Advantech AE Technical Share Document

Date	2019/12/10	SR#	1-4016706830		
Category	■FAQ □ SOP	Related OS	N/A		
Abstract	WISE-4000, How to uplo	ad data to WISE-	PaaS via iSensing MQTT		
Keyword	WISE, WISE-PaaS, iSens	sing 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.

Marketplace	Search Marketplace Q	ADAVINTECH					
Products Solutions Resource Management Portal							
Industrial Apps							

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.

App	lication List	Service Instance List	Route List	Usage			
	Name 🔺				Service	Plan	State
0	mongodb				mongodb	Shared	create succeeded
0	nbiot-rmq				nbiot-rabbitmq	coap	create succeeded
0	postgresql				postgresql	Shared	create succeeded
۲	rabbitmq	1			p-rabbitmq	standard	create succeeded
						_	
\sim							2
v			A	pplication Bind			Credentials
▼	DeviceOnData	worker	A	pplication Bind			
پ ۱	DeviceOnData AqttTransmit	worker	A	pplication Bind			Credentials
پ ۱	DeviceOnData AqttTransmit Jashboard-1.1	.20	A	pplication Bind			Credentials
• () (DeviceOnData AqttTransmit Iashboard-1.1 DeviceON-Por	.20 tal-1.01.001Build001	A	pplication Bind			Credentials
• • •	DeviceOnData AqttTransmit Iashboard-1.1 DeviceON-Por	.20 tal-1.01.001Build001 rker-1.3.11	A	pplication Bind			Credentials
• • • •	DeviceOnData AqttTransmit dashboard-1.1 DeviceON-Por acada-datawo portal-scada-	20 tal-1.01.001Build001 orker-1.3.11 1.3.18	A	pplication Bind			Credentials

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.

Orga	nization	AdviloT-EnE 🔻	Space	NBIOT									
Appl	cation List	Service Instar	ice List	Route List	Usage							C	२ + 🗊
	Name 🔺					Service	Plan			State			
0	mongodb					mongodb	Shared			create succeede	ed		
0	nbiot-rmq					nbiot-rabbitmq	coap			create succeede	ed		
0	postgresq	2l				postgresql	Shared			create succeede	ed		
۲	rabbitmq					p-rabbitmq	standard			create succeede	ed		
¥					Application Bind				Credentia	Is	4		
										1	Create Lis	st disabled	1 key
	_						Parameters	S					_
	Name 🔺						Key		Value		+		
	35406d	le7088314afab1cc	df694a6fe	6n						SAVE	CANCEL	0	Ê
										5	GARGEE		
	e	external-nost										.30.124	
	e	externalHosts										ure.com	

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.



35406de7088314afab1ccdf694a6fe6n	* Ø 🗎
external-host externalHosts	40.81.30.124 wise-msghub.eastasia.cloudapp.azure.com
hostname	10.0.0.168
hostnames	10.0.0.168
password	B7alvodt5vW2tn3ssy85NOrH2

		- 1811 - 11		j).
	mqtt				
~		host			10.0.0.168
nqtt:TCP w/o TLS nqtt+ssl:TCP with TLS vs:WebSocket w/o T	S LS	hosts			10.0.168
		password			B7alvodt5vW2tn3ssy85NOrH2
		port			1883
		ssi			null
		uri mqtt://5d9cb2f2-28d5-4b78-b47	7b-da63ebd96ae6%3A914	f5a48-862f-42c7-b24a-716d663455aa:B7alvodt5vW2	2tn3ssy85NOrH2@10.0.0.168:1883
		uris mqtt://5d9cb2f2-28d5-4b78-b47b-0	da63ebd96ae6%3A914f5a	48-862f-42c7-b24a-716d663455aa:B7alvodt5vW2ln3	ssy85NOrH2@10.0.0.168:1883
		username		5d9cb2t2-28d5-4b78-b47b-da63ebd96ae6:914t5a	48-862f-42c7-b24a-716d663455aa
		vhost		5d9cb2	f2-28d5-4b78-b47b-da63ebd96ae6

Figure 4. Externalhosts for the Credential Key.

Figure 5. Protocol Information for Connection Setting.

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

AD\ANTECH

App	ication List Service Instance List Route List	Usage						Q 🖉
	Name 🔺	Package State	State	Instances	State	CPU	Memory	Disk
0	dashboard-1.1.20	STAGED	0—	1 (Total) 🔻 Usage	•	N/A	128M	1G
0	dashboard-1.2.2	STAGED	0—	1 (Total) 🔻 Usage	•	N/A	512M	1G
0	DeviceON-Portal-1.01.001Build001	STAGED	0—	1 (Total) 🔻 Usage	•	N/A	256M	1G
0	DeviceOnDataworker	STAGED	0—	1 (Total) 🔻 Usage	•	N/A	128M	512M
0	MqttTransmit	STAGED	0—	1 (Total) 🔻 Usage	•	N/A	64M	256M
0	portal-scada-1.3.18	STAGED	-•	1 (Total) 🔻 Usage	•	0.7%	512M	1G
0	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.

Information Wireless	Network App	Time & Date	Time Sync	Modbus	Control	General	Cloud
Firmware Account						•	
Cloud Configurati	on	2					
Select Service	iSensi	ng MQTT	•				
Current Status							
Connection Status	Connecte	d					
Error Code	None						
	C Refres	h					

Figure 7. WISE-4000 Select Cloud Service Page.

Step3. Paste the information into setting.

✓ MQTT Host Name: externalHosts

 \checkmark

- ✓ 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.

ADVANTECH Enabl

Enabling an Intelligent Planet



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.

WISE-4051								
Information								
✗ Configuration	🖺 Data Logger							
네 I/O Status	Data Configuration Logger Configuration Local D	ata Query						
©\$ Advanced -	1/0	I/O Configuration System Configuration						
Access Control								
Data Logger 1	Log Conditions	0						
Diagnostician		By Period 100 0.1 sec 2						
Peer to Peer		By Communication WDT Log						
	IO Trigger Log Conditions							
	General							
	Clear Log when Power Up							
		Circular Log when Memory Full						
	Log Data							
		Channel Fields		IO Fields				
		3 Id						
	Channel	Log Enabled	c	Change of State 🗐				
	0	8	6	8				

Figure 9. WISE-4000 Data Logger Configuration Page.

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

Push Notification (JSON format)

	I/O Log	
	System Log	OFF
		Push MAC Address
		Push Timestamp
T		Timestamp 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.

Applic	cation List	Service Instance List	Route List	Usage			
	Name 🔺			Package State	State	Instances	State
0	DeviceOnD	Dataworker		STAGED	0—	1 (Total) 🔻 Usage	
0	MqttTransr	nit		STAGED	0—	1 (Total) 🔻 Usage	•
	portal-scad	la-1.3.18		STAGED	-•	1 (Total) 🔻 Usage	٠
0	scada-data	worker-1.3.11		STAGED	-•	1 (Total) 🔻 Usage	٠
≈		Routes		Environment Var	iables	User	Provided
	Applicati	on Routes					
0	portal-sc	ada-adviiot-ene-nbiot.wise-pa	ias.com		two LIDL	direct to some	n a ga
0	portal-so	ada-1-3-18-adviiot-ene-nbiot.	wise-paas.com	- Dou			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.

📢 Dear users, S	system has a data retention policy that only keeps data in the last 90 day	s. You can setup it in <u>System Setting</u> page. But if you turn off the policy, maybe have the a
Device Management	System Setting	
🜲 Alarm 🗸 🗸	Parameter Name	Parameter Value
🛗 Event Log 🗸 🗸	SSO_USERNAME	ikea.chen@advantech.com.tw
Account 🗸	SSO_PASSWORD	Insert/Change Password
🗱 System Setting	NOTIFICATION_SERVICE_URL	
WISE-PaaS Dashboard	MESSAGE_RULE	
Notification Service	DATA_RETENTION_DAYS	90
	DATA_CLEANING_TIME	© 09:05
User Guide	DATA_CLEANING_ENABLED	• True False
API Document	DASHBOARD_GRAFANA_URL	

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.

	Device Management	Account Setting			+ Add	New Account
•	Alarm ~	User Name 🔺	Description Email	Permission	Setting	Delete
m	Event Log ~	Eden.Sun@advantech.com.tw	Eden.Sun@advantech.com.tw	•	1	ŵ
-		Ellis7.Huang@advantech.com.tw	Ellis7.Huang@advantech.com.tw	٥	1	ŵ
ĕ	Account	ikea.chen@advantech.com.tw	ikea.chen@advantech.com.tw	٥	1	ŵ
	Account Setting	Jacksc.Yang@advantech.com.tw	Jacksc.Yang@advantech.com.tw	٥	1	ŵ
	Role Setting	Robert.Yin@advantech.com.tw	Robert.Yin@advantech.com.tw	٥	1	ŵ
o;	System Setting	stevenhy.li@advantech.com.tw	stevenhy.li@advantech.com.tw	٥	1	ŵ
	WSE-PaaS Daohboard Notification Service User Guide API Document		Project / Scada / Device Permission		70	d Next

Figure 13. Account Setting on Scada-Portal.

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

automatically

† /	Advantech / Advantech	00D0C9FACFD1		
Tag	List			
Nar	ne 🔹 🔍 I	Filter		
	Tag Name 🔺	Tag Type ⊸	Description 🔺	Value
	di1	Discrete		true 🧬
	di2	Discrete		true 🖋
	di3	Discrete		true 🧬
	di4	Discrete		true 🧨
	di5	Discrete		true 🧬
	di6	Discrete		true
	di7	Discrete		true
	di8	Discrete		true

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

<u>Notice:</u> 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 • Q Filter						
Device Name 🔺	Device Type	Description 🔺	Status	Detail	Delete	
00D0C9F8C0E2	iSensing Device		٠	•••	Ê	>
00D0C9FACFD1	iSensing Device		•	•••	Ê	>
						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.

MQTT Client Name	MQTT Client Id	
AETEST	4474859c-0174-4fe2-89b9-c; €	id?
		Yes
Protocol	Host	Clean Ses
mqtt / tcp 🔹	• itasia.cloudapp.azure.com:1883/tcp	
Username	Password	Resched Yes
5d9cb2f2-28d5-4b78-b47b-da63eb		
Reconnect Period (milliseconds)	Connect Timeout (milliseconds)	KeepAli
1000	30000	10
Will - Topic	Will - QoS	Will - Re
Will - Topic	0 - Almost Once 🔹	No

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**.

E Menu 🔶l Connected	Add publishe	r 🕘 Add subscriber 🌣		
ETEST - mqtt://wise-msghub.eastasia.cloudapp	.azure.com:1883/tcp			
Topic to publish	×	X #		
Topic to publish				
		{"s":9,"t":"2019-05-06T14:44:58Z","q":19		
QoS		2,"c":3,"di1":true,"di2":false,"di3":false,"di		
0 - Almost Once	•	4":false,"di5":false,"di6":false,"di7":fals		
o - Ainost once		e,"di8":false}		
Retain _				
		qos: 0, retain : false, cmd : publish, dup : fal		
Payload Type		se, topic : Advantech/00D0C9FACFD1/data,		
Strings / ISON / XML / Characters	•	messageld : , length : 172, Raw payload : 1		
Strings / SOON / XME / Characters		2334115345857443411634583450484957454853		
e.g: {'hello':'world'}		454854844952585252585356903444341133		
Pavload		458495750443499345851443410010549345		
		811611411710144341001055034581029710		
		611510144341001055134581029710611510		
		001055334581029710811510144341001055		
		434581029710811510144341001055534581		
	10	029710811510144341001055634581029710		

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