

Advantech AE Technical Share Document

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Category	■FAQ □ SOP	Related OS	N/A
Abstract	How to Send WISE-4000 IO Data to WISE-PaaS via iSensingMQTT		
Keyword	WISE, WISE-PaaS, iSensing MQTT, Push notification		
Related Product	WISE-40XX Series		

■ Problem Description:

This document shows how to connect with WISE-PaaS and upload data successfully.

■ Answer:

Requirement:

- ✓ WISE-4000 Wi-Fi Series with FW A2.01 BXX
- ✓ Portal-Scada:1.13.24 or later
- ✓ Scada-dataworker:1.3.17 or later

Part I, Configuration on WISE-PaaS

Step1. Log-in WISE-PaaS portal, go to the management portal and choose corresponding org and space.

- <https://wise-paas.advantech.com/en-us/marketplace>

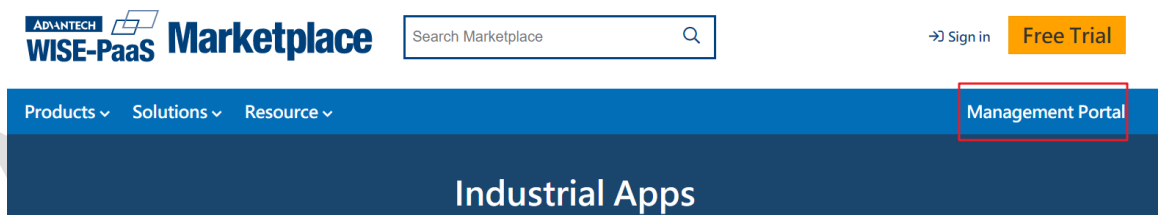


Figure 1. WISE-PaaS Management Portal Page.

Step2. This step is optional because the **scada-dataworker** and **port-scada** are bound with **rabbitmq** by default. If the user found out that they are not bound together, please follow this step. Go to Service instance list. Bind the **scada-dataworker** and **port-scada** with **rabbitmq** by clicking them directly. If the application is bound, the color of the word will turn into blue.

Application List			
Service Instance List			
Route List			
Usage			
Name	Service	Plan	State
<input type="radio"/> mongodb	mongodb	Shared	create succeeded
<input type="radio"/> nbiot-rmq	nbiot-rabbitmq	coap	create succeeded
<input type="radio"/> postgresql	postgresql	Shared	create succeeded
<input checked="" type="radio"/> rabbitmq	p-rabbitmq	standard	create succeeded

Figure 2. Bind the **Scada-dataworker** and **Portal-scada** with **Rabbitmq**.

Step3. Create a new credential on credential sheet. It is not necessary to enter key and value here.

Organization
AdvIoT-EnE
Space
NBIOT

Application List
Service Instance List
Route List
Usage

Name	Service	Plan	State
○ mongodb	mongodb	Shared	create succeeded
○ nbiot-rmq	nbiot-rabbitmq	coap	create succeeded
○ postgresql	postgresql	Shared	create succeeded
● rabbitmq	p-rabbitmq	standard	create succeeded

Application Bind

4
Create
List disabled key

Parameters

5
SAVE
CANCEL

Key
Value
+

Figure 3. Create a new credential.

Step4. Select the credential which created in previous step. First, copy the externalHosts for WISE-4000 MQTT Host Name setting. Second, click more then go to corresponding protocol that used to upload the data to WISE-PaaS. Currently, there are three protocols that WISE-4000 supports to upload the data to WISE-PaaS including **MQTT(TCP without TLS)**, **MQTT+SSL(TCP with TLS)** and **WS(WebSocket without TLS)**. Copy username, password and port number for WISE-4000 MQTT connection parameters setting.

35406de7088314afab1ccd694a6fe6n

external-host	40.81.30.124
externalHosts	wise-msghub.eastasia.cloudapp.azure.com
hostname	10.0.0.168
hostnames	10.0.0.168
password	B7alvodt5vW2tn3ssy85NOrH2

Figure 4. Externalhosts for the Credential Key.

mqtt

host	10.0.0.168
hosts	10.0.0.168
password	B7alvodt5vW2tn3ssy85NOrH2
port	1883
ssl	null
uri	mqtt://5d9cb2f2-28d5-4b78-b47b-da63ebd96ae6%3A914f5a48-862f-42c7-b24a-716d663455aa:B7alvodt5vW2tn3ssy85NOrH2@10.0.0.168:1883
uris	mqtt://5d9cb2f2-28d5-4b78-b47b-da63ebd96ae6%3A914f5a48-862f-42c7-b24a-716d663455aa:B7alvodt5vW2tn3ssy85NOrH2@10.0.0.168:1883
username	5d9cb2f2-28d5-4b78-b47b-da63ebd96ae6:914f5a48-862f-42c7-b24a-716d663455aa
vhost	5d9cb2f2-28d5-4b78-b47b-da63ebd96ae6

mqtt:TCP w/o TLS
mqtt+ssl:TCP with TLS
ws:WebSocket w/o TLS

Figure 5. Protocol Information for Connection Setting.

Step5. Re-start the **Portal-scada** and **Scada-dataworker** in the application list of WISE-PaaS

Application List								
Service Instance List								
Route List								
Usage								
Name	Package State	State	Instances	State	CPU	Memory	Disk	
○ dashboard-1.1.20	STAGED	○	1 (Total) Usage	●	N/A	128M	1G	
○ dashboard-1.2.2	STAGED	○	1 (Total) Usage	●	N/A	512M	1G	
○ DeviceON-Portal-1.01.001Build001	STAGED	○	1 (Total) Usage	●	N/A	256M	1G	
○ DeviceOnDataworker	STAGED	○	1 (Total) Usage	●	N/A	128M	512M	
○ MqttTransmit	STAGED	○	1 (Total) Usage	●	N/A	64M	256M	
○ portal-scada-1.3.18	STAGED	●	1 (Total) Usage	●	0.7%	512M	1G	
○ scada-dataworker-1.3.11	STAGED	●	1 (Total) Usage	●	0.0%	256M	1G	

Figure 6. Application List of WISE-PaaS.

Part II, Configuration on WISE-4000

Step1. Install WISE Studio and enter the configuration page of WISE module.

Step2. Select iSensing MQTT service in **Cloud** tab.

The screenshot shows the 'Cloud Configuration' page of the WISE-4000 device. The top navigation bar includes tabs for Information, Wireless, Network App, Time & Date, Time Sync, Modbus, Control, General, and Cloud. The 'Cloud' tab is active. Below the tabs, there are links for 'Firmware' and 'Account'. The main section is titled 'Cloud Configuration'. A red box highlights the 'Select Service' dropdown menu, which currently shows 'iSensing MQTT'. Below this, the 'Current Status' section displays 'Connection Status' as 'Connected' and 'Error Code' as 'None'. A 'Refresh' button is located at the bottom of the status section.

Figure 7. WISE-4000 Select Cloud Service Page.

Step3. Paste the information into setting.

- ✓ MQTT Host Name: externalHosts
- ✓ Port Number: The port number of the selected protocol.
- ✓ SSL secure and WebSocket: The protocol which used to upload the data.

Protocol	SSL	WebSocket
MQTT(TCP without TLS)	Disable	Disable
MQTT+SSL(TCP with TLS)	Enable	Disable
WS(WebSocket without TLS)	Disable	Enable
WS+SSL(WebSocket with TLS)	Enable	Enable

Table.1 SSL Secure and WebSocket Setting on WISE-4000.

- ✓ Username and Password: The username and password of the selected protocol.

Setting

MQTT Host Name wise-msghub.eastasia.cloudapp.azure
SSL secure ☒ Disable ☐ Enable
WebSocket ☒ Disable ☐ Enable
User Name 5d9cb2f2-28d5-4b78-b47b-da63ebd96ae6
Heartbeat Frequency (sec) 0
Publish QoS 0
Publish Retain ☐ Disable ☒ Enable

Port Number 1883
WebSocket Path mqtt
Password wFxUp8RrxhelYzKkKpxKNSdUW
Subscribe QoS 0
Will Retain ☐ Disable ☒ Enable

Submit

externalHosts wise-msghub.eastasia.cloudapp.azure.com

mqtt

host	10.0.0.168
hosts	10.0.0.168
password	wFxUp8RrxhelYzKkKpxKNSdUW
port	1883
ssl	null
uri	mqtt://5d9cb2f2-28d5-4b78-b47b-da63ebd96ae6%3Aa6f2b359-8ca4-4a5a-ac36-8641159d84c5:wFxUp8RrxhelYzKkKpxKNSdUW@10.0.0.168:1883
uris	mqtt://5d9cb2f2-28d5-4b78-b47b-da63ebd96ae6%3Aa6f2b359-8ca4-4a5a-ac36-8641159d84c5:wFxUp8RrxhelYzKkKpxKNSdUW@10.0.0.168:1883
username	5d9cb2f2-28d5-4b78-b47b-da63ebd96ae6:a6f2b359-8ca4-4a5a-ac36-8641159d84c5
vhost	5d9cb2f2-28d5-4b78-b47b-da63ebd96ae6

Figure 8. WISE-4000 Cloud Setting Configuration Page.

Step4. Remember to submit to save the setting.

Step5. Configure the uploading period and decide which I/O information of channel to upload.

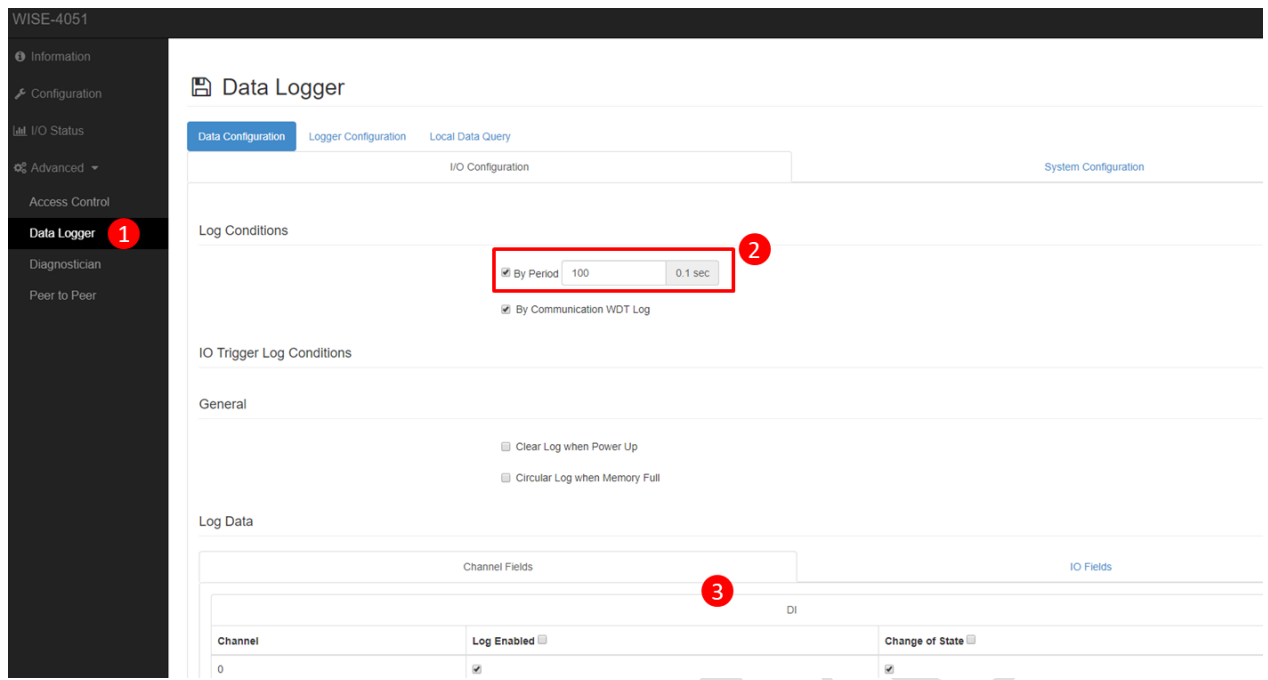


Figure 9. WISE-4000 Data Logger Configuration Page.

Step6. Remember to enable the push notification and upload the data.

Push Notification (JSON format)

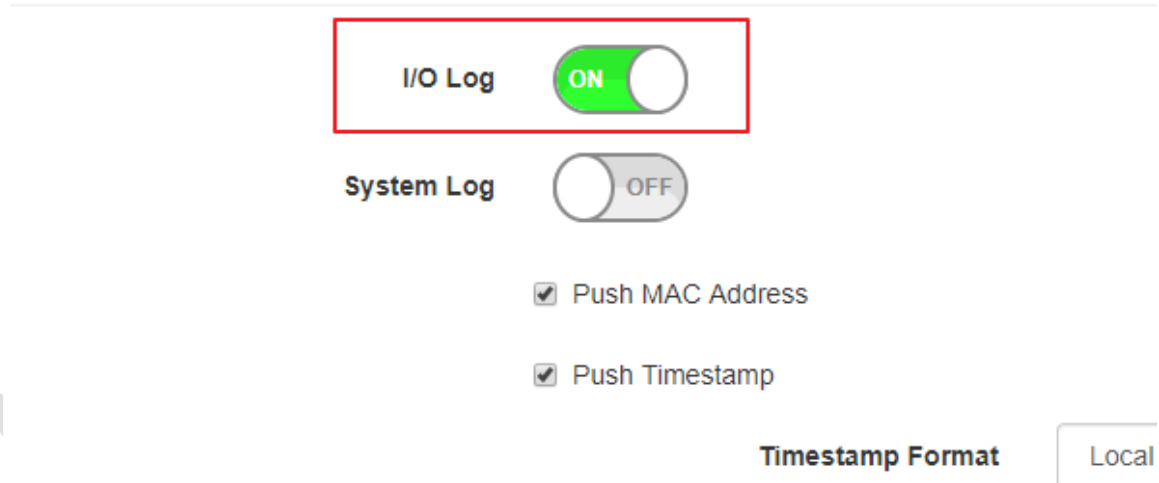


Figure 10. WISE-4000 Push Notification Configuration Page.

Part III, Data Display on Portal Scada.

Step1. Go into the scada page via application routes.

Application List					
Service Instance List					
Route List					
Usage					
Name	Package State	State	Instances	State	
<input type="radio"/> DeviceOnDataworker	STAGED	<input type="radio"/>	1 (Total) Usage	<input type="radio"/>	
<input type="radio"/> MqttTransmit	STAGED	<input type="radio"/>	1 (Total) Usage	<input type="radio"/>	
<input checked="" type="radio"/> portal-scada-1.3.18	STAGED	<input checked="" type="radio"/>	1 (Total) Usage	<input checked="" type="radio"/>	
<input type="radio"/> scada-dataworker-1.3.11	STAGED	<input checked="" type="radio"/>	1 (Total) Usage	<input checked="" type="radio"/>	

Routes	Environment Variables	User Provided
Application Routes		
<input type="radio"/> portal-scada-adviiot-ene-nbiot.wise-paas.com		
<input type="radio"/> portal-scada-1-3-18-adviiot-ene-nbiot.wise-paas.com		

Both two URL direct to same page.

Figure 11. Application Routes of Portal-Scada.

Step2. Go to the system setting of scada portal and configure the SSO_USERNAME and SSO_PASSWORD. Fill in the account with tenant level which has the privilege to auto-create node on scada portal. The user only needs to set this step once.

WISE-PaaS/SCADA

Dear users, System has a data retention policy that only keeps data in the last 90 days. You can setup it in [System Setting](#) page. But if you turn off the policy, maybe have the additional fees it.

Device Management

Alarm

Event Log

Account

System Setting

WISE-PaaS Dashboard

Notification Service

User Guide

API Document

SCADA Version: v-1.1.33

System Setting

Parameter Name	Parameter Value
SSO_USERNAME	ikea.chen@advantech.com.tw
SSO_PASSWORD	Insert/Change Password
NOTIFICATION_SERVICE_URL	
MESSAGE_RULE	
DATA_RETENTION_DAYS	90
DATA_CLEANING_TIME	09:05
DATA_CLEANING_ENABLED	<input checked="" type="radio"/> True <input type="radio"/> False
DASHBOARD_GRAFANA_URL	

Update

Figure 12. System Setting on Scada-Portal.

Step3. Go to the account setting of scada portal. Configure the permission of user's account. Check the device permission in order to show the data.

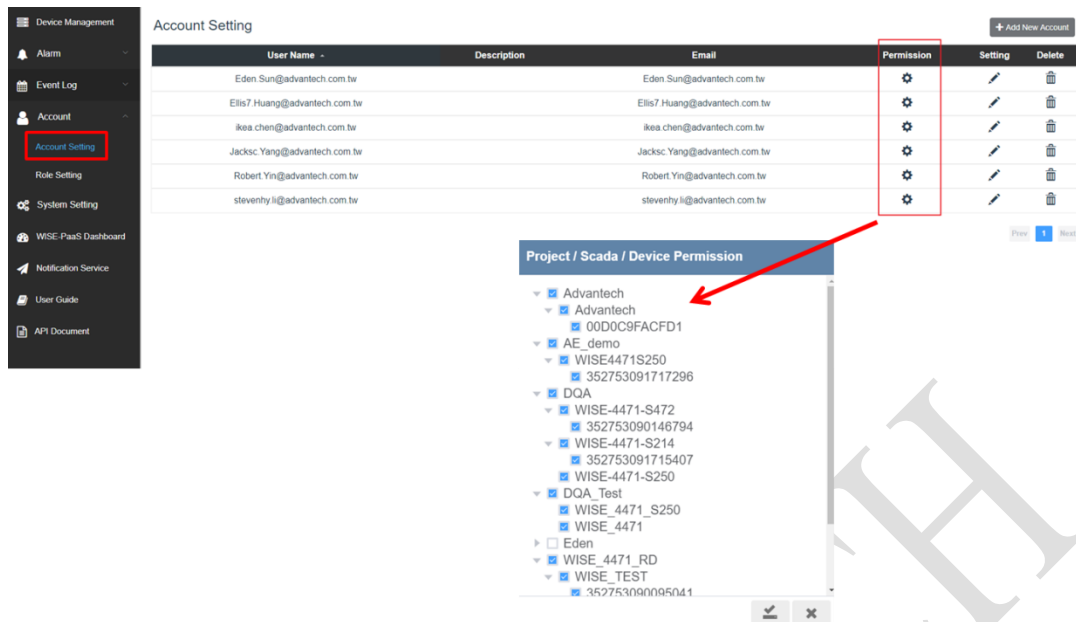


Figure 13. Account Setting on Scada-Portal.

Step3. WISE-4000 support plug & play function. Device and channel tags will be built automatically

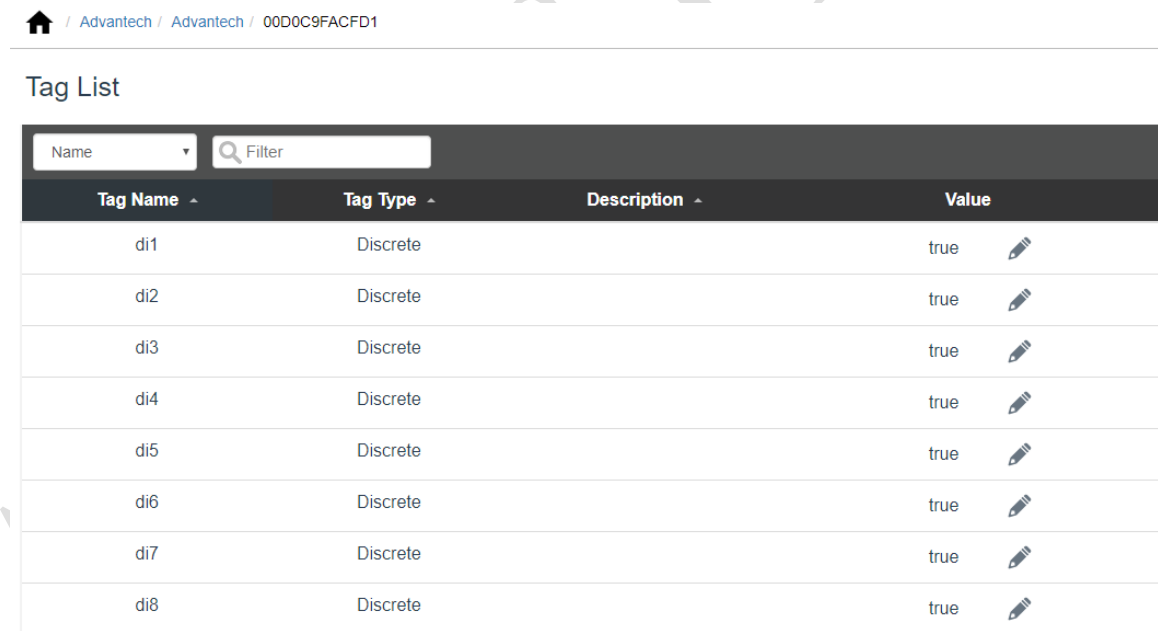




Figure 14. WISE-4000 Support Plug & Play function.

Notice: If user change the I/O type or select different channel to upload, user need to delete the device on **Portal-Scada**. Next, reboot **Scada-dataworker** and **Portal-scada** on WISE-PaaS. Restart the process from Part III (Step2).

Device List

Name

Filter

Device Name -	Device Type	Description -	Status	Detail	Delete
00D0C9F8C0E2	iSensing Device		●	...	<div><div></div><div>></div></div>
00D0C9FACFD1	iSensing Device		●	...	<div><div></div><div>></div></div>

Prev

1

Next

Figure 15. Delete the device on Portal-Scada.

Part IV, Trouble Shooting Method

Step1. If the data is not shown on portal scada, you could subscribe the rabbitmq broker by 3rd party MQTT client application, e.g., MQTTBox. The setting is the same as the WISE-4000 MQTT setting.

MQTTBox Edit Help

Menu MQTT CLIENT SETTINGS

MQTT Client Name AETEST	MQTT Client Id 4474859c-0174-4fe2-89b9-c...	Append timestamp? <input checked="" type="checkbox"/> Yes
Protocol mqtt / tcp	Host :tasia.cloudapp.azure.com:1883/tcp	Clean Session? <input checked="" type="checkbox"/> Yes
Username 5d9cb2f2-28d5-4b78-b47b-da63eb	Password	Reschedule Ping <input checked="" type="checkbox"/> Yes
Reconnect Period (milliseconds) 1000	Connect Timeout (milliseconds) 30000	KeepAlive (seconds) 10
Will - Topic Will - Topic	Will - QoS 0 - Almost Once	Will - Retain <input type="checkbox"/> No

Save Delete

Figure 16. Configuration Page of 3rd Party MQTT Client Application.

Step2. Subscribe the topic # which means that it will receive every information from the broker. If the data is not shown, there may be some problems on **rabbitmq**. If the data of WISE is successfully retrieved here, the problem may be on the **scada-dataworker** or **portal scada**.

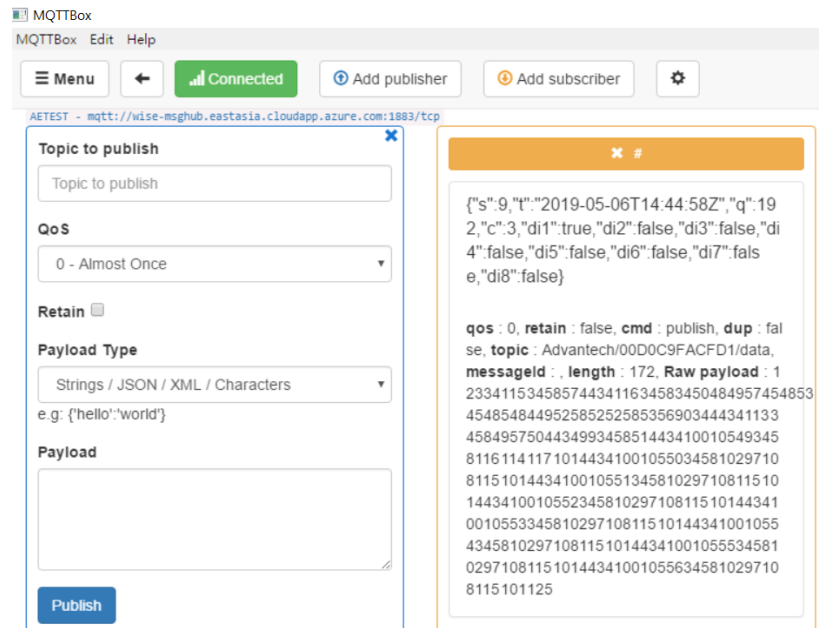


Figure 17. Subscribe the Broker from a 3rd Party MQTT Client Application.