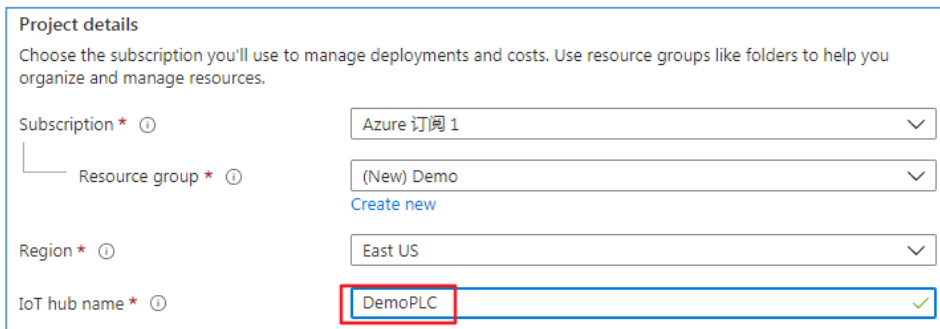
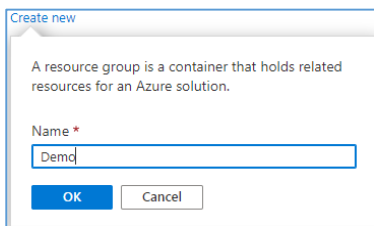
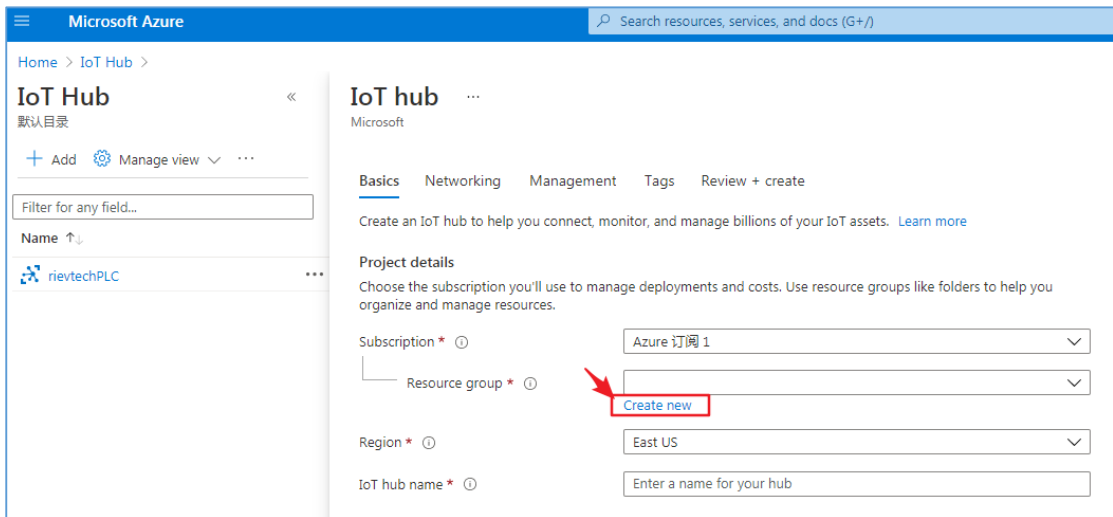
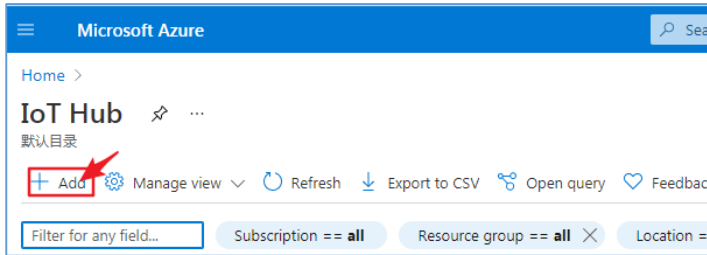
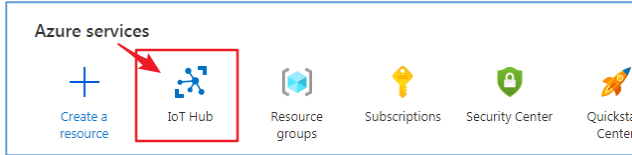


Rievtech PLC connect to Azure IoT platform

1. Enter 'IoT Hub' and create a new IoT Hub.

Create a new 'Resource group'.



Microsoft Azure

Search resources, services, and docs (G+/)

Home > IoT Hub >

IoT Hub

默认目录

+ Add Manage view

Filter for any field...

Name ↑↓

rievtechPLC

IoT hub

Microsoft

Basics Networking Management Tags Review + create

Create an IoT hub to help you connect, monitor, and manage billions of your IoT assets. [Learn more](#)

Project details

Choose the subscription you'll use to manage deployments and costs. Use resource groups like folders to organize and manage resources.

Subscription * Azure 订阅 1


Resource group * (New) Demo
[Create new](#)

Region * East US

IoT hub name * DemoPLC

< Page 1 of 1 >

[Review + create](#) < Previous **Next: Networking >**



Microsoft Azure Search resources, services, and docs (G+)

Home > IoT Hub >

IoT Hub

默认目录

+ Add ⚙️ Manage view ▾ ⋮

Filter for any field...

Name ↑↓

🔗 rievtechPLC ⋮

IoT hub

Microsoft

Basics **Networking** Management Tags Review + create

Network connectivity

Connect to your IoT Hub using public or private endpoints.

Connectivity method * 📘

- Public endpoint (all networks)
- Private endpoint

📘 All networks will have access to this IoT Hub. [Learn more about connectivity methods.](#)

Page 1 of 1

Review + create < Previous: Basics Next: Management >

Choose IoT hub tier.

Microsoft Azure

Home >

IoT hub

Microsoft

Scale tier and units

Pricing and scale tier * ⓘ **F1: Free tier** Learn how to choose the right IoT hub tier for your solution

Number of F1 IoT hub units ⓘ 1
Determines how your IoT hub can scale. You can change this later if your needs increase.

Defender for IoT Off
Turn on Defender for IoT and add an extra layer of threat protection to IoT Hub, IoT Edge, and your devices. [Learn more](#)

Pricing and scale tier ⓘ	F1	Device-to-cloud-messages ⓘ	Enabled
Messages per day ⓘ	8,000	Message routing ⓘ	Enabled
Cost per month	0.00 USD	Cloud-to-device commands ⓘ	Enabled
Defender for IoT ⓘ	Disabled	IoT Edge ⓘ	Enabled
		Device management ⓘ	Enabled

Advanced settings

Scale

Device-to-cloud partitions ⓘ 2

Transport Layer Security (TLS)

Minimum TLS Version ⓘ 1.0 1.2

[Review + create](#) [< Previous: Networking](#) [Next: Tags >](#)

This example does not fill in here.

Microsoft Azure

Search resources, services, and docs (G+)

Home > IoT Hub >

IoT Hub

默认目录

+ Add Manage view

Filter for any field...

Name

No IoT hub to display

Create an IoT hub to help you connect, monitor, and manage billions of your IoT assets.

Learn more about IoT Hub Quickstart: send telemetry from device

Create IoT hub

IoT hub

Microsoft

Basic Networking Management **Tags** Review + create

Tags are name/value pairs. To categorize resources and consolidate billing, apply the same tag to multiple resources and resource groups. Your tags will update automatically if you change your resources. [Learn more](#)

Name	Value	Resource
		IoT Hub

Review + create < Previous: Management **Next: Review + create >**

Microsoft Azure

Home > IoT Hub >


IoT Hub

默认目录

+ Add Manage view

Filter for any field...

Name ↑↓



No IoT hub to display

Create an IoT hub to help you connect, monitor, and manage billions of your IoT assets.

[Learn more about IoT Hub](#) [Quickstart: send telemetry from device](#)

Create IoT hub

IoT hub

Microsoft

Validation passed.

Basics Networking Management Tags **Review + create**

Basics

Subscription	Azure 订阅 1
Resource group	Demo
Region	East US
IoT hub name	DemoPLC

Networking

Connectivity method	Public endpoint (all networks)
Private endpoint connections	None

Management

Pricing and scale tier	F1
Number of F1 IoT hub units	1
Messages per day	8,000
Device-to-cloud partitions	2
Cost per month	0.00 USD
Defender for IoT	Disabled
Minimum TLS Version	1.0

Tags

Create < Previous: Tags Next > Automation options

Microsoft Azure

Home > DemoPLC-524162835 | Overview

Deployment

Search (Ctrl+/) Delete Cancel Redeploy Refresh

We'd love your feedback

Deployment is in progress

Deployment name: DemoPLC-524162835
Subscription: Azure 订阅 1
Resource group: Demo

Deployment details (Download)

Resource	Type
No results.	

Wait for a while.

Microsoft Azure | Search resources, services, and docs (G+)

Home > DemoPLC-52585934 | Overview

Deployment

Search (Ctrl+/) << Delete Cancel Redeploy Refresh

Overview

We'd love your feedback →

✓ Your deployment is complete

Deployment name: DemoPLC-52585934 Start time: 5/25/2021, 8:59:37 AM
 Subscription: Azure 订阅 1 Correlation ID: 48035fa1-3c80-4c2c-956c-a3972ad37f2
 Resource group: Demo

Deployment details (Download)

Resource	Type	Status	Operation details
✓ DemoPLC	Microsoft.Devices/IotHubs	OK	Operation details

Next steps

- Add and configure IoT Devices** Recommended
- Configure routing rules for device messaging Recommended

Go to resource

Create a new IoT devices.

Microsoft Azure | Search resources, services, and docs (G+)

Home > DemoPLC-52585934 >

IoT devices | DemoPLC

+ New Refresh Delete

View, create, delete, and update devices in your IoT Hub.

Field Operator Value

+ × select or enter a property name = specify constraint value

+ Add a new clause

Query devices </> Switch to query editor

Device ID	Status	Last Status Update (UTC)	Authentication Type	Cloud to Device Message Count
No devices found				

Microsoft Azure

Home > IoT Hub > DemoPLC >

Create a device

Find Certified for Azure IoT devices in the Device Catalog

Device ID *

Authentication type Symmetric key X.509 Self-Signed X.509 CA Signed

Primary key

Secondary key

Auto-generate keys

Connect this device to an IoT hub Enable Disable

Parent device **No parent device**
[Set a parent device](#)

Save

Microsoft Azure Search resources, services, and docs (G+)

Home > DemoPLC

DemoPLC | IoT devices

View, create, delete, and update devices in your IoT Hub.

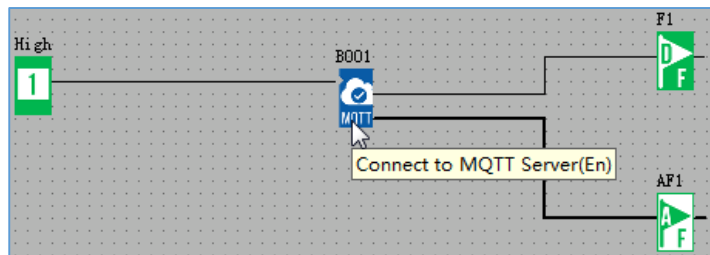
Field	Operator	Value
<input type="text" value="select or enter a property name"/>	<input "="" type="text" value="="/>	<input type="text" value="specify constraint value"/>

[Switch to query editor](#)

Device ID	Status	Last Status Update (UTC)	Authentication Type	Cloud to Device Message Count
rievtechPLC	Enabled	--	Sas	0

2. Program xLogic programs.

1) 'Connect to MQTT Server' block



The screenshot shows the configuration window for the 'Connect to MQTT Server' block. The parameters are as follows:

- Block name:** [Empty]
- Network:** 4G (highlighted with a red box and '1')
- Clean Session:**
- IP Address:** 0 . 0 . 0 . 0
- Domain Name:** DemoPLC.azure-devices.net (highlighted with a red box and '2')
- Port:** 8883 (highlighted with a red box and '3')
- Connection timeout:** 30 S
- PING interval time:** 60 S
- Enable SSL/TLS:** (highlighted with a red box and '4')
- Protocol:** TLSV1.2
- CA signed server certificate:** (highlighted with a red box and '4')
- Self signed certificates:**
- CA File:** [Empty]
- Client Certificate File:** [Empty]
- Client Key File:** [Empty]
- Client ID:** rievtechPLC (highlighted with a red box and '5')
- Create only one ID:**
- Name:** DemoPLC.azure-devices.net/rievtechPLC (highlighted with a red box and '6')
- Password:** SharedAccessSignature sr=DemoPLC.azure-devices.net%2Fdevices%2FrievtechPLC&sig=3ybL4PKbUQ1bSE (highlighted with a red box and '7')
- Hide:**

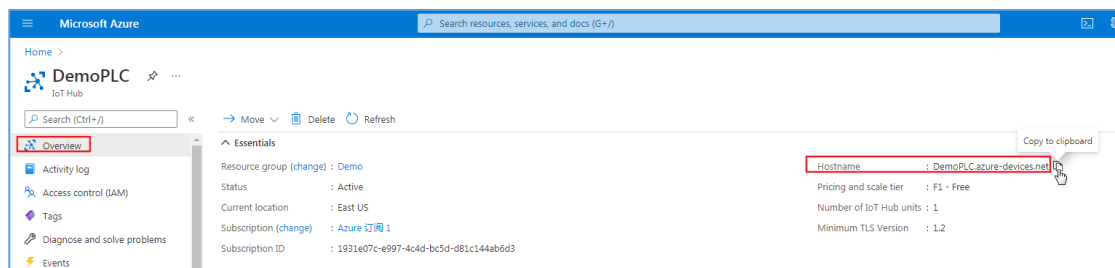
At the bottom, there is a note: "The CPU [PR-26DC-DAI-RT-4GWIFI] with the firmware version must be >= V104 can support MQTT!". Buttons for 'OK', 'Cancel', and 'Help' are at the bottom right.

1) Network

The options are Ethernet and 4G (this option is available for 4G PLC models).

2) Domain Name

Get this address from the picture below:



3) Port

Fill in 8883

4) SSL/TLS

As shown below:

Enable SSL/TLS Protocol: TLSv1.2
CA signed server certificate Self signed certificates
CA File: ...
Client Certificate File: ...
Client Key File: ...
PEM Formatted

5) Client ID

Fill in 'Device ID'.

Microsoft Azure | Search resources, services, and docs (G+)

Home > DemoPLC

DemoPLC | IoT devices

View, create, delete, and update devices in your IoT Hub.

Device ID	Status	Last Status Update (UTC)	Authentication Type	Cloud to Device Message Count
rievtechPLC	Enabled	--	Sas	0

6) Name

format {iothubhostname}/{device_id}

{iothubhostname} is **Domain Name**.

{device_id} is **Client ID**.

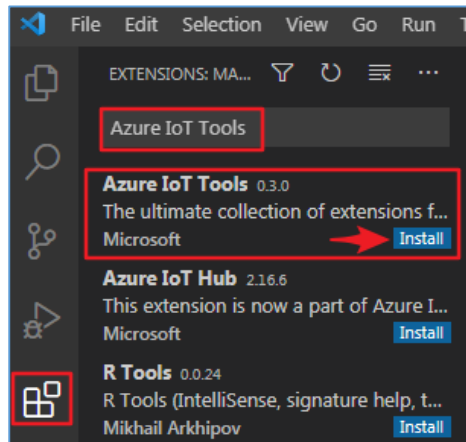
Fill in here: DemoPLC.azure-devices.net/rievtechPLC

7) Password

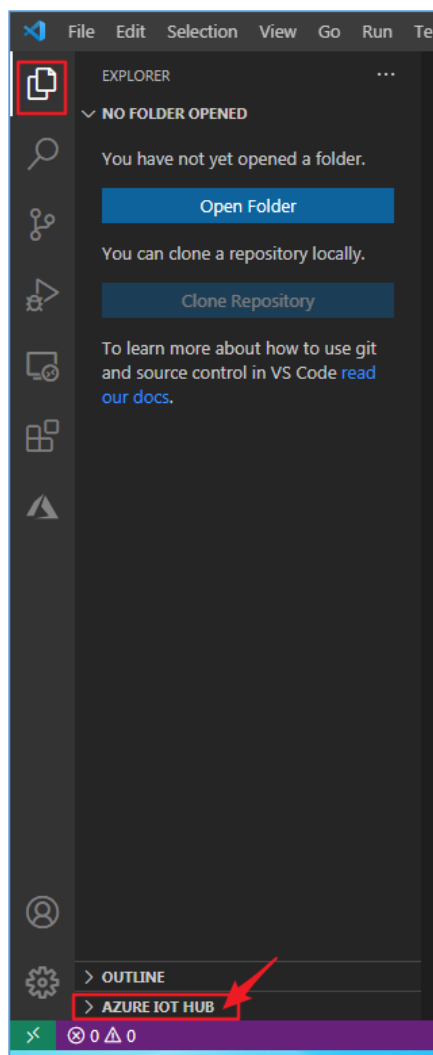
A dynamic token is generated by Visual Studio Code software as the

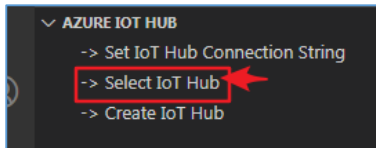
password for connection. The token has a validity period, after the validity period expires, the connection will fail.

Install the "Azure IoT Tools" extension.

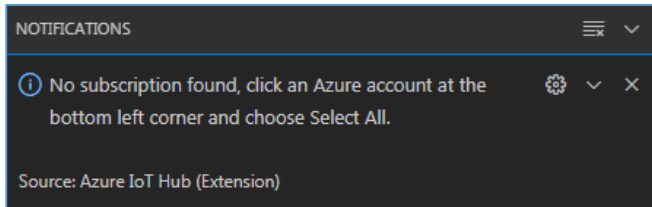


Enter the "Explorer" window and connect to Azure IoT Center.



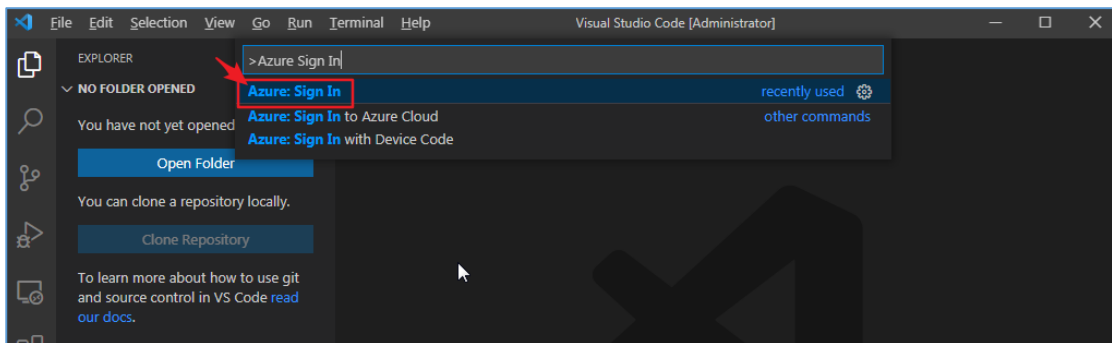


If the following information is displayed in the lower right corner:

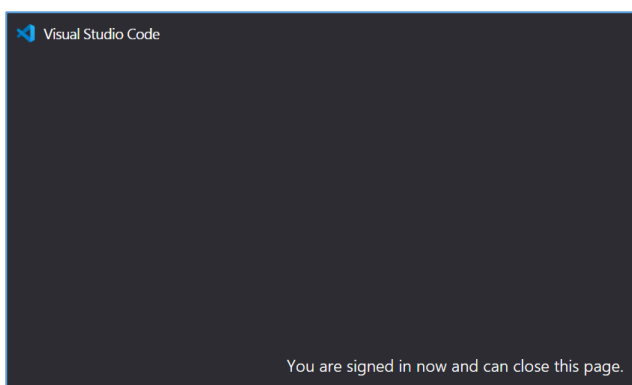


Follow the methods below to solve this problem:

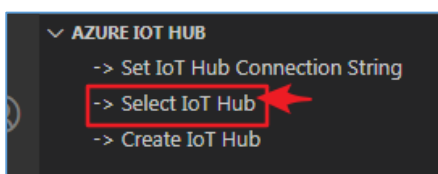
Press CTRL + SHIFT + P, and then search for '**Azure Sign In**'. A browser window should show up, asking you to sign in. Then suddenly your Microsoft Azure Account Extension should work again.

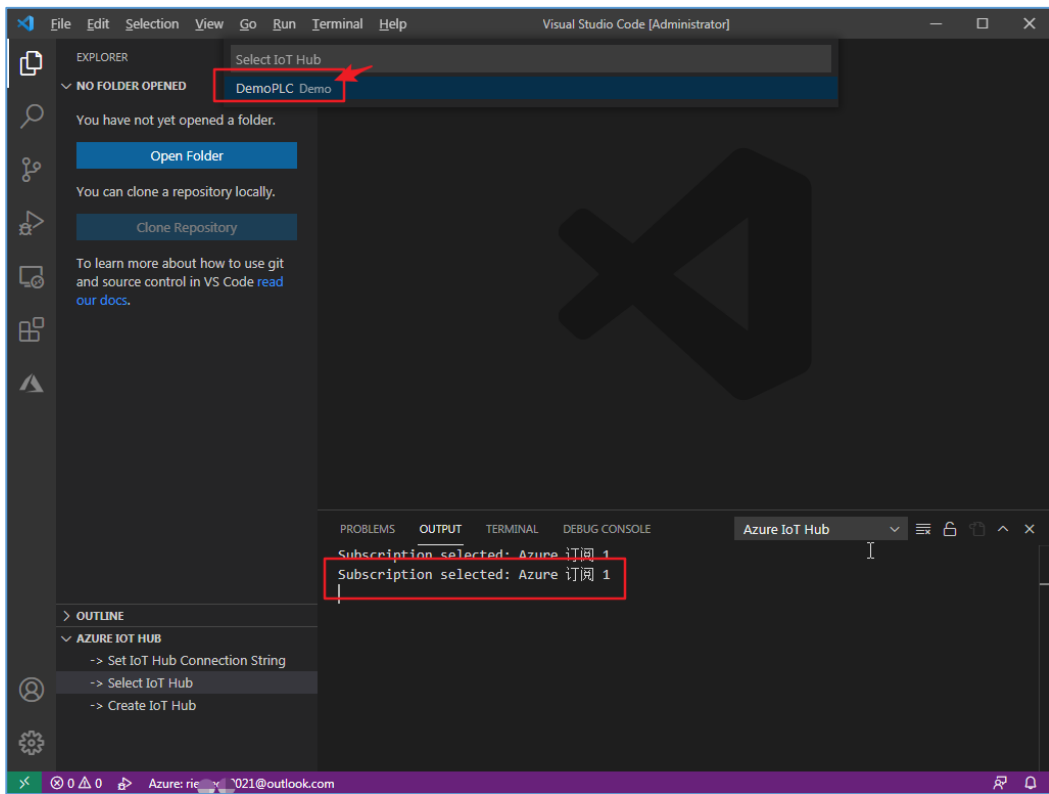
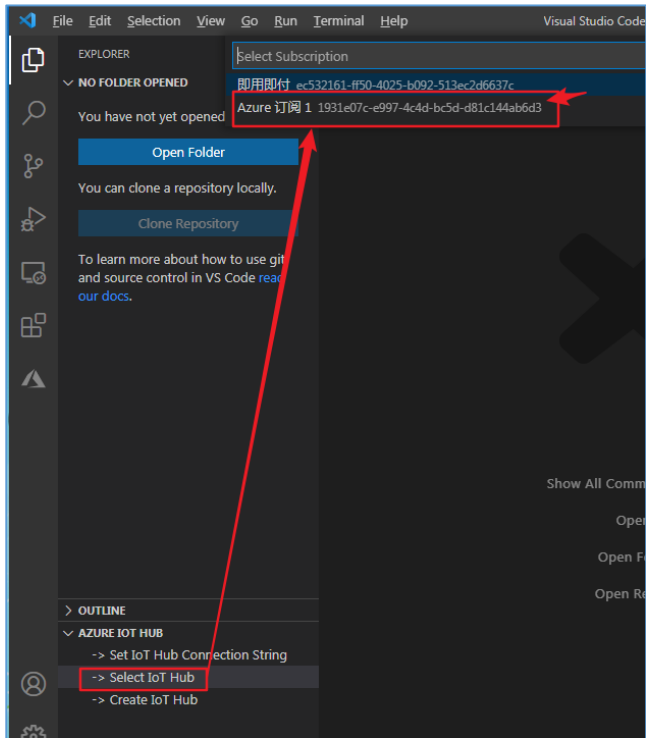


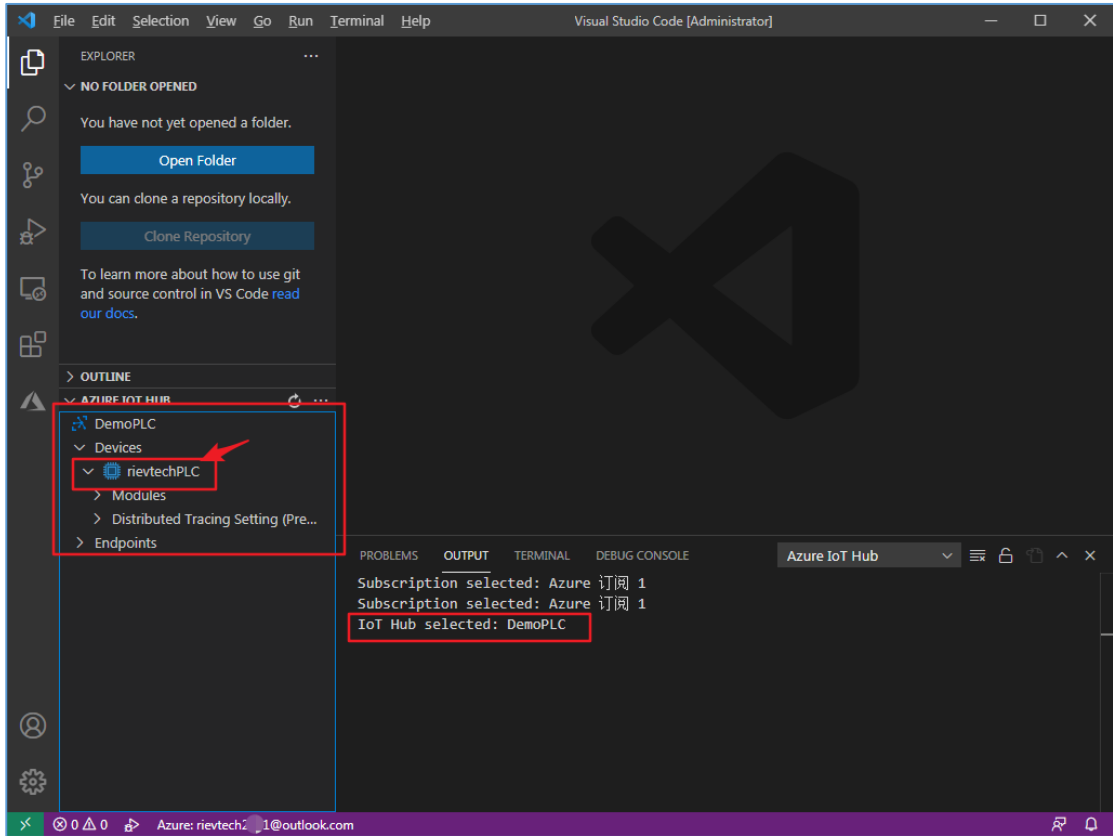
After successfully logging in to Azure Account in the browser window, the following picture will appear:



Perform the following operations again.

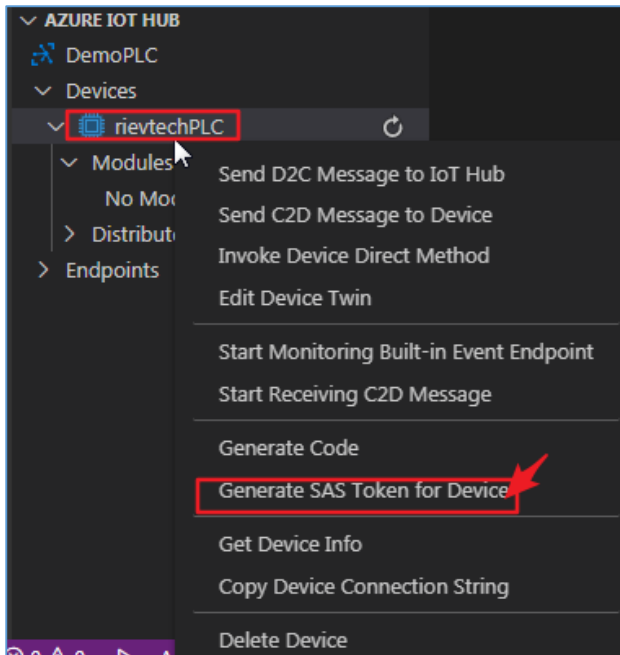




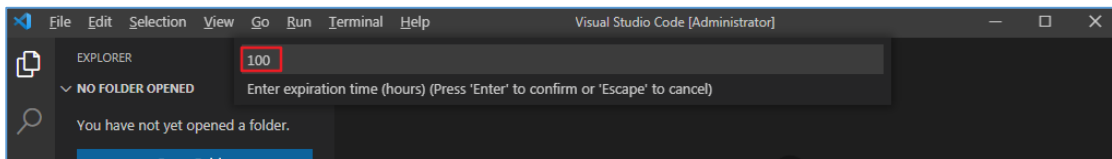


Generate SAS Token:

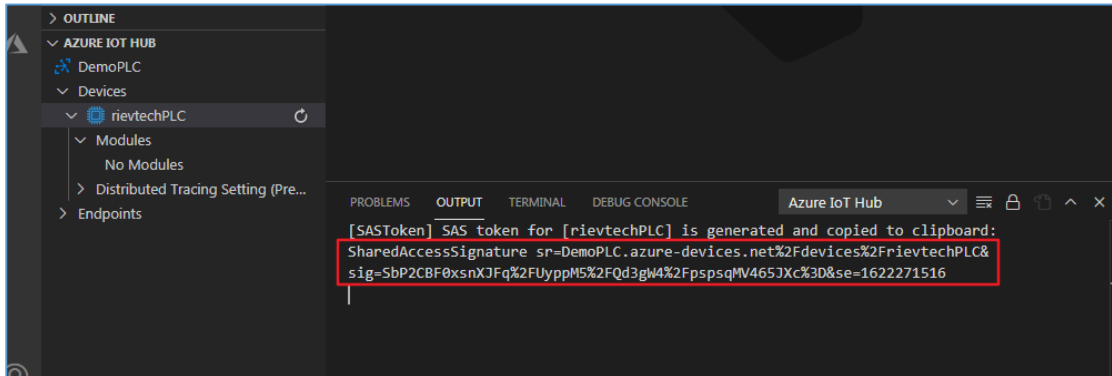
Select the target IoT device, right-click the mouse, and select the "Generate SAS Token for Device" option.



After entering the valid time of the token, press Enter to end.

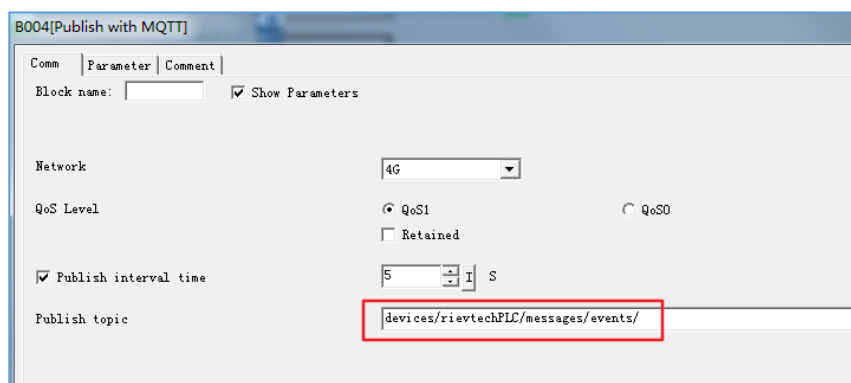
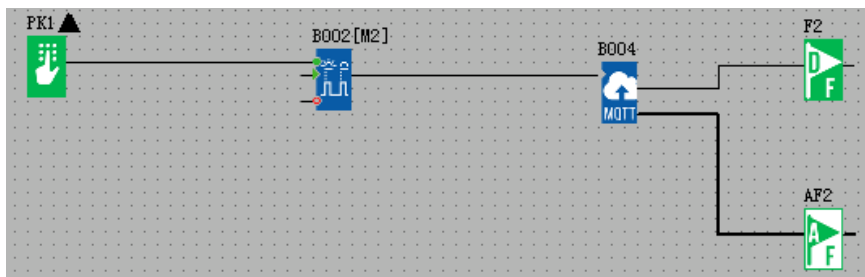


See the string corresponding to the token in the "output" window.



In the above picture, the content selected in the red box is the **Password** we need.

2) 'Publish with MQTT' block



The format of Publish topic is as follows:

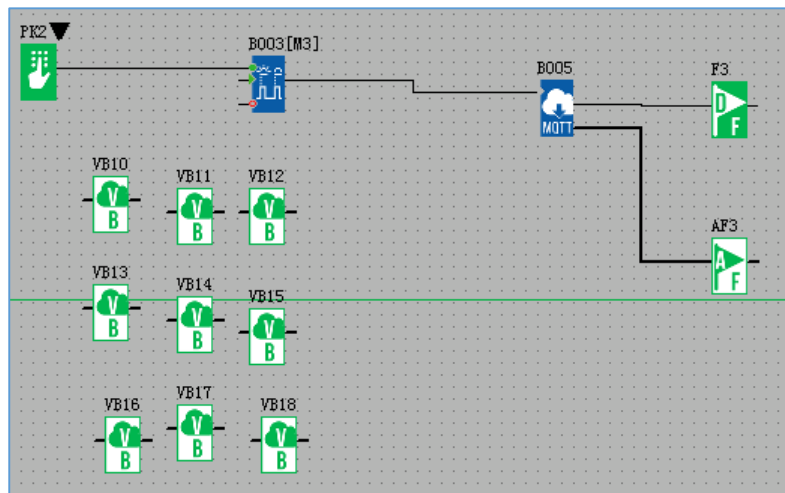
devices/IoT device name/messages/events/

IoT_device_name is rievtechPLC

B004[Publish with MQTT]

Comment	Parameter	CPU/EXT	Index	Count	Format	Description	Length
A					Signed short	S	0
B					Signed short	O	0
C	I	CPU	I001	1	Bit	S	0

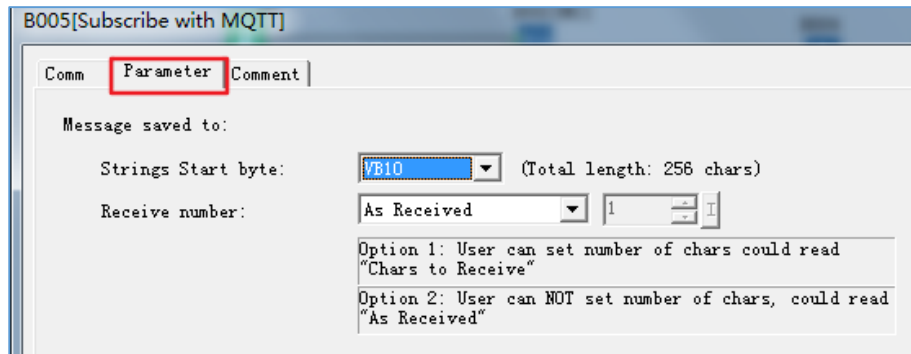
3) 'Subscribe with MQTT' block



B005[Subscribe with MQTT]

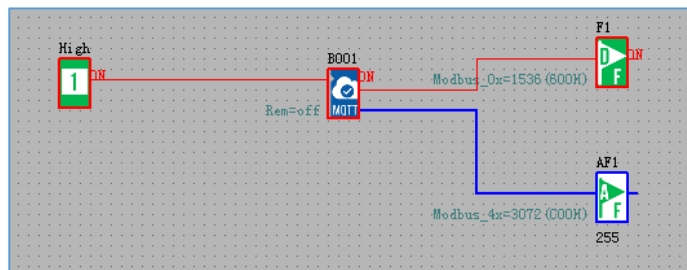
Comm	Parameter	Comment
Block name: <input type="text"/> <input checked="" type="checkbox"/> Show Parameters		
Network	4G	
QoS Level	<input checked="" type="radio"/> QoS1 <input type="radio"/> QoS0	
<input checked="" type="checkbox"/> Subscribe interval time	30 s	
Subscribe topic	<input type="text" value="devices/rievtechPLC/messages/devicebound/#"/>	
	<input checked="" type="checkbox"/> Azure C2D	

The format of Subscribe topic is as follows:
devices/IoT device name/messages/devicebound/#
 IoT_device_name is rievtechPLC



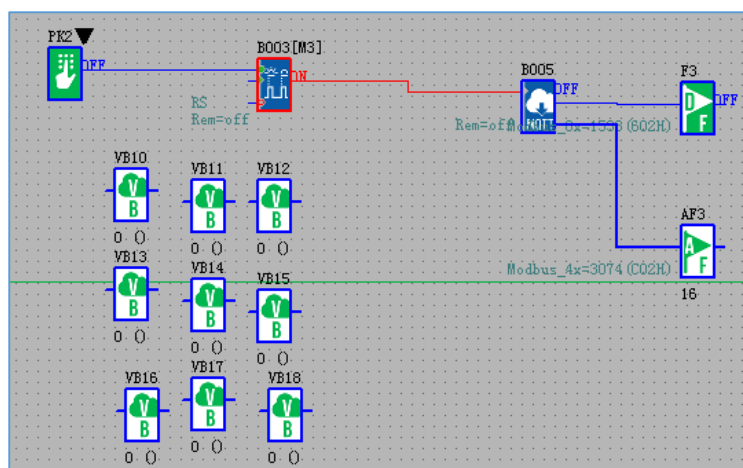
3. Test MQTT

1) Download the program to the PLC and monitor online, as shown in the figure below, you can see that the PLC has successfully reached the Azure IoT platform.



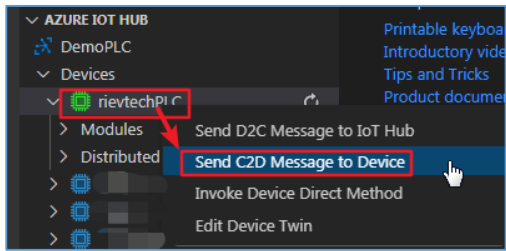
2) Test PLC's Subscribe

Press the down button on the PLC LCD panel to trigger 'Subscribe with MQTT', as shown in the figure below:

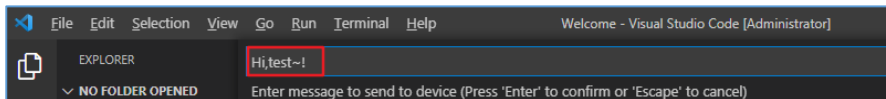


Send information on Visual Studio Code software.

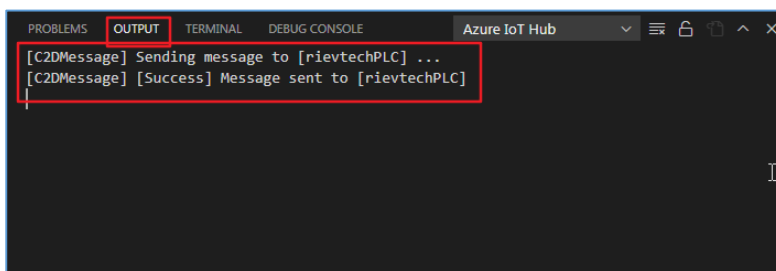
Right click on the device and select 'Send C2D Message to Device'.



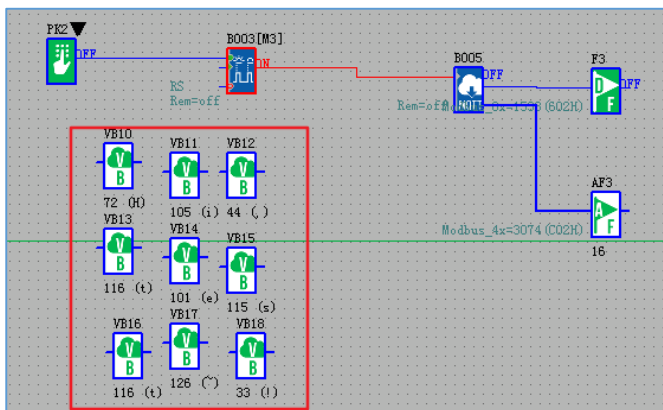
Fill in the content.



Press Enter to send.

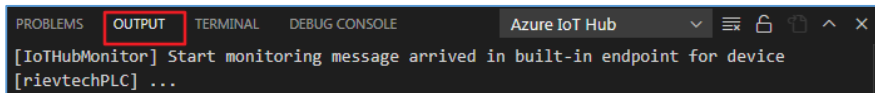
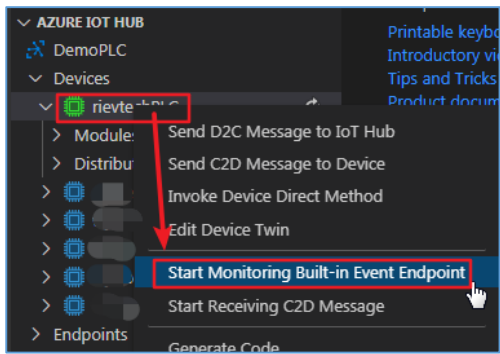


The PLC receives the information.

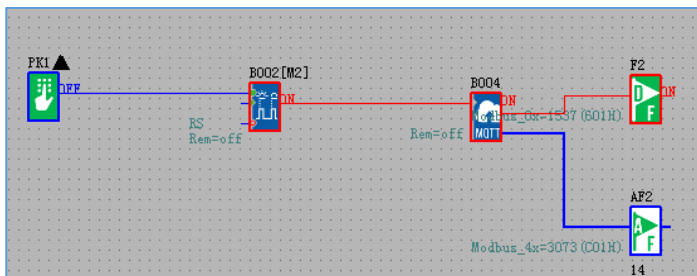


3) Test the Publish of PLC

On the Visual Studio Code software, right-click the device and select 'Start Monitoring Built-in Event Endpoint'.



Press the up button on the PLC LCD panel to trigger 'Publish with MQTT', as shown in the figure below:



You can see the information sent by the PLC on the 'OUTPUT' window on the Visual Studio Code software, as shown in the figure below:

