE5A72FFFE9660A0			127.0.0.1	0.000	2018-07-12T11:09:29Z	✓

MAC * FE5A72FFFE9660A0

Group

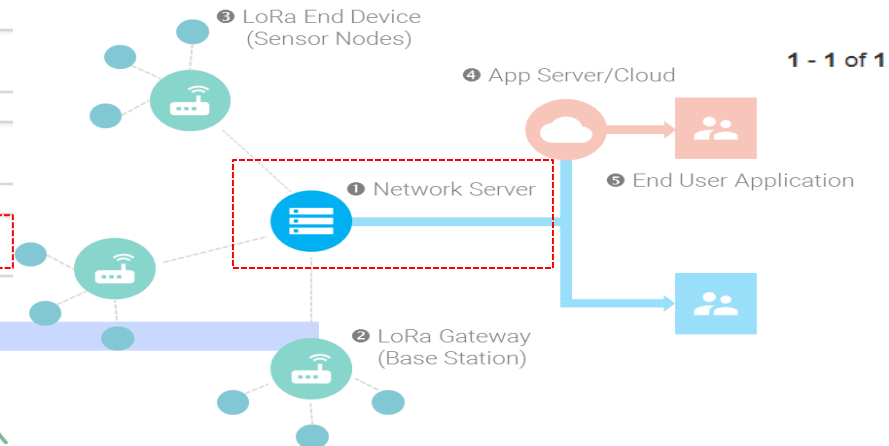
TX Chain * 0

LoRaWAN Gateway Setting

LoRaWAN Gateway Identifier FE5A72FFFE9660A0

IP address	127.0.0.1	Upstream Port	1680	Downstream Port	1680
Backup server	127.0.0.1	1680	1680		
Backup Enable	Off				
Backup Database Interval	5				

Save



Network Server Configuration – Assign the Network

Server Admin

Infrastructure

Gateways

Networks

Multicast Channels

Events

Devices

Backends

Received Frames

Transmission Frames

Networks List

Export

Create

<input type="checkbox"/>	Name	NetID	SubID	Region
<input type="checkbox"/>	EU868	000000		EU868
<input type="checkbox"/>	AU915	000000		AU915
<input type="checkbox"/>	AS923	000000		AS923
<input type="checkbox"/>	US902	000000		US902

1 - 4 of 4

1. Define the network frequency for the network server
2. There are 4 setting(EU/AU/AS/US) are pre-configured by default. All the parameter are complying with LoRaWAN regulation.

Network Server Configuration – Create the handler

Server Admin

- Infrastructure
- Gateways
- Networks
- Multicast Channels
- Events
- Devices
- Backends
- Handlers**
- Connectors
- Received Frames

Handlers List

Export Create

Application	Fields	Payload	D/L Expires
<input type="checkbox"/> WISE6610_Handler	devaddr fcnt port data datetime rssi appargs		never

1 - 1 of 1

- > Configure the handler
- > Define what information you want to receive
- > It's a rule for the network server to process data

Network Server Configuration – Configure the Handler

Server Admin

- Infrastructure
- Gateways
- Networks
- Multicast Channels
- Events
- Devices
- Backends
- Handlers**
- Connectors
- Received Frames
- Transmission Frames

Edit handler #WISE6610_Handler

Application *

WISE6610_Handler

Uplink Fields

devaddr × fcnt × port × data × datetime × rssi × appargs ×

Payload

Filter values

Parse Uplink

Define what information you want to receive

Network Server Configuration – Setup the Data Connector

Server Admin

- Infrastructure
 - Gateways
 - Networks
 - Multicast Channels
 - Events
- Devices
- Backends
 - Handlers
 - Connectors**
 - Received Frames

Connectors List

[Export](#) [+ Create](#)

<input type="checkbox"/>	Name	Application	URI	Publish Uplinks	Received Topic	Enabled
<input type="checkbox"/>	WISE6610_Broker	WISE6610_Handler	mqtt://127.0.0.1:1883	uplink/{devaddr}	downlink/{devaddr}	✓
<input type="checkbox"/>	WISE6610_Websocket	WISE6610_Handler	ws:	/ws/uplink/{devaddr}		✓

Define how to process the data after to the network server decrypts the data 1 - 2 of 2

Example: Through MQTT
In this example : We save the Topic on localhost's MQTT broker

1. Publish Uplink(MQTT topic) for Rx
2. Receive topic (MQTT topic) for Tx

Network Server Configuration – Configure the Connector

- Infrastructure
- Gateways
- Networks
- Multicast Channels
- Events
- Devices
- Backends
- Handlers
- Connectors**
- Received Frames
- Transmission Frames

Edit connector #WISE6610_Broker

General Authentication

Connector Name *	WISE6610_Broker
Application	WISE6610_Handler ✕
Format *	JSON
URI *	mqtt://127.0.0.1:1883
Publish Uplinks	uplink/{devaddr}
Publish Events	
Subscribe	downlink/#
Received Topic	downlink/{devaddr}
Enabled *	<input checked="" type="checkbox"/>
Failed	Filter values

Network Server Configuration – Create Profiles for Nodes

Server Admin

- Infrastructure
- Gateways
- Networks
- Multicast Channels
- Events
- Devices
 - Profiles**
 - Commissioned
 - Activated (Nodes)
 - Ignored
- Backends

Profiles List

Export Create

<input type="checkbox"/>	Name	Network	Application	App Identifier
<input type="checkbox"/>	US902_WISH6610_Handler	US902	WISE6610_Handler	
<input type="checkbox"/>	AS923_WISH6610_Handler	AS923	WISE6610_Handler	
<input type="checkbox"/>	AU915_WISH6610_Handler	AU915	WISE6610_Handler	
<input type="checkbox"/>	EU868_WISH6610_Handler	EU868	WISE6610_Handler	

1 - 4 of 4

**Here, we are starting to configure the LoRa node setting
The target is to pair the handler with the network
frequency for the LoRa node**

Network Server Configuration – Configure Profiles

Server Admin

Infrastructure

Gateways

Networks

Multicast Channels

Events

Devices

Profiles

Commissioned

Activated (Nodes)

Ignored

Backends

Handlers

Edit profile #US902_WISE6610_Handler

General

ADR

Name *

US902_WISE6610_Handler

Network *

US902

Application *

WISE6610_Handler

App Identifier

Can Join?

true

FCnt Check

Strict 32-bit

TX Window

Auto

To configure the nodes, you need to pair the handler with the network frequency through profile setting

*Can Join is the option for OTAA setting

Assign Rx1 or Rx2 for the node to receive Tx
Generally, we suggest leave it in AUTO

Network Server Configuration – Create Node's Rule

Server Admin

- Infrastructure
 - Gateways
 - Networks
 - Multicast Channels
 - Events
- Devices
 - Profiles
 - Commissioned
 - Activated (Nodes)**
 - Ignored
- Backends

Please add(configure) the node according to your node's type

Nodes List

Add filter ▾ Export **+** Create

DevAddr	Profile	App Arguments	FCnt Up	FCnt Down	Battery	D/L SNR	Last RX	Status
<input type="checkbox"/> FE3E0C51	US902_WISH6610_Handler	Advantech	1	0	254	29	2018-06-12T10:41:28Z	

1 - 1 of 1

For ABP type (Ex: Advantech LRPv2 node default setting), please choose **Activated(Nodes)**

Control ABP Status

DevAddr *	FE3E0C51
Profile *	US902_WISH6610_Handler
App Arguments	Advantech
NwkSKey *	965F6942F29C9EBE5747E25F07DA5114
AppSKey *	A46847D184323C21C992D8F9EF4B7CE9

Please choose the profile and input DevAddr/ NwkSkey/AppSKey

Network Server Configuration – ABP Nodes

Profiles

- Commissioned
- Activated (Nodes)
- Ignored

Backends

- Handlers
- Connectors

Received Frames

Transmission Frames

General

ADR Status

DevAddr * FE4E939E

Profile * US902_WISE6610_Handler

App Arguments Advantech

NwkSKey * 00000000000000000000000000000001

AppSKey * 00000000000000000000000000000001

FCnt Up 95

FCnt Down * 2

Last Reset

Last RX 2019-01-24T17:41:36Z

Device

Gateways	MAC	U/L RSSI	U/L SNR
	FE5A72FFFE9660A0	-61	12.5

On these fields, it will record how many packets it receives and sends

Also, it shows which gateway receives the data from this node

Network Server Configuration – OTAA Nodes

For OTAA nodes, please configure it through Commissioned

Server Admin

- Infrastructure
 - Gateways
 - Networks
 - Multicast Channels
 - Events
- Devices
 - Profiles
 - Commissioned OTAA**
 - Activated (Nodes)
 - Ignored
- Backends

Devices List

▼ Add filter 📄 Export + Create

<input type="checkbox"/>	DevEUI	Profile	App Arguments	Last Join	Node
<input type="checkbox"/>	00000000000000000004	US902_WISH6610_Handler			
<input type="checkbox"/>	000000234000000004	US902_WISH6610_Handler			

1 - 2 of 2

DevEUI * 000000000000000004

Profile * US902_WISH6610_Handler

App Arguments

AppEUI FFFFFFFF12345678

AppKey * 01020304050607080910111213141516

Last Join

Node ABC12333

Please choose the profile and input DevEUI/ AppEUI/AppSKey

Network Server Configuration – Check Receiving Frames

You can verify if the LoRaWAN network server functions well. Please check it through “receive frame”

Received Frames

Add filter

Export

Received	Application	DevAddr	MAC	U/L RSSI	U/L SNR	FCnt	Confirm	Port	Data
2018-06-12T10:41:28Z	WISE6610_Handler	FE3E0C51	FE5A72FFFE9660A0	-61	8	1	✘	15	00112233
2018-06-07T16:12:04Z	WISE6610_Handler	FE3E0C51	FE5A72FFFE9660A0	-71	11.5	569	✘	5	01000162C
2018-06-07T16:12:01Z	WISE6610_Handler	FE3E0C51	FE5A72FFFE9660A0	-71	10.5	568	✘	5	01000162C
2018-06-07T16:11:58Z	WISE6610_Handler	FE3E0C51	FE5A72FFFE9660A0	-64	8.8	567	✘	5	01000162C
2018-06-07T16:11:55Z	WISE6610_Handler	FE3E0C51	FE5A72FFFE9660A0	-66	9	566	✘	5	01000162C
2018-06-	WISE6610_Handler	FE3E0C51	FE5A72FFFE9660A0	-65	8.2	565	✘	5	01000162C

Send Tx Frames

Connectors List

Name	Application	URI	Publish Uplinks	Received Topic	Enabled
WISE6610_Broker	WISE6610_Handler	mqtt://127.0.0.1:1883	uplink/{devaddr}	downlink/{devaddr}	✓
WISE6610_Websocket	WISE6610_Handler	ws://	/ws/uplink/{devaddr}		✓

send Tx frames to the nodes via the **Web UI**

send Tx frames to the nodes via **MQTT** message

e.g. Class A node {"data":"11","port":13}

e.g. Class C node {"data":"11","time":"immediately","port":13}

Server Admin

- Infrastructure
 - Gateways
 - Networks
 - Multicast Channels
 - Events
- Devices
 - Profiles
 - Commissioned
 - Activated (Nodes)
 - Ignored
- Backends
 - Handlers
 - Connectors
 - Received Frames
 - Transmission Frames**

Transmission Frames

DevAddr Creation Time Txdata Port Txdata Data confirmed Actions

Create new txframe

General

Configure the tx port according to the node

DevAddr * FE44F531 ✓

Tx port

Tx data * e.g. 001122(HEX)

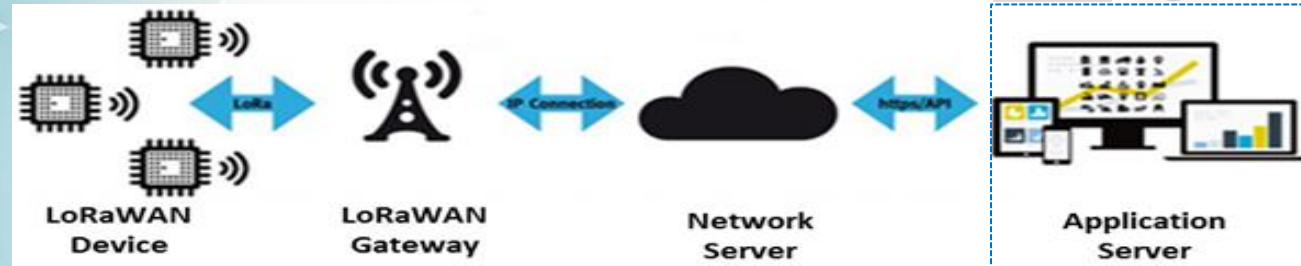
confirmed false x

immediately false x

Submit

Network server will not resend the message even it's dropped

Application Server Setting



Node-RED Setting 1/4

Status

- General
- Network
- DHCP
- IPsec
- DynDNS
- System Log

Configuration

- LAN
- VRRP
- PPPoE
- Backup Routes
- Static Routes
- Firewall
- NAT
- OpenVPN
- IPsec
- GRE
- L2TP
- PPTP
- Services
- Expansion Port
- Scripts
- Automatic Update

Customization

- User Modules

User Modules

LoRaWAN Gateway 1.0.8 (20180717T024459Z)	Delete
Node-RED 1.0.1 alfa (2017-03-13)	Delete

New Module 未選擇任何檔案

Since the message are already delivered through MQTT, you can use any MQTT software to receive the node data. Or, going to Node-RED to receive the node data

Node-RED Setting 2/4

Node-RED configuration

Status
Log
Configuration
Node-RED
Customization
Return

Configuration module	
<input checked="" type="checkbox"/> Enable Automatic Start	
Port <input type="text" value="1880"/> the port used to serve the editor UI. Default: 1880.	
<input type="button" value="Apply"/> Node-RED will start immediately.	

Enable Node-RED on Wise-6610 1880 port

Status
Log
Configuration
Node-RED
Customization
Return

Log	
Log Messages	
Node-RED service start: Thu Oct 11 14:48:02 GMT 2018	
Welcome to Node-RED =====	
<pre>11 Oct 14:48:42 - [info] Node-RED version: v0.15.2 11 Oct 14:48:42 - [info] Node.js version: v4.7.0 11 Oct 14:48:42 - [info] Linux 3.12.10+ arm LE 11 Oct 14:48:43 - [info] Palette editor disabled : npm command not found 11 Oct 14:48:43 - [info] Loading palette nodes 11 Oct 14:49:00 - [info] Dashboard version 2.3.5 started at /ui 11 Oct 14:49:13 - [info] Settings file : /opt/nodered/node-red/settings.js 11 Oct 14:49:13 - [info] User directory : /opt/nodered/node-red 11 Oct 14:49:13 - [info] Flows file : /opt/nodered/node-red/flows-Router.json 11 Oct 14:49:13 - [info] Server now running at http://127.0.0.1:1880/ 11 Oct 14:49:14 - [info] Starting flows</pre>	

Node-RED Setting 3/4



Access <http://Wise-6610IP:1880>
ID/PW: root/root

Node-RED Setting 4/4

The screenshot shows the Node-RED interface. On the left, a 'Connectors List' sidebar is visible. The main workspace shows a flow with several MQTT nodes: 'uplink/#' (connected), 'uplink/014C6E97', and '#' (connecting). These nodes are connected to 'msg.payload', 'msg', and 'json' nodes. A 'prepare for' node is also present. On the right, the 'Edit mqtt in node' panel is open, showing configuration for the 'uplink/#' node: Server (127.0.0.1:1883), Topic (uplink/#), QoS (2), and Name (Name). A red dashed box highlights the MQTT nodes in the flow and the configuration panel.

You can receive the LoRa node data after to complete the network server setting. This MQTT topic shows the raw sensor data

Connectors List

Name	Application	URI	Publish Uplinks	Received Topic	Enabled	Failed
WISE6610_Broker	WISE6610_Handler	mqtt://127.0.0.1:1883	uplink/{devaddr}	downlink/{devaddr}	✓	

Application for Advantech LRPv2 Nodes 1/4

If you have one more App argument setting, you can receive Advantech sensor data which already be classified.

Please ensure the Application server is enabled and go for “App argument“ setting

Advantech Application Server Setting

Application Server Enable

Enable the local Application Server.

Application Server Connect MQTT Address

Application Server remote MQTT broker address.

Application Server Connect MQTT Port

Application Server remote MQTT broker TCP port number (1 - 65535).

MQTT User

The user name for the remote MQTT broker.

MQTT Password

The password for the remote MQTT broker.

Uplink Topic

Subscribe topic from MQTT broker.

Downlink Topic

publish topic to MQTT broker.

Application for Advantech LRPv2 Nodes 3/4

Server Admin

- Infrastructure
- Gateways
- Networks
- Multicast Channels
- Events
- Devices
- Backends
- Handlers**
- Connectors
- Received Frames

Handlers List

Export Create

Application	Fields	Payload	D/L Expires
<input type="checkbox"/> WISE6610_Handler	<input type="checkbox"/> devaddr <input type="checkbox"/> fcnt <input type="checkbox"/> port <input type="checkbox"/> data <input type="checkbox"/> datetime <input type="checkbox"/> rssi <input type="checkbox"/> appargs		never

1 - 1 of 1

> Make sure the handler equips the above items, it's the item for filtering Advantech BB-WSW nodes

Application for Advantech LRPv2 Nodes 4/4

Once the setting is done, the application on the gateway allows you monitor and manage Advantech nodes. It doesn't support other nodes come from other vendor.

Navigation

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- [LoRaWAN Radio](#)
- [Network Server](#)
- [MQTT](#)
- [Application Server](#)
- [Settings](#)
- [Status](#)
- [Modbus Mapping Table](#)
- [Payload Engine](#)

[Licenses](#)

[Return to Router](#)

LoRaWAN Gateway Settings

Application Server Status

MQTT Status : Connected
Node number : 1

Advantech LoRaWAN Node

Index	DevAddr	Description	Model	Received	Fcnt	Rssi	Action
1	FE42080F		BB-WSW2C00015	2019-02-23T09:55:01Z	301	-64	<input type="button" value="Delete"/> <input type="button" value="Setting"/> <input type="button" value="Detail"/>

Application Log

LoRaWAN Gateway Settings

Node Detail Data

Devaddr
FE42080F

Transaction	Slave ID	Address	Function	Length	Data
0	1	1	Read Holding Registers (FC=03)	5	[0x000c,0x007a,0x0036,0x01c7,0x01c4,]

If LoRaWAN node is BB-WSW node, it's feasible to manage and configure it on Wise-6610's application server

Subscribe the Data which had been Filtered

The screenshot displays the MQTT client configuration and message logs. On the left, the 'Edit mqtt in node' dialog is open, showing the following configuration:

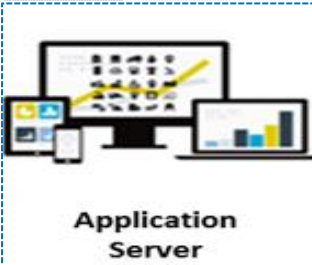
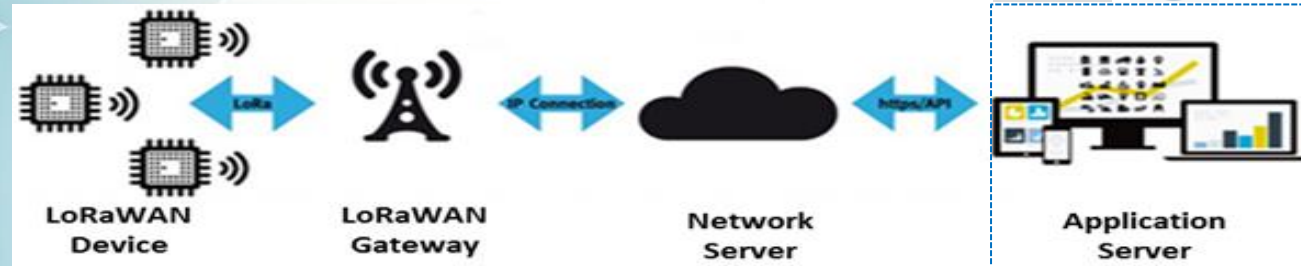
- Server: 127.0.0.1:1883
- Topic: Advantech/+ /data
- QoS: 2
- Name: Name

The 'Topic' field is highlighted with a red dashed box. On the right, the 'debug' tab shows the message logs. The logs show two messages received from Advantech/FE44F531/data, both with a payload of a string [132]. The messages are:

```
[2,16,6],"datetime":"2018-10-23T11:15:57Z"}
2018/10/23 上午 11:12:22 efdfd0cc.a6572
Advantech/FE44F531/data : msg.payload : string [132]
{"Index":2,"Address":1,"Slave ID":100,"Function Code":3,"Length":3,"Status":"Ok","mbd2": [2,16,6],"datetime":"2018-10-23T11:16:03Z"}
2018/10/23 上午 11:12:28 efdfd0cc.a6572
Advantech/FE44F531/data : msg.payload : string [132]
{"Index":2,"Address":1,"Slave ID":100,"Function Code":3,"Length":3,"Status":"Ok","mbd2": [3,16,6],"datetime":"2018-10-23T11:16:09Z"}
2018/10/23 上午 11:12:34 efdfd0cc.a6572
Advantech/FE44F531/data : msg.payload : string [132]
```

The second message is highlighted with a red dashed box. The text 'MQTT topic "Advantech/address/data"' is overlaid on the bottom left of the screenshot.

Application Server Modbus TCP



Modbus TCP Mapping 1/3

If you have Application Server enabled. Also, having App argument setting “Advantech” for BB-WSW node. There is a new ModbusTCP mapping function to bridge the sensor data (RS485/AI/DI/DO) with your SCADA system.

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[LoRaWAN Radio](#)
[Network Server](#)
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- [Settings](#)
- [Status](#)
- [Modbus Mapping Table](#)
- [Payload Engine](#)

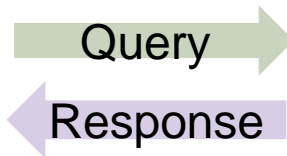
[Licenses](#)
[Return to Router](#)

LoRaWAN Gateway Settings
Modbus TCP Mapping Table

Request Slave ID	Node ID	Type	Action
1	FE4E939E	Class A	Delete
2	FE0D242C	Class A	Delete

Modified/Add Restart Application

SCADA
Modbus Master
IP:192.168.1.1



Modbus Slave
IP:192.168.1.2

RS485
AI/DI/DO
Sensor
data

Modbus TCP Mapping 2/3

Please add the node info and map the slave ID to the BB-WSW node. We prepare the Modbus Address Table for mapping with the input on BB-WSW node(see next page).

1. Only Class A type for AI/DI/DO SKU
2. Class A/C was supported on RS485 SKU. If you choose Class C, the Modbus Table will follow the original Modbus address on the sensor. So you can query the sensor directly.

Navigation	LoRaWAN Gateway Settings
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Return to Router	
	Request Slave ID <input type="text" value="1"/>
	Node ID <input type="text" value="FE4E939E"/>
	Type <input type="text" value="Class A"/>
	Node Slave ID <input type="text" value="1"/> If type select Class C , must set this value (1 - 247 or 255).

Modbus TCP Mapping 3/3

BB-WSW Modbus Node

Function 01

01001~01032 index 1 coil data (FC 1 or 2)
02001~02032 index 2 coil data (FC 1 or 2)
03001~03032 index 3 coil data (FC 1 or 2)
04001~04032 index 4 coil data (FC 1 or 2)
05001~05032 index 5 coil data (FC 1 or 2)
06001~06032 index 6 coil data (FC 1 or 2)

Function 03

41001~41023 index 1 register data (FC 3 or 4)
42001~42023 index 2 register data (FC 3 or 4)
43001~43023 index 3 register data (FC 3 or 4)
44001~44023 index 4 register data (FC 3 or 4)
45001~45023 index 5 register data (FC 3 or 4)
46001~46023 index 6 register data (FC 3 or 4)

BB-WSW AI/DI/DO Node

Function 01
00001 di1 status
00002 di2 status
00003 do status

Function 03

40001 AI1 RAW Data
40002 AI2 RAW Data
40003 AI3 RAW Data
40004 AI4 RAW Data

Read

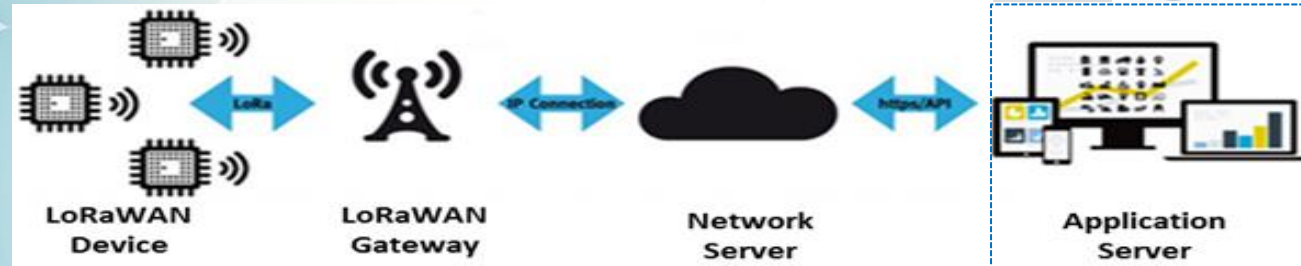
AI Type

40011 AI1 Type
40012 AI2 Type
40013 AI3 Type
40014 AI4 type

type:

0:disable
1:0~10V
2:0~5V
3:0~1V
4:0~20mA
5:-10~10V
6:-5~5V
7:-1~1V

Application Server Payload Engine



A Local Decoder in The Edge

The Answer is “YES”
It’s feasible to decode the data payload
through “Node-RED” or the “payload engine”

Can Wise-6610 support
decoding the LoRaWAN
sensor raw data payload ?



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name : BBWSW
topic : BBWSW-1
FPort : 5
Length : 11
Name : ignore
Size : 5
Type : ignore
Multiply : 1.000000
Name : Meter-1
Size : 2
Type : uint16
Multiply : 1.000000
Name : Meter-2
Size : 2
Type : uint16
Multiply : 1.000000
Name : Meter-3
Size : 2
Type : uint16
Multiply : 1.000000

BBWSW-1/FE4E939E : msg.payload : string [42]

{"Meter-1":234,"Meter-2":11,"Meter-3":434}



Payload Engine Helps You Define The Decoder For Sensors

Application server > Payload Engine

Navigation

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- [Network Server](#)
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 - [Settings](#)
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 - [Payload Engine](#)

LoRaWAN Gateway Settings

Payload Engine List

Index	Name	Action
1	BBWSW	<input type="button" value="Detail"/> <input type="button" value="Delete"/>
2	Occupancy	<input type="button" value="Detail"/> <input type="button" value="Delete"/>
3	Temperature	<input type="button" value="Detail"/> <input type="button" value="Delete"/>

Router

- [LoRaWAN Radio](#)
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Payload Engine Detail

```
name : BBWSW
topic : BBWSW-1
  FPort :5
  Length :11
    Name :ignore
    Size :5
    Type :ignore
    Multiply :1.000000
    Name :Meter-1
    Size :2
    Type :uint16
    Multiply :1.000000
```

Target: Readable Payload

The screenshot displays the Node-RED web interface. On the left, the 'input' category of nodes is visible, including inject, catch, status, link, mqtt, and http. The main workspace shows a flow named 'Flow 1' with the following components: an inject node (purple) with a '#' symbol, a json node (yellow), and two 'msg.payload' nodes (green). A red arrow points from the json node to the debug console on the right.

The debug console shows the following log entries:

```
2019/6/20 上午11:15:57 aefdfa1.7b0f7
uplink/FE4E939E : msg.payload : string [152]
{"appargs": "BBWSW", "data": "010001620000EA000B01B2", "datetime": "2019-06-20T11:39:57Z", "devaddr": "FE4E939E", "fcnt": 12479, "lsnr": -1.8, "port": 5, "rssi": -117}

2019/6/20 上午11:15:57 3fda4453.233b4c
uplink/FE4E939E : msg.payload : Object
{ "appargs": "BBWSW", "data": "010001620000EA000B01B2", "datetime": "2019-06-20T11:39:57Z", "devaddr": "FE4E939E", "fcnt": 12479, "lsnr": -1.8, "port": 5, "rssi": -117 }

2019/6/20 上午11:15:57 aefdfa1.7b0f7
BBWSW-1/FE4E939E : msg.payload : string [48]
{"Meter-1": 23.400000, "Meter-2": 11, "Meter-3": 434}
```

Steps of Adding Payload Engine

Please assign/edit different payload engine name for the different sensor type

The screenshot shows the 'LoRaWAN Gateway Settings' page. On the left is a 'Navigation' sidebar with a 'Router' section containing links for 'LoRaWAN Radio', 'Network Server', 'MQTT', 'Application Server', 'Settings', 'Status', 'Modbus Mapping Table', and 'Payload Engine'. The main content area is titled 'Payload Engine List' and contains a table with the following data:

Index	Name	Action
1	BBWSW	<button>Detail</button> <button>Delete</button>
2	Occupancy	<button>Detail</button> <button>Delete</button>
3	Temperature	<button>Detail</button> <button>Delete</button>

Below the table are two buttons: 'Add Engine' and 'Restart Application'. A red dashed box highlights the 'Add Engine' button, and a red arrow points from it to the 'App Arguments' column in the 'Nodes List' table below. Three black octagonal callouts with white numbers 1, 2, and 3 are placed over the 'Add Engine' button, the 'BBWSW' name in the table, and the 'Restart Application' button, respectively.

The screenshot shows the 'Nodes List' page. It features a table with the following data:

DevAddr	Profile	App Arguments	FCnt Up	FCnt Down	Battery	D/L SNR	Last RX	Status
FE4E939E	US902_WISE6610_Handler	BBWSW	134	0	254	10	2019-06-19T15:55:49Z	✓

The 'App Arguments' column for the first row is highlighted with a red dashed box. A red arrow points from the 'Add Engine' button in the previous screenshot to this box. The page also includes a 'Server Admin' section on the left with links for 'Infrastructure', 'Devices', 'Profiles', 'Commissioned', 'Activated (Nodes)', and 'Ignored'. On the right, there are buttons for 'Add filter', 'Export', and 'Create'.

The sensor's App Arguments is the ID which should match with the payload engine name

Add Payload Engine / Payload Engine Format

LoRaWAN Gateway Settings

Payload Engine

```
{  
  "appname": "BBWSW",  
  "out_topic": "BBWSW-1",  
  "devaddr": true,  
  "packet": [{  
    "fport": 5,  
    "value": [{  
      "format": "ignore",  
      "name": "ignore",  
      "length": 5  
    }, {  
      "format": "uint16",  
      "name": "Meter-1",  
      "multiply": 0.1  
    }, {  
      "format": "uint16",  
      "name": "Meter-2"  
    }, {  
      "format": "uint16",  
      "name": "Meter-3"  
    }  
  ]  
}]  
}
```

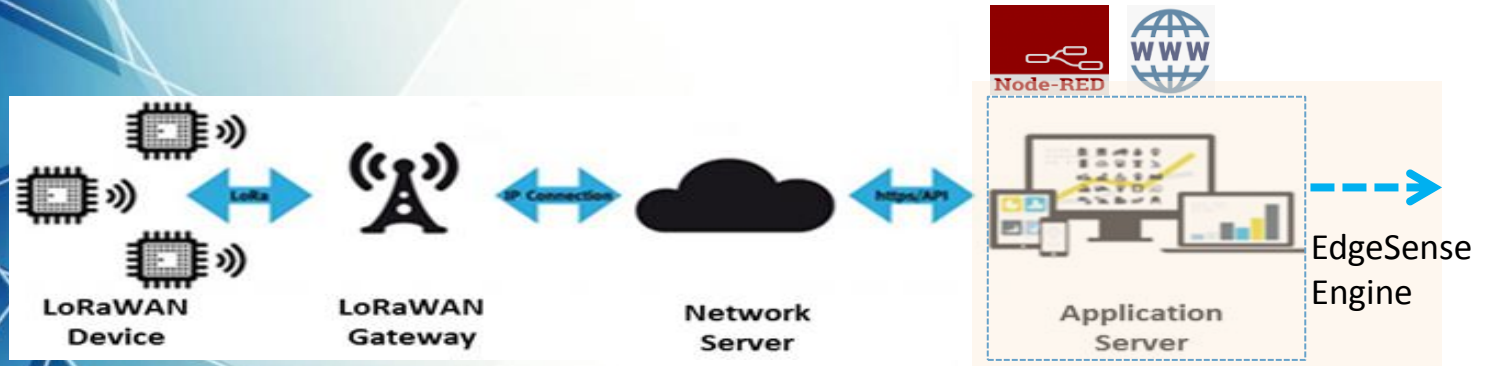
uplink/FE4E939E : msg.payload : Object Ignore 234 11 434 (Dec)
{ "appargs": "BBWSW", "data": "010001620000EAD00B01B2", (Hex)
"datetime": "2019-06-20T11:52:49Z", "devaddr": "FE4E939E",
"fcnt": 12613, "lsnr": -1.8, "port": 5, "rssi": -114 }

BBWSW-1/FE4E939E : msg.payload : string [48]

{"Meter-1":23.400000,"Meter-2":11,"Meter-3":434}

format	Size(byte)	format	Size(byte)
uint8	1	int8	1
uint16	2	int16	2
uint32	4	int32	4
uint64	8	int64	8
double32	4	double64	8
str	variable	ignore	variable
boolean	1		

Connect WISE-6610 to WISE-PaaS/EdgeSense and Grafana



Payload Engine Helps You Define The Decoder For Sensors

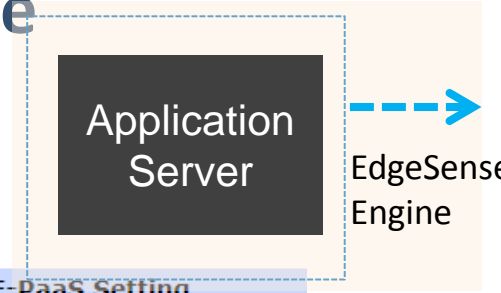
Application server > Payload Engine

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LoRaWAN Gateway Settings			
Payload Engine List			
Index	Name	Action	
1	BBWSW	<input type="button" value="Detail"/>	<input type="button" value="Delete"/>
2	Occupancy	<input type="button" value="Detail"/>	<input type="button" value="Delete"/>
3	Temperature	<input type="button" value="Detail"/>	<input type="button" value="Delete"/>
<input type="button" value="Add Engine"/>		<input type="button" value="Restart Application"/>	

Delivering the data to Wise-PaaS/EdgeSense

Enable Wise-PaaS engine and connect Wise-6610 to your Wise-PaaS account



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Advantech WISE-PaaS Setting

WISE-PaaS Enable
On Enable the WISE-PaaS connection.

WISE-PaaS Status
connected **Current Status**

WISE-PaaS URL
wise-msghub.eastasia.cloudapp.azure.com The URL for WISE-PaaS.

WISE-PaaS MQTT Port
1883 WISE-PaaS MQTT broker port number (1 - 65535).

WISE-PaaS MQTT ID
e2d92aeb-bb40-49ba-9f95-c00bc1b9f248:881805xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx The MQTT ID for WISE-PaaS.

WISE-PaaS MQTT Password
19vs518xxxxxxxxxxxxxxxxxxxxxxxxxxxx The MQTT Password for WISE-PaaS.

WISE-PaaS Iotkey
9cbadaexxxxxxxxxxxxxxxxxxxxxxxxxxxx The Iotkey for WISE-PaaS.

Where To Get The WisePaas IoTKey

The screenshot displays the 'System Management' page in the WISE-PaaS/EdgeSense interface. The left sidebar contains navigation options: Overview, Device, Power, Protection, Backup&Recovery, FreeBoard, OTA, Setting (highlighted), Role, Account, Device Group, Event, and System. The main content area shows the 'System Management' section with a 'Download Agent' button (version: 1.2.5) and a 'Download' button. Below this, the 'IoTKey' field is highlighted with a red dashed box, containing the value '25e2d02e1ee238b2d863553cb931af4u'. The 'Credential URL' field contains 'https://api-dccs.wise-paas.com/v1/serviceCredentials/'. A 'Regenerate Service Key' button is visible. A 'Preview Service Credentials' window shows the following JSON data:

```
{
  "serviceName": "p-rabbitmq",
  "serviceHost": "40.81.30.124",
  "servicekeyName": "25e2d02e1ee238b2d863553cb931af4u",
  "servicekeyGuid": "fa6af357-9675-4003-bcaa-bfafbf50c472",
  "userId": "08e6c428-c220-4b83-803b-4e67da57e121",
  "org": "AdvIIoT-ICG",
  "space": "ICG-EdgeSense",
  "serviceInstanceName": "rabbitmq",
}
```

Where To Get The MQTT ID/PW

WISE-PaaS/EdgeSense

Overview
Device
Power
Protection
Backup&Recovery
FreeBoard
OTA
Setting
Role
Account
Device Group
Event
System

```
],  
"vhost": "0a045f26-f8fb-4147-8e32-2b22a0664b2b",  
"host": "10.0.0.168",  
"hosts": [  
  "10.0.0.168"  
],  
"password": "f6AZN4fknY1pazw1K218FofWt",  
"port": 61613  
},  
"mqtt": {  
  "username": "0a045f26-f8fb-4147-8e32-2b22a0664b2b:fa6af357-9675-4003-bcaa-bfafbf50c472",  
  "ssl": false,  
  "uri": "mqtt://0a045f26-f8fb-4147-8e32-2b22a0664b2b%3Afa6af357-9675-4003-bcaa-bfafbf50c472",  
  "uris": [  
    "mqtt://0a045f26-f8fb-4147-8e32-2b22a0664b2b%3Afa6af357-9675-4003-bcaa-bfafbf50c472:f6AZN4fknY1pazw1K218FofWt@10.0.0.168",  
  ],  
  "vhost": "0a045f26-f8fb-4147-8e32-2b22a0664b2b",  
  "host": "10.0.0.168",  
  "hosts": [  
    "10.0.0.168"  
  ],  
  "password": "f6AZN4fknY1pazw1K218FofWt",  
  "port": 1883  
},  
"amqp+ssl": {  
  "username": "fa6af357-9675-4003-bcaa-bfafbf50c472",  
  "ssl": true,  
  "uri": "amqps://fa6af357-9675-4003-bcaa-bfafbf50c472:f6AZN4fknY1pazw1K218FofWt@10.0.0.168:",  
  "uris": [  
    "amqps://fa6af357-9675-4003-bcaa-bfafbf50c472:f6AZN4fknY1pazw1K218FofWt@10.0.0.168:5671/"
```

Check The Sensor Status On EdgeSense

The sensor info will be collected based on the gateway unit
Click the Monitor/Dashboard to check the current status

The screenshot displays the WISE-PaaS/EdgeSense web interface. The top navigation bar includes a hamburger menu, the title "WISE-PaaS/EdgeSense", a notification bell, and a user profile for "Terry7.Huang@advantech.com.tw". A left sidebar contains navigation items: Overview, Device (highlighted), Power, Protection, Backup&Recovery, FreeBoard, OTA, and Upgrade. The main content area features a filter section with "Account" (Terry7.Huang@advantech.com.tw), "Group" (Default), "Status" (All), and "Mode" (Device). Below this is the "Device Management" section, which includes a toolbar with add, edit, delete, and search icons, a search input field, and a table of devices. The table has columns for Upgrade, Device Name, Device Control, and Device Monitoring. The "Device Monitoring" column for the device "WISE6610-F..." contains icons for Monitor, Dashboard, and Predictive, with the Monitor and Dashboard icons highlighted by a red dashed box.

Upgrade	Device Name	Device Control				Device Monitoring		
	WISE6610-F...	Control	Get/Set	Auto Report	Rules	Monitor	Dashboard	Predictive

Monitoring The Sensor Status Per LoRaWAN Sensor(Node)

The screenshot displays the WISE-PaaS/EdgeSense monitoring interface. The top navigation bar includes a menu icon, the application name "WISE-PaaS/EdgeSense", a notification bell, and a user profile for "Terry7.Huang@advantech.com.tw". A left sidebar contains navigation options: Overview, Device (highlighted), Power, Protection, Backup&Recovery, FreeBoard, and OTA (with a dropdown arrow). The main content area shows a breadcrumb path: < Back / Device / Monitori. The current view is titled "Monitoring - WISE6610-FE5A729660A0". Two orange monitoring cards are visible: "Monitoring FE4E939E" (highlighted with a red dashed border) and "Monitoring Management". Both cards feature gear icons and a "More info" link with a right-pointing arrow.

See The Detail Status Per Sensor(Node)

WISE-PaaS/EdgeSense 🔔³ Terry7.Huang@advantech.com.tw

Overview
Device
Power
Protection
Backup&Recovery
FreeBoard
OTA
Setting
Document

Interval (second) 1

```
▼ {
  handler: "FE4E939E",
  agentId: "00000001-0000-0000-0000-FE5A729660A0",
  opTS: 1561055275945,
  ▼ SensorGroup: {
    ▼ e: [
      ▼ {
        v: 23.4,
        n: "Meter-1"
      },
      ▼ {
        v: 11,
        n: "Meter-2"
      },
      ▼ {
        v: 434,
        n: "Meter-3"
      },
      ▼ {
      }
    ]
  }
}
```

BBWSW-1/FE4E939E : msg.payload : string [48]
{"Meter-1":23.400000,"Meter-2":11,"Meter-3":434}

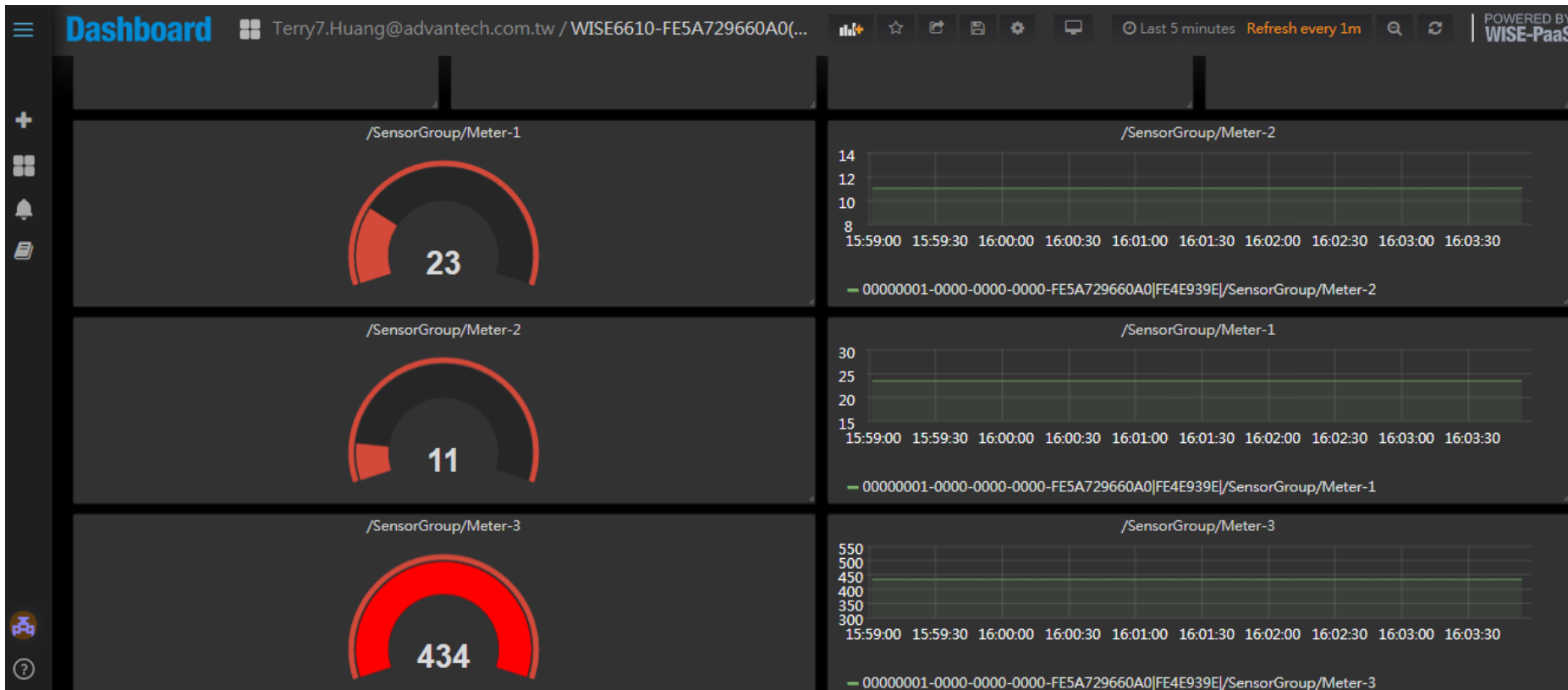
Feed The Data To Grafana Dashboard

EdgeSense bridge the data to Grafana dashboard

Users can decide which info should be showed on the dashboard

The screenshot shows the WISE-PaaS/EdgeSense web interface. On the left is a navigation menu with items: Overview, Device (selected), Power, Protection, Backup&Recovery, FreeBoard, OTA, Setting, and Document. The main content area is partially obscured by a 'Plugin' dialog box. The dialog has a title 'Plugin' and a note: 'Select a plugin to create Grafana dashboard.' Below the note is a list of five plugins with checkboxes: /SensorGroup/port, /SensorGroup/fcnt, /SensorGroup/Meter-2, /SensorGroup/Meter-1, and /SensorGroup/Meter-3. A red dashed box highlights the three 'Meter' plugins. At the bottom of the dialog are 'OK' and 'Cancel' buttons. The background interface shows a 'Back' button and a 'Step 3' indicator.

Dashboard



Appendix



ADVANTECH

LoRaWAN Data Rate

DR	EU868	US915	US915 HYBRID	CN779	EU433	AU915	AU915OLD	CN470	AS923	RF Modulation	Indicative physical bit rate [bit/s]
0	SF12/125	SF10/125	SF10/125	SF12/125	SF12/125	SF12/125	SF10/125	SF12/125	SF12/125	LoRa SF12/125KHz	250
1	SF11/125	SF9/125	SF9/125	SF11/125	SF11/125	SF11/125	SF9/125	SF11/125	SF11/125	LoRa SF11/125KHz	440
2	SF10/125	SF8/125	SF8/125	SF10/125	SF10/125	SF10/125	SF8/125	SF10/125	SF10/125	LoRa SF10/125KHz	980
3	SF9/125	SF7/125	SF7/125	SF9/125	SF9/125	SF9/125	SF7/125	SF9/125	SF9/125	LoRa SF9/125KHz	1760
4	SF8/125	SF8/500	SF8/500	SF8/125	SF8/125	SF8/125	SF8/500	SF8/125	SF8/125	LoRa SF8/125KHz	3125
5	SF7/125	-	-	SF7/125	SF7/125	SF7/125	-	SF7/125	SF7/125	LoRa SF7/125KHz	5470
6	SF7/250	-	-	SF7/250	SF7/250	SF8/500	-	-	SF7/250	LoRa SF7/250KHz	11000
7	FSK	-	-	FSK	FSK	-	-	-	FSK	FSK 50kbps	50000
8	-	SF12/500	SF12/500	-	-	SF12/500	SF12/500	-	-	LoRa SF12/500KHz	980
9	-	SF11/500	SF11/500	-	-	SF11/500	SF11/500	-	-	LoRa SF11/500KHz	1760
10	-	SF10/500	SF10/500	-	-	SF10/500	SF10/500	-	-	LoRa SF10/500KHz	3900
11	-	SF9/500	SF9/500	-	-	SF9/500	SF9/500	-	-	LoRa SF9/500KHz	7000
12	-	SF8/500	SF8/500	-	-	SF8/500	SF8/500	-	-	LoRa SF8/500KHz	12500
13	-	SF7/500	SF7/500	-	-	SF7/500	SF7/500	-	-	LoRa SF7/500KHz	21900
14	-	-	-	-	-	-	-	-	-		
15	-	-	-	-	-	-	-	-	-		

LoRaWAN Payload Size

DR	EU868	US915	US915 HYBRID	CN779	EU433	AU915CR	AU915OLD	CN470	AS923	KR920	IN865	CN470 PREQUEL	STE920
0	51	11	11	51	51	51	11	51	51	65	51	51	51
1	51	53	53	51	51	51	53	51	51	151	51	51	51
2	51	126	126	51	51	51	126	51	51	242	51	51	51
3	115	242	242	115	115	115	242	115	115	242	115	115	115
4	242	242	242	242	242	242	242	242	242	242	242	242	242
5	242	-	-	242	242	242	-	242	242	242	242	242	242
6	242	-	-	242	242	242	-	-	242	-	242	-	242
7	242	-	-	242	242		-	-	242	-	242	-	242
8	-	53	53	-	-	53	53	-	-	-		-	-
9	-	129	129	-	-	129	129	-	-	-		-	-
10	-	242	242	-	-	242	242	-	-	-		-	-
11	-	242	242	-	-	242	242	-	-	-		-	-
12	-	242	242	-	-	242	242	-	-	-		-	-
13	-	242	242	-	-	242	242	-	-	-		-	-
14	-	-	-	-	-		-	-	-	-		-	-
15	-	-	-	-	-		-	-	-	-		-	-

ADR 1/4

Adaptive Data Rate (ADR) is a mechanism for optimizing the data rates, airtime and energy consumption in the network. Go to device > profile to decide the behavior of your nodes.

Server Admin

<note> ADR will not affect the operation of normal Tx packets.

Infrastructure >

Devices v

Profiles

Commissioned

Activated (Nodes)

Ignored

Backends v

Handlers

Connectors

Edit profile #US902_WISE6610_Handler

List

Delete

General

ADR

ADR Mode

Filter values

Disabled

Set Power

Auto-Adjust

Set Data Rate

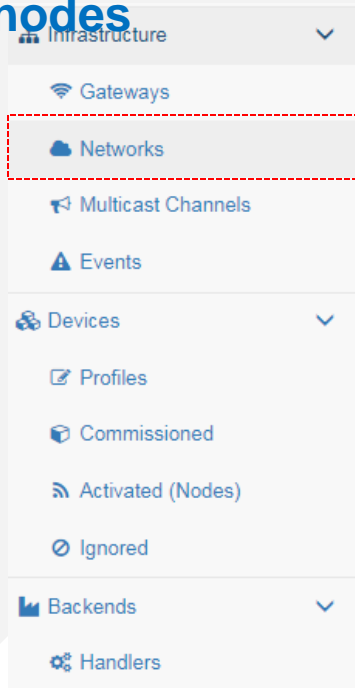
Maintain

Max Data Rate

Filter values

ADR 2/4

If you set to AUTO-Adjust, the network server will be based on the setting in network page and the uplink data from nodes to alter the related DR, power..... of nodes



Edit network #US902

General ADR Channels

Initial Channels * 0-2

Channels

General ADR Channels

Max EIRP (dBm) * 30

Max Power * Max

Min Power * Max - 20 dB

Max Data Rate * SF8 500 kHz (12500 bit/s)

Initial RX1 DR Offset * 0

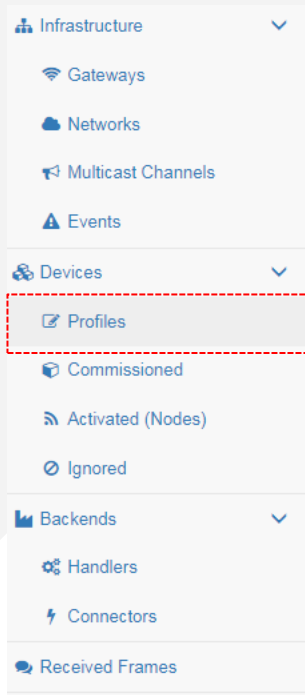
Initial RX2 DR * SF12 500 kHz (980 bit/s)

Initial RX2 Freq (MHz) * 923.3

Default channel for ADR

ADR 3/4

If you set to maintain, the network server will base on the setting in profile page to alter the related DR, power..... of nodes



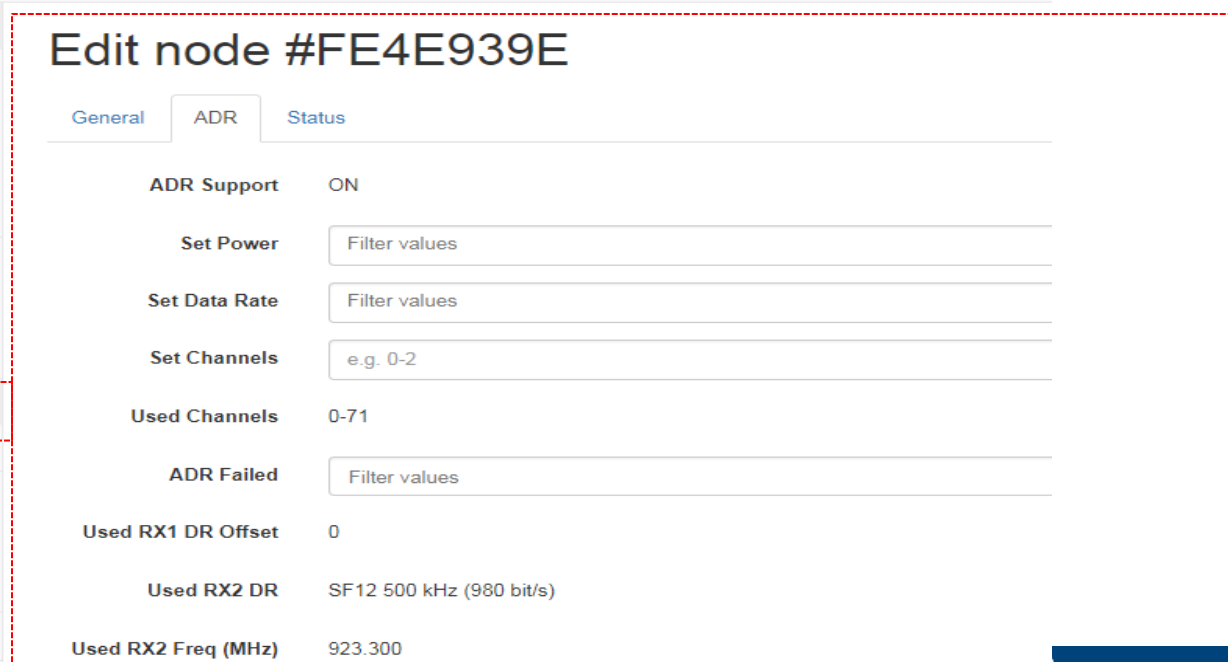
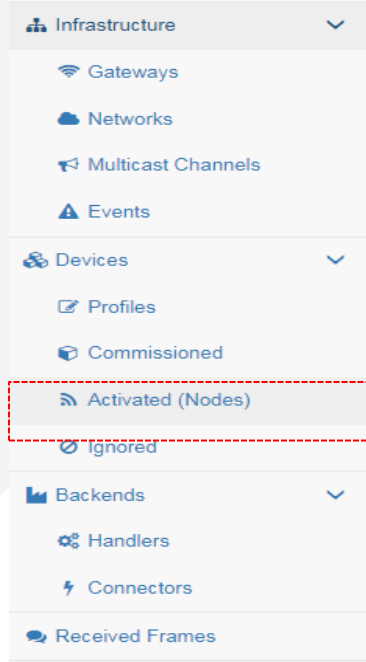
Edit profile #US902_WISE6610_Handler

General | ADR

ADR Mode	Maintain	x ✓
Set Power	26 dBm	x ✓
Set Data Rate	SF9 125 kHz (1760 bit/s)	x ✓
Max Data Rate	SF9 125 kHz (1760 bit/s)	x ✓
Set Channels	0	✓
Set RX1 DR Offset		
Set RX2 DR	Filter values	▼
Set RX2 Freq (MHz)		
Request Status?	true	x ▼

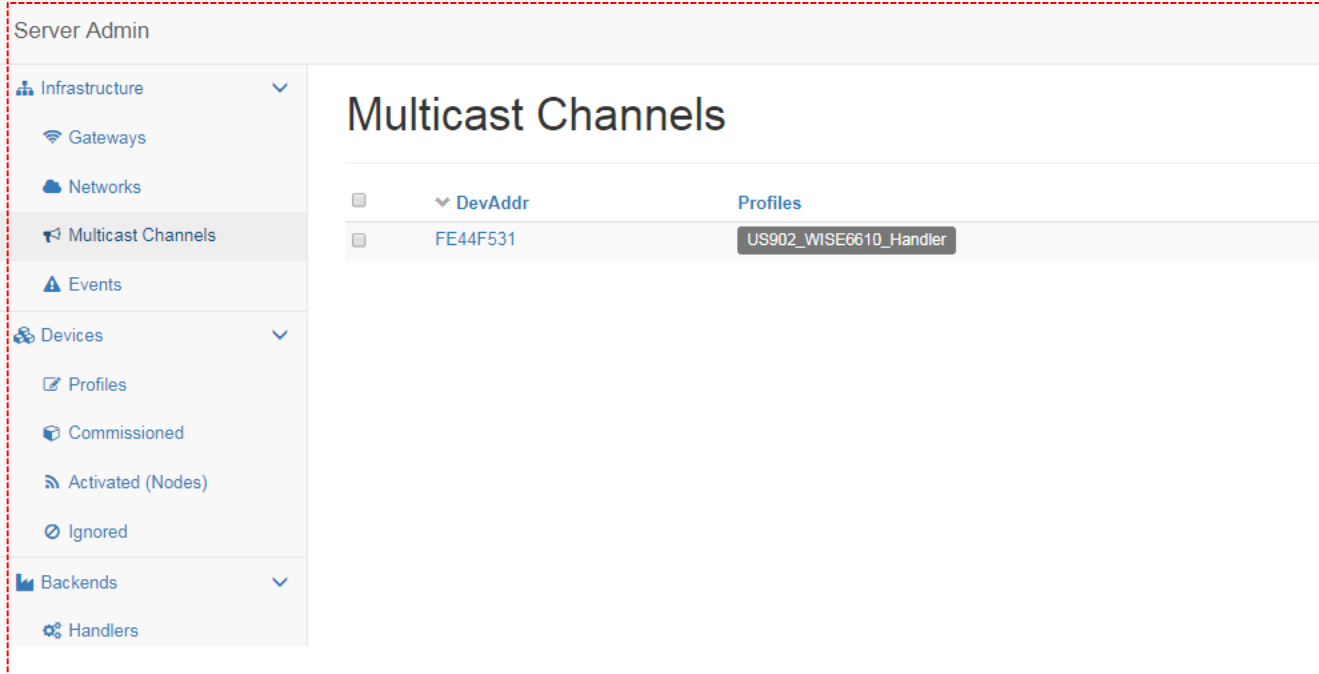
ADR 4/4

There is another option. If there are more than 1 node under the profile setting, you also want to assign specific parameter to different nodes. Then, you can set the ADR via the node's ADR function



Multicast Channel

Some Class B/C supports multicast function, this feature let you send the message to multiple nodes.



The screenshot displays the 'Server Admin' interface. On the left is a navigation sidebar with the following items: Infrastructure (with a dropdown arrow), Gateways, Networks, Multicast Channels (highlighted), Events, Devices (with a dropdown arrow), Profiles, Commissioned, Activated (Nodes), Ignored, Backends (with a dropdown arrow), and Handlers. The main content area is titled 'Multicast Channels' and contains a table with the following data:

<input type="checkbox"/>	▼ DevAddr	Profiles
<input type="checkbox"/>	FE44F531	US902_WISE6610_Handler

THANK YOU

