Advantech AE Technical Share Document

Date	2024/1/19	SR#	1-4287664771				
Category	□FAQ ■SOP	Related OS	N/A				
Abstract	How to Send WISE-4	How to Send WISE-4000 IO Data to ThingsBoard via MQTT?					
Keyword	WISE, Mosquitto, clo device	oud upload, pu	sh notification, control end				
Related Product	WISE-40XX series, WISE-42XX, WISE-44XX						

Problem Description:

This document shows that how to connect with ThingsBoard with WISE-4000 iSensingMQTT service.



Figure. Flow chart captured from ThingsBoard.

Brief Solution - Step by Step:

Requirement:

The firmware versions of WISE-4000 models are shown as in bellow table.

Model Name	Firmware Version	Firmware Status
WISE-4010/LAN	Does not support	Does not support
WISE-4050/LAN		
WISE-4060/LAN		
WISE-4012	A2.02 B05	Beta version
WISE-4012E	A2.02 B05	Beta version
WISE-4050	A2.02 B05	Beta version
WISE-4051	A2.02 B06	Beta version
WISE-4060	A2.02 B05	Beta version

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- Step 1. Log-in ThingsBoard. https://cloud.thingsboard.io/login
- Step 2. Create a device group. (Or you can just create a device)

	Current subscription (ThingsBoard Cloud Maker) Status (Trial ends on the Jan 27, 2021) C: A C Will Yen Tenant administrator	
🗥 Alarms	هَ All هَ Groups	
III Solution templates	Device groups I + C Q	
Entities	Created time ↓ Name Description Public	
Assets	2023-12-28 09:29:47 All	
🖬 Entity views		
2 Customers		
	Add entity group 1 Entity group details 2 Share entity group Optional Mame AEtest 3 Description *	
	Next: Share entity group	

Step 3. Goto "Device groups / Devices" section. Click "+" button and create a device with the name "WISE-4050".



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- Step 4. Once device created, open its details and click "Manage credentials". Copy autogenerated access token from the "Access token" field. Please save this device token. It will be referred to later as **\$ACCESS_TOKEN**.
- Step 5. Click "Copy Device ID" in device details to copy your device id to the clipboard.Paste your device id to some place, this value will be used in further steps.

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Step 6.	Setup c	connection	between	WISE-	-4050	and	ThingsE	3oard.

WISE-4050	🛔 Root 👻	
Information		
& Configuration	🖋 Configuration	
ևով I/O Status	Information Wireless Network App Time & Date Time Sync Modbus Control General Cloud Firmware Account	
😂 Advanced 👻	Cloud Configuration	
	Select Service Sensing MQTT V	
	Current Status	
	Connection Status Involvid as Idla	
	Error Code None	
WISE-4050	Le Root	
Information	Connection Settions Advanced Settions	
🖋 Configuration	Connection dealings Advanced countys	
<mark>⊾⊪</mark> I/O Status	SEL seave	
🕫 Advanced 👻	WebSocket Path mqtt	
	User Name 0DxVv0dizpVEIYQHP2Hb Password	
	eartbeat 60	
	Frequency (sec) Publish QoS 1 Subscribe QoS 1	
	Publish Retain	
← → C ⋒ 🖙 https:	st <mark>/thingsboard.cloud/</mark> entities/devices/groups/4a9792f0-	
ThingsBoard	[편 Dev > [편 Gro > [ল AEt	
Alarms		
Dashboards		
Solution templates	✓ AEtest: Devices	
	Leti Devices > Leti All Current subscription ThingsBoard Stoud Maker Constraints All Status Trial ends on Ty Jan 27, 2021	
✿ Home	Ca All Ca Groups	
Plan and billing	Devices Elter WISE-4050	
Alarms	Device details	
III Solution templates (NEW)	Created time ↓ Name Devic < Details Attributes Lifest telemetry Alarms Events	
A Entities	2023-12-28 09:51:50 defaul Open details page Manage creden als Manage owner and groups	
Loo Devices	Check connectivity Delete device	
Entity views	Copy device Id Copy access token	

Step 7. Enable "Advanced" setting on WISE-4050.

	Connection S	ettings		1	Advanced Settings	
Customized Topics and JSON Keys	2 O Disable	Enable	3 Apply			

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Step 8. Setup the publish topic of WISE-4050 according to the rule of ThingsBoard.

		Publish		Subscribe
	Will Topic 0	⊖ Default	Definition	v1/devices/me/telemetry
	Connected Message ()	Default	 Definition 	1
	Will Message 🚯	Default	 ○ Definition 	
	Торіс			
	Topic of Published Data	 Default 	Definition	v1/devices/me/telemetry
Thing	Board MQTT	Device	API	
https:	//thingsboard.	io/docs/	reference	mqtt-api/?connectdevice=mqtt-windows
Tele	emetry upl	oad A	PI	
In orde	er to publish telem	netry data	to ThingsBoar	rd server node, send PUBLISH message to the following topic:
v1/c	levices/me/teleme	try		

Step 9. The "Key Name of Published" takes the default value. (Both DI/DO)

	Pub	lish		Subscribe
Will Topic O	 Default 	Definition	v1/devices/me/telemetr	ny .
Connected Message	Default	 Definition 		
Will Message O	Default	 Definition 		
Торіс				
Topic of Published Data 🤀	 Default 	Definition	v1/devices/me/telemetr	ry .
JSON Key				
		DI		DO
Channel	Key Name of Publis	Di shed Di Value O Defini	tion	00
Channel 0	Key Name of Publis Default Default	DI shed Di Value O Defini	tion	00
Channel 0 1	Default Default	DI bited Di Value Defin Defin Defin Defin	tion tion	D0
Channel 0 1	Key Name of Public	DI Libred DI Value O Defin	tion tion tion	

Step 10. Disable subscribed topics. (Both DI/DO)

WISE-4050 Information Configuration Let I/O Status	Customized Topics and J	SON Keys 🔿 Disable	 Enable 	Apply	
©© Advanced →		Publish			Subscibe
	Торіс				
		DI			DO
	Channel	Topic of Subscribed DO Contro Default	 Disable 	 Definition 	
	0	O Default	Disable	O Definition	
	1	O Defauit	Disable	 Definition 	
	2	 Default 	Disable	 Definition 	
	3	 Default 	Disable	 Definition 	
	JSON Key				

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Step 11. Click on "submit" after setting.

2	Default	O Definition	
3	Default	O Definition	
			 Preview device information substitute for reserved words
			✓ Submit

Step 12. Choose what and when to push data to the cloud and click on "Submit".

WISE-4050				≜ F
Information				
	n	🖺 Data Logger		
		Data Configuration Logger Configurat	ion Local Data Query	
🛱 Advanced	- 1	I/O Configura	ition	System Configuration
Access Con	trol			
Data Logger	r 2	Log Conditions		
Diagnosticia	in	4	By Period 50	0.1 sec
Peer to Peer	r	Z	By Communication WDT Log	
		IO Trigger Log Conditions		
	IO Trigger Log	J Conditions		
	General			
	General			
		5 Clear Log w	hen Power Up	
		Circular Log	when Memory Full	
Г	Log Data			
		·		
		Channel Fields		IO Fields
		DI		DO/Relay
		DI		
	Channel	Log Enabled	Change of State	Reset Counter
	Channel 0	Log Enabled 🗆	Change of State	Reset Counter
	Channel 0 1	Log Enabled C	Change of State	Reset Counter

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Step 13. Enable "Push" function and click on "Submit".

WISE-4050				
 Information 				
🖋 Configuration	🖺 Data Logger			
<mark>.ull</mark> I/O Status	3 Data Configuration Logger Con	nfiguration Local Data Query		
🌣 Advanced 🔻 1				
Access Control	Memory Storage			
Data Logger 2	I/O Log			
Diagnostician	System Log			
Peer to Peer			-	
Push Notifica	ation (JSON format)			
ال Syste	VO Log ON 5 Prim Log OFF V Push MAC Address V Push Timestamp			
	Timestamp Format Local Date and Time(GMT)			

Result:

1. Check cloud status.

WISE-4050		å Root 🗸
Information		
🗲 Configuration 🚺	Configuration	
네 I/O Status	Information Wireless Network App Time & Date Time Sync Modbus Control General Cloud Firmware	Account
📽 Advanced 👻		
Access Control	Sloud Solligeration	
Data Logger	Select Service Sensing MQTT ~	
Diagnostician	Current Status	
	Connection Status Connected	
	Error Code None	
	3 CRefresh	

2. Check "Latest Telemetry".

vices > 🗔 All			ubscription ThingsBoard Cloud Maker Status Trial ends on the Jan 27, 2024	1 🌲 😍 Will Yen Tenant administrator
all Groups				
	WISE-4050			
CCS = Device Filter	Device details			@_×
Created time U Name Device profile	Datalla Attributor	Laboratoria di successi	Surety Deletions Auditions	
2022 12 28 00-51-50 WISE 4050 default	Details Attributes	Latest telemetry Alarms	Events Relations Audit logs	version control
00221220 09:01:00 WI022000 09:800	Telemetry			+ Q
	,			
	Last update time	Key 🛧	Value	
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	2023-12-28 13:19:22	di1	7	1
	0000 10 00 10 00 00	Dil		
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	loca > CO All All D Groups ested time ↓ Name Device profile 223-12-28 09:51:50 WIGE 40550 default	cos ≥ Ca All a Al a cosps es ⊂ Device Filter etclude customer entities ested time ↓ Name Device profile 221/228 09.5150 WDSE-4050 Cosp 2 22/228 09.5150 WDSE-4050 default Telemetry a Last update time 2023-12.28 13.19.22 a 2023-12.28 13.19.22 2023-12.28 13.19.22	cos ≥ Co All Cutors a Al Co Dorups WISE-4050 cstod time ↓ Name Device politie Device details 221-228 09:51:30 WISE-4050 default Telemetry Latest telemetry Alarns 221-228 09:51:30 WISE-4050 default Telemetry Latest telemetry Alarns 0:2025/12:28 13:19:22 01 0:2025/12:28 13:19:22 01 0:2025/12:28 13:19:22 01 0:2025/12:28 13:19:22 02 0:2025/12:28 13:19:22 04 0:2025/12:28 13:19:22 04 0:2025/12:28 13:19:22 04 0:2025/12:28 13:19:22 04 0:2025/12:28 13:19:22 04 0:2025/12:28 13:19:22 04 0:2025/12:28 13:19:22 04 0:2025/12:28 13:19:22 04 0:2025/12:28 13:19:22 04 0:2025/12:28 13:19:22 04 0:2025/12:28 13:19:22 04 0:2025/12:28 13:19:22 04 0:2025/12:28 13:19:22 04 0:2025/12:28 13	cdi All © Groups stal © Groups ested time ↓ Name Device prefile © bruice filter @ Include customer entities Device groups Original 223/228 095130 WBE-4050 Device groups Device details Device details Latest telemetry Latest tubenter Kay + Value 0 0 2023-128 131922 01 0 2023-128 131922 01 0 2023-128 131922 01 0 2023-128 131922 01 0 2023-128 131922 01 0 2023-128 131922 01 0 2023-128 131922 01 0 2023-128 131922 01 0 2023-128 131922 01 0 2023-128 131922 01 0 2023-128 131922 01 0 2023-128 131922 01 0 2023-128 131922 01 0 2023-128 131922 01 0 2023-128 131922 04 0 2023-128 131922 04 0 2023-128 131922 04 0 2023-128 131922 04 0 20